Jacaranda Health and Physical Education 9&10 Australian Curriculum edition

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This textbook contains images of Indigenous people who are, or may be, deceased. The publisher appreciates that this inclusion may distress some Indigenous communities. These images have been included so that the young multicultural audience for this book can better appreciate specific aspects of Indigenous history and experience.

Foreword

The Australian Council for Health, Physical Education and Recreation (ACPHER), Victorian Branch, Inc., is the professional and subject association for educators working in the areas of health education, physical education, outdoor education and sport. ACHPER Victoria's aim is to promote active and healthy lifestyles, and it supports professionals in these areas in terms of professional development, resources, advocacy and other services.

This eBook has been written with this aim in mind. The wide range of relevant activities and reliable content in *Quest for Good Health and Physical Education* offers support for all teachers, whatever their experience in health and physical education and in sport coaching. The authors have used their varied and rich teaching experiences to sequence the relevant Australian curriculum concepts and content into a structure suitable for a range of classroom realities. The breadth of the chapters and support materials and resources will ensure that students gain an in-depth knowledge related to being active and healthy, and that they are prepared for senior studies in related areas. The current health issues and inspiring examples from a range of sports appeal to teenagers and promote healthy lifestyles. The focused online and collaborative learning tasks suit the pedagogy of middle-school educators. Professional training is on hand in the use of this text. The structure of the book reflects current, proven and relevant methodologies in teaching of the Health and Physical Education program. All students and teachers working within this program will find *Quest for Good Health and Physical Education* a valuable resource.

At ACHPER Victoria, we are proud to continue our association with Peter Wright in this new eBook. ACHPER Victoria previously worked with Peter and Jacaranda with the four editions of *Inside & Out: A Physical Education Textbook* as well as the previous edition of this text. ACHPER Victorian Branch acknowledges the contribution of the authors of those books, and thanks the current authors for sharing their expertise.

Dr Trent Brown
President, ACHPER Victoria

ACHPER Victorian Branch Inc.

About the authors

Peter Wright (the coordinating author) is the Principal at Koonung Secondary College. His teaching methods are Physical Education, Health Education and Geography. Peter has been actively involved in promoting and developing physical and health education for more than thirty years. He was a member of the inaugural School Sport Victoria Board and has held the key positions of VCE State Reviewer and Chief Assessor for Physical Education. Peter is a strong supporter of ACHPER and is a Fellow of ACHPER. He has, in conjunction with ACHPER, coordinated the writing teams for all editions of *Inside & Out* and *Quest for Good Health*, as well as being a contributing author to early editions of the senior school texts *Live It Up 1* and *Live It Up 2*.

Jo Amott has worked at Lauriston Girls' School for the past ten years. Her teaching methods are Physical Education, Health and SOSE. She has worked in a range of roles within education, including as a PDHPE teacher, Indigenous Exchange Coordinator and Head of Senior School responsible for creating and implementing a school-wide wellbeing program. Jo has vast experience working in schools developing and implementing quality teaching programs in PDHPE, as well as student health and wellbeing programs. As part of her teaching role, she also coaches netball, basketball and cricket teams, and is a keen participant in all of these sports herself. Jo is currently completing a Masters degree in School Leadership.

Vaughan Cleary is the Head of Health and Physical Education at Marcellin College, Bulleen, Victoria. He teaches Physical Education and Health and Human Development. Vaughan has a plethora of experience writing state-based and national textbooks over the last twenty years across all secondary school levels. He has supported ACHPER in a number of ways, including being a regular presenter at national ACHPER conferences in areas such as curriculum writing, curriculum reform and creativity and innovation in the classroom. Vaughan is also a member of the Royal Melbourne Institute of Technology's Physical Education Program Advisory Committee**.**

Mark Quinlan is currently an Assistant Principal at Koonung Secondary College. His teaching methods are Physical Education, Mathematics and Outdoor Education and he is currently completing his Masters in Instructional Leadership at the University of Melbourne. He has been a VCE Reviewer and Assessor for Physical Education and Outdoor Education for over ten years. Mark lectures at VCE Physical Education seminars for teachers and secondary school students, and has written Physical Education and Maths books for Victorian and New South Wales secondary school curriculums. Mark has been instrumental in developing curriculum, e-learning, hockey and skiing programs at Koonung Secondary College. In 2006, Mark received a Victorian School Sports Award for his outstanding teacher contribution to school sport, especially in the area of hockey. Mark is also an active member of ACHPER. He wishes to thank his wife, Jacqui, and three children, Danielle, Jessica and Thomas, for being patient while he spent so much time researching and writing.

Kirsty Walsh has ten years' experience as a Health and Physical Education teacher in secondary schools in Victoria and South Australia. Currently the Head of Health and PE at Ballarat Clarendon College, she is a recognised VCE PE expert, having co-authored the *Live It Up* textbooks for the VCE PE course and having been a VCAA examiner across PE and H&HD for eight years. Kirsty has presented for ACHPER on a broad range of HPE topics, from middle school right through to senior PE.

David Gayfer is a respected teacher of Physical Education, having taught Years 7−12 Health and PE, VCE PE and Psychology for fourteen years before moving to teach the Sports Development Program at SEDA (Sports Education & Development Australia) for the past five years. The aim of this program, similar to that of this textbook, is to engage young people in their studies and challenge them to improve their skills. David previously taught at Latrobe Secondary College and Viewbank College. David loves health and fitness and still participates competitively in AFL football, basketball and tennis and well as coaching at the junior level.

Catherine Gayfer is a respected teacher of Health and Physical Education at Kew High School. During her thirteen years of teaching, Catherine has taught Years 7−10 Health and PE, VCE Information Technology, Health and Human Development, Physical Education, VET Certificate II in Outdoor Recreation, and Years 7−10 Science. Catherine has a Masters of Information Technology in Education, a Graduate Diploma in Education and a Bachelor of Applied Science in Human Movement. Catherine is also an examiner for Life Saving Victoria and is passionate about teaching first aid and water safety within the school and wider community. Accordingly, she was a noteworthy contributor to the physical health and safety chapters in this textbook. Catherine is married to David Gayfer and together they have three children. Catherine and David are keen and competitive basketball players.

Acknowledgements

The authors wish to acknowledge the contribution of the many colleagues who have provided feedback and constructive criticism in the development of this text; in particular, we thank Leigh Brown, Skye Cameron, Kate Jarvis, Robyn Jeffery, Wayne Judge, Claire Maharaj, Michelle O'Keeffe, David Smyth and Sharon Teesdale.

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Introduction

The Australian curriculum, Health and Physical Education course of study encompasses the content areas of Personal, Social and Community Health, and Movement and Physical Activity. Major focus areas within these content areas are:

- Being healthy, safe and active
- Communicating and interacting for health and wellbeing
- Contributing to healthy and active communities
- Moving our body
- Understanding movement
- Learning through movement

The curriculum aims to develop the students' knowledge, understanding and skills in enhancing their own and others' health, wellbeing and participation in physical activity in varied and changing contexts. *Quest for Good Health and Physical Education* offers students an experiential curriculum that is contemporary, relevant, challenging, enjoyable and physically active. Each chapter of *Quest for Good Health and Physical Education* addresses specific elaborations and learning focus points from the Health and Physical Education curriculum.

The authors have approached the writing of material for this course with a keen sense of responsibility to make the text relevant, meaningful and appealing to students of varied interests, abilities, cultures and backgrounds. The goal was to produce an eBook that is sensitive to the needs of adolescents at a time of great change in their lives. A strong focus is placed on providing activities and discussion points to engage students so as to improve their knowledge and skills, and to assist them in adopting a healthy lifestyle. Students and teachers are able to select from the range of activities those that best support the learning journey they wish to follow. The authors recognise the need for each school and teacher to develop a course of study that reflects both the Australian curriculum requirements and the needs of their own students.

The frequent references within the eBook to further resources reflects the wealth of digital support available as part of this eBook. We believe the visual, kinaesthetic and social opportunities that eLearning provides caters for modern students. There are activities for use by relief teachers who do not specialise in the subject. For the keen classes, some content — Chapter 5 in particular — goes beyond the curriculum to provide content that leads into senior courses in Physical Education, Outdoor Education, and Health and Human Development.

This eBook is designed to help you in your quest to study or teach Health and Physical Education effectively. The *Engage* section at the beginning of each section encourages students to reflect on their prior learning and knowledge and allow teachers to assess prior knowledge. The *Explore* content and *Starter questions* are there for students to investigate the specific learning foci expected of them within the Australian curriculum for Years 9 and 10. This information can then be elaborated upon, explained and evaluated in the activities and *Check & Challenge* questions provided at the end of each section. Each chapter begins by posing an *Essential question* that encompasses the thrust of the chapter; each question is revisited at the end of the chapter, asking students to review and reflect on what they have learned, elaborate on their original answer and complete the learning.

Chapter 1: Proficiency of movement

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1.7 Practice and training regimes to improve performance

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1 Proficiency of movement



1.1 Overview

1.1.1 Movement, skill and proficiency

Learning objectives

- Perform and refine specialised movement skills in challenging movement situations (VCHPEM152)
- Perform and refine specialized movement skills in challenging movement situations through providing and applying feedback (ACPMP099)
- Evaluate own and others' movement compositions, and provide and apply feedback in order to enhance performance situations (VCHPEM153)
- Analyse the impact of effort, space, time, objects and people when composing and performing movement sequences (ACPMP103) (VCHPEM156)
- Transfer understanding from previous movement experiences to create solutions to movement challenges (ACPMP106) (VCHPEM159)

There is a strong link between proficiency of movement and the quality of your performance. The fundamental skills you learn as a child lead to the more complex skills you need to complete specialised activities in a skilful way. Feedback using performance measures, practice and a knowledge of biomechanics can all help you build skills and improve your technique.

All sports that we play require us to use our manipulative and movement skills.



ESSENTIAL QUESTION

Why is it important to identify and measure the proficiency of movement in athletic performance?

STARTER QUESTIONS

1. How do you assess your proficiency of movement?
2. What factors influence skill acquisition?
3. How do you move from fundamental to advanced skills?
4. How can ICT help improve your skills?
5. How can biomechanics maximise skill performance?

INQUIRY SEQUENCE

1.2 Fundamental movement skills

1.3 Appraisal of movement proficiency

1.4 Skill acquisition — the stages of skill learning and types of skills

1.5 Factors affecting skill acquisition

1.6 Biomechanics and its application to human movement

1.7 Practice and training regimes to improve performance

1.8 Review

on Resources

Watch this eLesson: Proficiency of movement
Searchlight ID: eles-2332

1.2 Fundamental movement skills

1.2.1 Building on basic skills

All advanced skills and techniques in sport evolve from the fundamental skills developed during childhood and adolescence.

ENGAGE

Fundamental movement skills are the building blocks for more complicated or sophisticated movements. Children learn to crawl, walk, run, skip, throw, catch, bounce, hit and jump. These actions are called the 'basic skills'. Basic skills lead to the more specialised skills required in games, dance, gymnastics and other sporting and recreational pursuits.

Use the **Basic skills** worksheet in your Resources section to link basic skills to more complicated ones.

What basic skills form the foundation for rock climbing?



on Resources

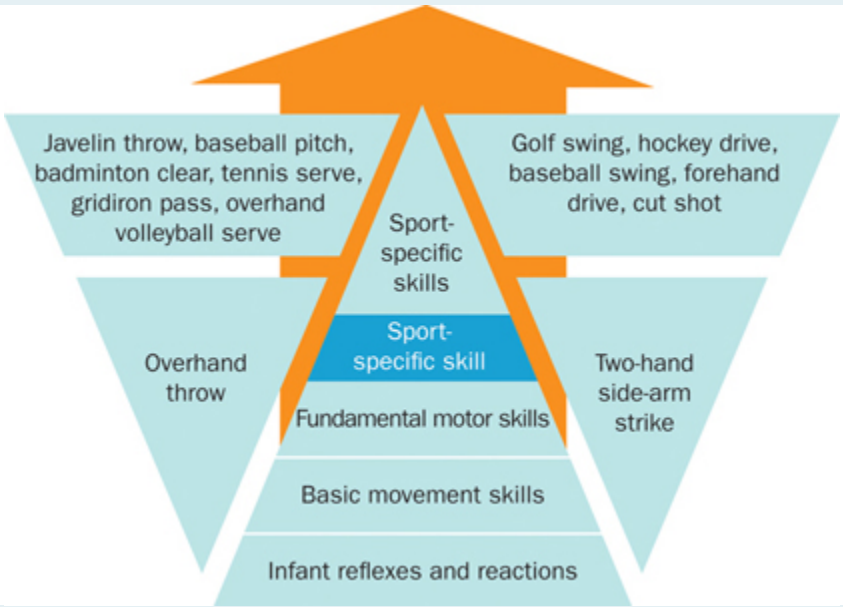
Complete this digital doc: Basic skills
Searchlight ID: doc-14827

1.2.2 Proficiency and quality of movement

The link between **proficiency of movement (or skill proficiency)** and the quality of performance is very strong. The characteristics of proficient movement are:

- certainty of achieving the performance goal
- minimising energy expenditure during the performance
- minimising the movement or performance time (in activities where speed is essential).

Fundamental movement skills instruction and its effect on the performance of sport-specific skills



1.2.3 Specialised sporting skills

Specialised sporting skills are found in a wide variety of games and sports played throughout the world. Moving from the fundamental skills to these more specialised skills involves a process similar to assembling building blocks. The fundamental skills constitute the foundations upon which more specialised skills are developed. For example, the catch, strike and overarm throw form the basis of the more specialised sport-specific skills employed in cricket, baseball and softball.

Relationship between fundamental movement skills and specific sport skills (overarm throw)



1.2.4 Judgement of movement

When we view movement performances, we often make judgements about them. When judgements are based on our feelings or impressions, they are **subjective judgements**. Such evaluation is fine when we are spectators; however, subjective judgements can have a low degree of accuracy. To improve the quality of the judgement, a good understanding of what constitutes proficiency in terms of the movement performance is required. This can be done by using consistent methods, techniques or tools for appraising the proficiency of the movement. This makes the judgement more objective in nature which increases the accuracy of the feedback. These are called **objective judgements**.

1.2.5 Maximum certainty of goal achievement

One quality of skill proficiency is movement certainty. To be 'skilled' implies that the individual is able to achieve the movement or performance with a high degree of accuracy. Individuals who can perform the skill or movement consistently can be considered to have attained proficiency.

AFL forward Nick Riewoldt has achieved a high level of accuracy when it comes to kicking for goal.



1.2.6 Minimum energy expenditure

It takes skill to minimise or eliminate unnecessary movements. This is crucial for activities where conservation of energy is critical to success, such as in a triathlon, or a physically demanding routine in gymnastics.

This quality is often observable. Skilled performers often appear to be performing the activity easily. This can be referred to as moving 'efficiently'.

Elite gymnasts perform their routines with a minimum of unwanted or unnecessary energy expenditure.



DID YOU KNOW?

Elite athletes often have set routines leading up to the performance of a skill. The routine is always the same; this leads to consistency in performance, and the performance goal or outcome is usually achieved. This is observable in skills such as the golf swing or tennis serve, although these need to be modified at times due to changes in the external environment. This includes movement patterns of an opponent or changes in the weather (such as hitting into a headwind).

1.2.7 Minimum movement time

Skilled performers in many activities are able to execute their movements more quickly and efficiently. We often hear of skilled performers seeming to have ‘more time’ in which to perform the skills of their chosen sport. This is often a function of their ability to perform movements in a reduced time frame.

Skilled cricketers such as Michael Clarke often seem to have ‘plenty of time’ in which to play their shots — a sign of a skilled performer.



An instructor may provide specific information, tutoring or training, but regular practice is imperative to improve movement skill.



ACTIVITIES

1 A+ sport

1. Use the **Skilled performance** weblinks in your Resources section to watch several skilled sporting performances. Evaluate them in terms of the characteristics of proficient movement. Describe how each performance appeared to you. In particular, note the rhythm, pace and ease of movement.
2. Did the performers achieve their goals?

3. What was the goal in each case?
4. Did the performances minimise energy expenditure?
5. Were the performances ‘efficient’ in nature?
6. Compare and contrast the performance of a beginner to that of the more experienced athletes.

2 Be proactive

Teachers often complain about a ‘crowded curriculum’. Taking this into consideration, argue a case for more sport and physical activity in schools at a primary school level. Your argument may include some of the following points.

- The link between basic skills developed during childhood and sophisticated skills required to participate in sport and other recreational activities during adolescence and adulthood
- The importance of participation in sport at the primary school level for social development
- The importance for children to develop proficiency in the fundamental movement skills

CHECK & CHALLENGE

Explain

1. What is meant by the statement ‘skilled performers always seem to have more time to perform the skills’? Why is this statement often true?

Elaborate

2. Refer to the ‘fundamental movement skills instruction and its effect on the performance of sport-specific skills’ diagram at the beginning of this section and describe in your own words what it illustrates. Provide an example, other than the ones given in the diagram, that illustrates how basic skills can be transferred to more specialised skills.

Evaluate

3. Think of ten sports and evaluate what level of skill you have attained in each of them.

on Resources

- **Explore more with these weblinks:** Skilled performance 1: AFL
- **Explore more with these weblinks:** Skilled performance 2: Netball
- **Explore more with these weblinks:** Skilled performance 3: Gymnastics
- **Explore more with these weblinks:** Skilled performance 4: Soccer

1.3 Appraisal of movement proficiency

1.3.1 Measuring proficiency

Movement skills can be measured for proficiency by assessing the quality, efficiency and outcome of the performance.

ENGAGE

Movement proficiency can be analysed and measured in a number of ways. These include:

- observing the performance live
- judging or scoring the performance
- measuring the outcome of the performance
- comparing the outcome with the percentile charts
- data collection and movement analysis
- criteria checklists
- skill tests.

In gymnastics, would you rather be judged subjectively or objectively?



Not all these methods can be applied to all types of movements or skills. In this section, each method will be described, and an opportunity to use each method for measuring performance will be provided.

Use the weblinks in your Resources section to watch some performances. How would you appraise the performances?

Resources

- **Explore more with these weblinks:** Explaining gymnastics judging
- **Explore more with these weblinks:** Kids gymnastics

1.3.2 Appraising movement proficiency

It is possible to assess movement or skill proficiency in terms of both its process (for example, the quality and efficiency with which the elements of the skill are performed) and its outcome (for example, some kind of result, such as a goal, or some form of measurement, such as a distance achieved).

To appraise movement proficiency, some method, technique or tool for assessing the level of performance is necessary. These are called **performance measures**. However, before applying performance measures, a number of factors need to be considered. These factors can affect our judgement of the movement performance, and include:

- individual characteristics of the performer, such as age, size, body type, fitness level and experience
- level of performance, for example, novice or elite, club, state or national competition
- performance context, for example, practice as opposed to a game situation
- environmental conditions.

We also need to consider who determines the criteria for appraisal and who sets the standards upon which to assess the movement. In many national and international sporting competitions (such as gymnastics and figure skating), movement requirements, categories, deductions and degrees of difficulty are all determined by sporting bodies and federations, who use experts to determine what constitutes a skilled performance.

It is also important to realise that, while most athletes will largely adhere to the principles that underpin proper technique, some will modify their style to suit themselves. This explains why there are many variations of the accepted technique. For this reason, it is important to determine whether any particular variation is basically sound or inherently weak, as distinct from labelling anything as ‘right’ or ‘wrong’, or attempting to get every player to adhere to the same ‘perfect’ technique.

1.3.3 Performance measures

The appraisal of performance can be a very complex task; therefore, a range of performance measures are frequently used.

Observation

Observation of performance can be used to appraise both the level of skill proficiency during the performance and the outcome or result of the performance. Observation can be seen as a continuum from ‘highly objective’ to ‘highly subjective’.

Performance criteria, checklists, rubrics and rating scales

Observations of performance can be made more objective by focusing on the specific criteria, qualities and/or desirable aspects of a performance, and assigning them categories (for example, excellent, good, average, fair, poor) and/or rating scales (for example, 5, 4, 3, 2, 1). To develop criteria to be used in the appraisal of movement performance, follow the steps below.

1. *Specify the nature of the movement or skill* — ascertain exactly what it is you want to appraise.
2. *Establish the performance criteria you want to use* — determine and list the particular aspects of the movement or skill that you will be appraising and making judgements about.
3. *Practise applying the criteria* — to develop the analytical skill to appraise movement performance, it is necessary to practise.

Checklists and rubrics are usually developed from performance criteria. If a particular part of the movement or skill is performed correctly, a tick or rating is given to it. This information can be used to help the performer rectify faults or errors and thereby improve his or her level of skill proficiency. Checklists, rubrics and rating scales can allow for self-appraisal, peer appraisal, and teacher or coach appraisal of performance.

To be fair to all contestants, judges of dance competition look for established moves performed ‘correctly’ and evaluate contestants' level of proficiency.



Skill tests and performance achievements

Skill tests provide an indication of the outcome rather than the skill or movement process. There are many tests used to measure skill performance. An example is the wall target throwing test, which can be used to assess the accuracy with which individuals perform the overarm throw. It is possible to utilise a range of performance achievements to measure aspects of a movement performance. These measures can include speed, distance, time, height, weight and accuracy, and are often expressed numerically. For example, 'Lachlan ran 13.5 seconds in the 100-metre sprint'.

Norm- and criterion-referenced standards and percentile ranks

Norm-referenced standards (or normative scales) allow an individual's score or result to be compared with the performance of a representative group (usually a reference group, such as a nationwide sample of students of similar age and gender) in the same task or test.

Criterion-referenced standards interpret an individual's score or result compared to others of similar age or gender etc.

Percentile ranking is common. Percentiles indicate the percentages of a reference group that score above or below a given score on the scale. For example, 'Siobhan achieved a score that put her at the 85th percentile'. This indicates that she has scored higher than 84 per cent of those taking the test, in other words, in the top 15 per cent of the compared population.

Statistical information

Statistical information obtained from an **activity analysis** (or games analysis) can also be used to appraise performance. The most common statistical data obtained from games analysis includes:

- possession skills, for example, marks or passes received in Australian Rules Football
- disposal skills, for example, kicks and handballs, including the effectiveness or otherwise of these in Australian Rules Football
- successful and unsuccessful scoring attempts.

Other data, such as movement patterns and intensities, can also be used when measuring and appraising a player's performance.

1.3.4 Performance appraisal of selected motor skills

In this section, we consider the appraisal of movement proficiency in a number of motor skills, ranging from fundamental movement skills to more specific sporting skills. In each case, use the **eLessons** in your Resources section to access a criteria checklist, rubric or table as the means of appraising the movement proficiency related to the particular skill.

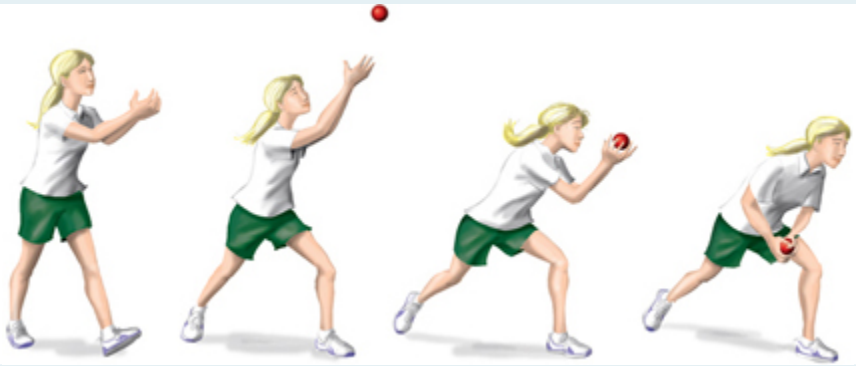
In the mid 1990s, the Victorian Department of Education commissioned the development of a fundamental motor skills program for children in primary school. The *Fundamental Motor Skills Manual* and accompanying instructional video and posters provided assessment checklists for each of the core skills. These provide an excellent template for the development of similar checklists for other, more complex, specific sporting skills.

Performance criteria for the catch, overhand throw, punt kick and two-handed side-arm strike are listed below.

Performance criteria for the catch

1. Eyes are focused on the ball throughout the catch
2. Preparatory position, with elbows bent and hands in front of body
3. Hands move to meet the ball
4. Hands and fingers positioned correctly to catch the ball
5. Catch and control the ball with hands only
6. Elbows bend to absorb the force of the ball

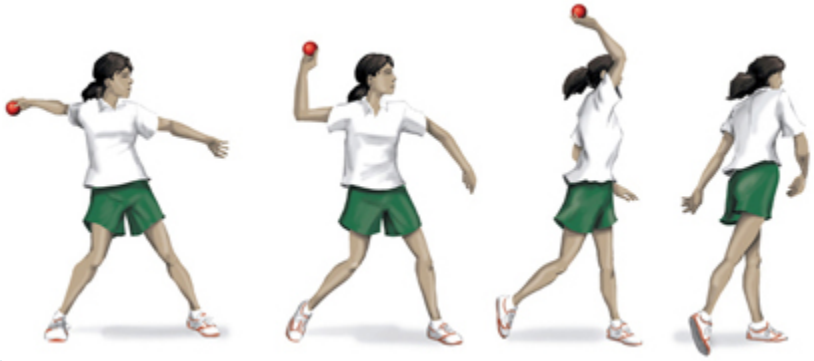
Fundamental motor skill of the catch



Performance criteria for the overhand throw

1. Eyes are focused on the target throughout the throw
2. Stand side-on to the target
3. Throwing arm nearly straightened behind the body
4. Step towards the target with foot opposite throwing arm during the throw
5. Marked sequential hip-to-shoulder rotation during the throw
6. Throwing arm follows through, down and across the body

Fundamental motor skill of the overhand throw



Performance criteria for the drop punt kick

1. Eyes are focused on the ball throughout the kick
2. Ball is held at about hip height in front of the kicking leg
3. Step forward onto the non-kicking foot
4. Bend the knee of the kicking leg during the backswing
5. Hip extension and knee flexion of at least 90 degrees during the preliminary kicking movement
6. Guide ball down with one hand so it makes contact with the top of the kicking foot
7. Forward and sideward swing of the arm opposite the kicking leg

Fundamental motor skill of the drop punt kick



Other specific sporting skills

Performance criteria for the golf swing, javelin throw and soccer throw-in can be accessed by using the eLessons in your Resources section.

on Resources

- **Watch this eLesson:** Catching
  Searchlight ID: eles-0750
- **Watch this eLesson:** Golf swing
  Searchlight ID: eles-0755
- **Watch this eLesson:** Javelin throw
  Searchlight ID: eles-0754
- **Watch this eLesson:** Overhand throw
  Searchlight ID: eles-0751
- **Watch this eLesson:** Punt kick
  Searchlight ID: eles-0752
- **Watch this eLesson:** Soccer throw-in
  Searchlight ID: eles-0756

1.3.5 Qualitative analysis of human movement

Observing, analysing and appraising human movement performance through the use of performance criteria and checklists is a form of **qualitative analysis**. Coaches and teachers need to be skilled in qualitative analysis to be able to provide the most appropriate interventions for improving the performance.

Qualitative analysis usually involves four key tasks:

1. preparation
2. observation
3. evaluation/diagnosis
4. intervention.

The preparation task is concerned with the coach or teacher developing knowledge about the key performance features of a movement or skill, as well as the common errors that performers exhibit. They gather this information from scientific research, expert opinion and personal experience.

Observation involves gathering appropriate information about the movement or skill. The most common strategy involves observation of **movement phases**. This involves dividing the movement or skill into a number of phases, such as the preparation phase, the execution phase and the follow-through phase. Movement phases can be further divided into **key elements**. Key elements are distinct actions that join to make up a phase. For example, in the execution phase of a golf drive, the key elements are the weight shift, hip rotation, head position, and arm and club extension. Phases and elements can be seen in most of the skill criteria and checklists provided previously in this chapter.

The third aspect of qualitative analysis involves the evaluation or diagnosis of the desirable (strengths) and undesirable (weaknesses) aspects of the movement or skill performance.

The final task in qualitative analysis is intervention. This involves providing feedback, usually while practising, that will lead to improved performance via correction of identified errors.

DID YOU KNOW?

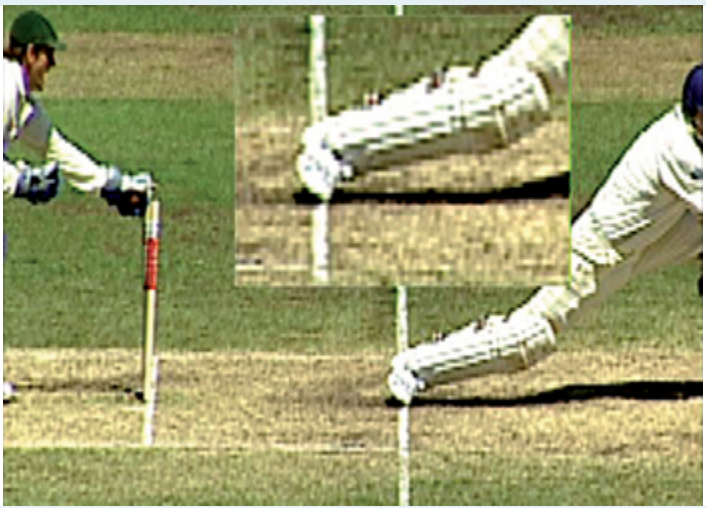
Skills can only improve if the athlete is given specific feedback about their performance. Elite athletes and coaches are dependent on teams of people who gather data from the performance of the individual, the team and opponents. This data is used to fine tune and, at times, change an athlete's technique, the team tactics, or the way an opponent is matched up.

1.3.6 Video analysis software

An important tool in qualitative analysis is the use of video analysis software. This allows for the observation of greater movement detail, the unlimited capacity to replay and observe the movement over again, as well as split-screen comparisons and overlays of performance. Some software products allow the placement of graphics and drawings on the video to illustrate key features and aspects of the performance.

Recent advances in integrating video and computer technologies have made many video analysis software programs affordable. Several companies have programs and packages especially designed for use by teachers and students. Two examples are Webbsoft Technologies' ‘Swinger’ software and Dartfish's ‘DartTrainer’ software (see the figure below). There are also a range of applications (apps) that can be used on digital platforms such as iPads and Android devices.

Video analysis software can be an important aid in qualitative analysis and performance appraisal.



ACTIVITIES

1 Appraisal

Suggest which method of appraisal (subjective or objective) is best suited to each of the performances below and explain your reasoning.

1. Tower diving
2. Tennis rally
3. Hockey penalty stroke
4. 100-metre sprint

2 Measuring performance and skill proficiency

Test yourself and a partner on the following skill proficiency tests. Use the **Performance and proficiency** worksheet in your Resources section to record your results and those of your partner. Alternatively, draw up a recording table of your own. Note that the following basketball tests can easily be adapted to other sports, such as netball or soccer.

Basketball goal shooting set-up



1. *Basketball goal shooting:*
    a. Set out eight cone markers around the vicinity of the key, as shown below.
    b. Begin at cone 1 and have three shots at goal. Count the number of successful shots and then record this score.
    c. Proceed to the rest of the marker cones in sequence and repeat the three shots at goal. Record the number of successful attempts at each cone and the number of successful attempts in total.
    d. Additionally, or alternatively, you can begin at cone 1 and attempt to shoot a goal. Continue taking shots until you are successful and then move on to the next cone and repeat. Count and record the total number of shots it takes you to score a goal successfully at each cone marker and in total.

2. *Basketball free throw shooting:*
    a. Have 10 shots at goal from the free throw line.
    b. Repeat three times, recording the number of successful shots in each batch of 10 shots, as well as the total number that were successful.

3. *Basketball ball handling and dribbling:*
    a. While dribbling the ball, run in a figure-eight shape twice around two marker cones placed 10 metres apart. Record the time taken to complete the task.
    b. Repeat, but this time, run and dribble in the opposite direction around the cones. Record the time taken to complete the task.

3 Comparing tests

1. Compile the whole class's results from activity 2 and calculate the group's average scores as a benchmark proficiency in each test.
2. a. Based on the benchmark proficiency score for each test, how did you perform?
    b. Which skill did you perform best?
    c. Which skill did you perform least well?
    d. Using these results, what goals can you set for yourself?

4 Set the test

Design three other simple skill proficiency tests that could be used in a sport of your choice. Be prepared to explain these tests to the rest of the class.

5 Performance appraisal by activity analysis

1. In groups of three, undertake an activity analysis of a player engaged in a sport of your choice. This can be done by observing your class engaged in playing sport, by observing a match played locally, by attending an elite level match or by viewing a video of a match.
2. Record your data using the sample tables provided in the **Activity analysis** worksheet in your Resources section.

6 Performance appraisal of selected motor skills

Over a period of three to five sessions, teach one of the fundamental motor skills to a small group of younger children, and assess their motor skill proficiency by the end of the instructional period. Use the **Fundamental appraisal** worksheet in your Resources section to help you.

7 Using technology for feedback purposes

Research the use of technology in sport and how it can help an athlete improve performance via feedback. Come up with two types of technological tools that can help provide athletes and their coaches with appropriate feedback to modify and improve performance. This may include video analysis, computer software or use of ‘applications’ via smartphones. Discuss the advantages and disadvantages of the two tools selected. Finally, decide on the one that would be most appropriate for you. Justify your response.

CHECK & CHALLENGE

Explain

1. Explain why athletes seek feedback from a teacher or coach who will help them improve their technique and performance.

Elaborate

2. Discuss the merit of using performance criteria to evaluate a skill in comparison to using only the outcome of the performance as a measure of success.

Evaluate

3. How should your movement proficiency be assessed in a school situation? Think about which of the methods of assessing movement proficiency is the most practical in a school situation and why. Which method of assessing movement proficiency is most accurate? Explain your answer.

on Resources

Complete this digital doc: Performance and proficiency
Searchlight ID: doc-14830

Complete this digital doc: Activity analysis
Searchlight ID: doc-14828

Complete this digital doc: Fundamental appraisal
Searchlight ID: doc-14829

1.4 Skill acquisition — the stages of skill learning and types of skills

1.4.1 The stages of skill learning and types of skills

When learning a new skill, there are three distinct stages of progression: the cognitive stage, the associative stage and the autonomous stage. The types of skills you can learn are categorised into distinct types; these are closed skills, open skills, discrete skills, serial skills and continuous skills.

ENGAGE

When learning a new skill, the basic skills developed during childhood are used. Skill acquisition is a staged process and, depending on the type of skill, the process can be achieved rapidly or sometimes more slowly, depending on the complexity of the task, the quality of feedback and ability of the performer. A teacher or coach is vital when learning new skills as they provide the activities, feedback and instructions that enable the skill to be mastered. In this section, all of these areas will be addressed.

Can you remember when you first learned to ride a bike? In pairs, discuss the stages of learning for this skill.

How does a beginner become an athlete?





1.4.2 Skill acquisition

Skill is the learned ability to bring about predetermined results with maximum certainty, often with minimum outlay of time or energy or both. Skill acquisition is the processes in which individuals learn motor skills.

1.4.3 Stages of skill learning

Whenever an individual is learning a new skill, the teacher or coach should understand the stages of learning and be able to recognise at which level of performance the learner is. The three stages of learning are:

1. cognitive stage (or beginner stage)
2. associative stage (or practice stage)
3. autonomous stage (or automatic stage).

Cognitive stage

Individuals who are at the **cognitive stage** of skill learning need to learn how to execute the skill. You can assist beginners by first demonstrating the skill a number of times so that they can get an idea of the skill, and by identifying two or three key points to focus on. A visual demonstration is a powerful teaching tool.

Demonstrate the skill so the player can visualise the skill and then have the player practise it. After allowing the person to practise the skill for a while, point out their errors, re-emphasise and demonstrate the key points and then have the learner practise the skill again. Be aware that during this first stage of skill learning, the beginner's movements will often appear uncoordinated and a large number of errors are common.

Associative stage

During the **associative stage**, the individual is beginning to get the feel of the movement and fewer errors are made. Demonstrations and feedback in this stage can help individuals to refine their skills. It is important to note that the time spent in this stage will depend on a number of factors, such as the complexity of the skill, the motivation of the individual, the ability of the coach to detect errors and to provide accurate feedback, and the individual's abilities and past experiences. Some people may not ever progress from this stage.

Autonomous stage

In the **autonomous stage**, the individual is able to complete the skill with little conscious effort. The skill could be sped up or slowed down, depending on the requirements of the situation. Other information can now be taken in, such as the opponent's moves, the weather conditions and other external factors that may affect the skill. At this stage an athlete can focus on other factors, such as application of different degrees of force or spin.

DID YOU KNOW?

Most people are able to move to the associative stage of skill learning quite quickly; however, entering the autonomous stage may take months or years of practice, and some people may never be able to progress to the autonomous stage. The younger a person is when developing a skill, the more likely it is they will progress through to the autonomous stage.

1.4.4 Classification of skills

The teacher or coach should be knowledgeable about the different types or classifications of motor skills, as these have implications in terms of skill acquisition and practice. A common classification is to consider skills as either closed or open. Closed and open skills represent the end points of a continuum, as shown below.

Skill classification continuum



Closed skills

Closed skills are performed in an environment that is stable, predictable and allows performers to plan their movements in advance. Performers executing a closed skill are in full control of the timing or speed of the skill. Examples of closed skills are a golf swing, a gymnastics routine, taking a free throw in basketball and swimming in a pool. Closed skills can usually be mastered more easily because success is a matter of practising the movement and repeating it until the skill is learned.

Open skills

An **open skill** is a skill performed in an environment that is variable and unpredictable. Open skills are usually externally paced and performed in a constantly changing environment. Performers therefore need to be aware of these changes and adjust their movements to suit. Examples of open skills are batting in cricket, softball or baseball, and playing team sports that have opposition, such as football, netball and hockey.

Taking a free throw in basketball is an example of a closed skill. Here, Lauren Jackson shoots from the free throw line.



Open skills are often more difficult to learn, as more decisions need to be made before executing the skill. For example, receiving a pass in netball requires you to make decisions on where to move to receive the ball, at what height and speed the ball will come at you, where your opponent will be and what you will do when you receive the ball. When learning skills, it may be possible to ‘close’ the skill down, then gradually ‘open’ the skill over time. Using netball as an example, passing and catching the ball can be done in a closed environment by passing it to a stationary player. When that is mastered, you can open the skill by receiving the ball on the move, then adding token opposition, followed by full opposition, a lead-up game and, finally, a full game.

Taking a contested mark in Australian Rules football is an example of an open skill. Opposition and the weather can affect skill performance.



Discrete, serial and continuous skills

Another method of classifying skills is according to the way in which the timing of the movements are organised. Skills classified in this way are referred to as discrete, serial or continuous skills.

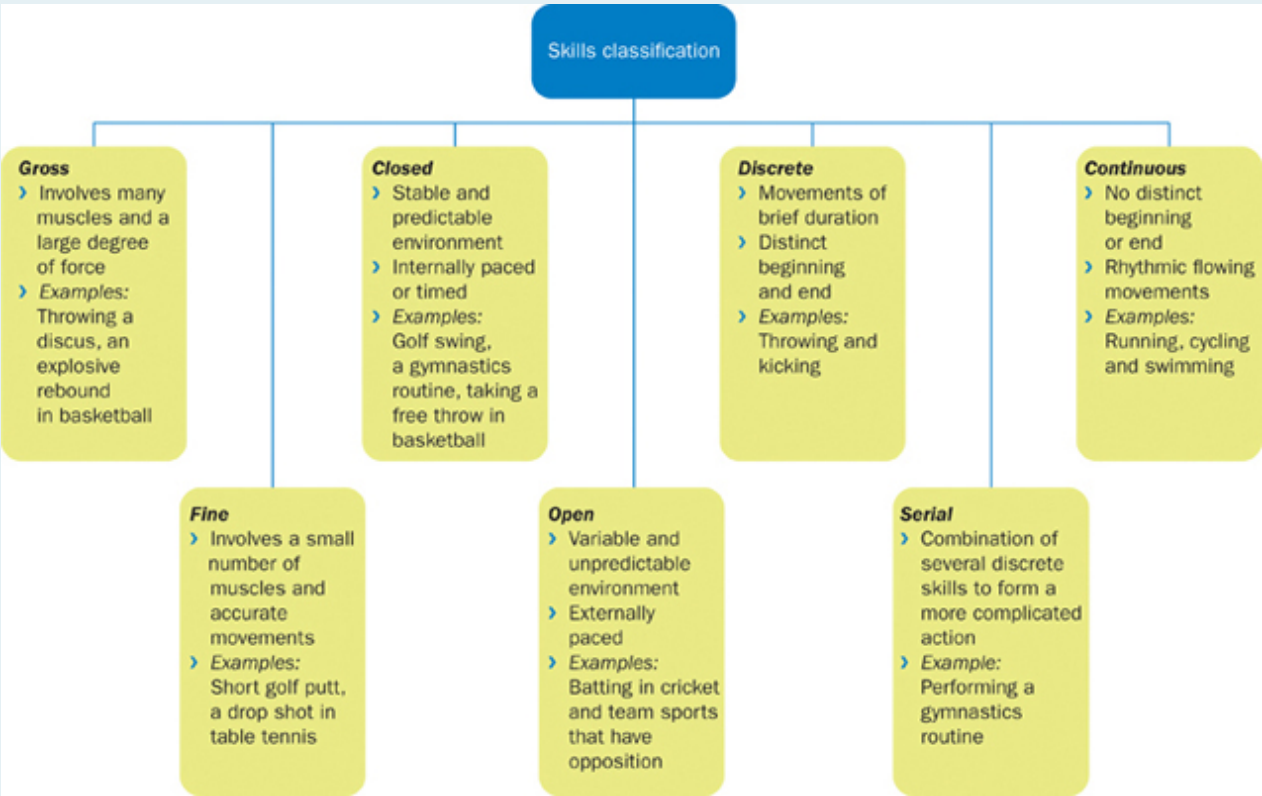
Discrete skills involve movements of brief duration, and they have a distinct beginning and end. Examples include throwing and kicking a ball.

Sometimes, discrete skills are linked to form more complicated actions. These types of skills are classified as **serial skills**. The duration of serial skills is longer, and each individual movement in the series has a definite beginning and end. However, the order of the elements that make up the total skill is often crucial to performance success. Performing a gymnastics routine is an example. Such skills are best acquired by breaking the skill down into its component parts and then linking them back together.

Continuous skills have no distinct beginning or end. These skills or movements are often repetitive or rhythmic in nature and may continue for several minutes. Examples include running, cycling and swimming.

A final way of categorising skills is in relation to the degree of muscle force required for successful outcomes. At one end of the spectrum, some skills require the involvement of all muscles, activated by strong and continuous messages sent via the nervous system. These movements are referred to as **gross motor skills**. Examples include lifting a heavy weight and throwing a javelin. Conversely, some sports require the use of few muscles, activated by a small number of nervous impulses. These are referred to as **fine motor skills**. Examples in sport of fine motor skills include darts, billiards, shooting and archery.

Summary of skill classifications



ACTIVITIES

1 Summarise

The stages of skill learning are clearly described in this section. Use the table below to summarise the three stages of skill acquisition.

Stage	Characteristics	Examples in sport
Cognitive		
Associative		
Autonomous		

2 Continuum

Create a continuum with closed skills at one end and open skills at the other. In pairs, discuss where each of the following would sit. Give reasons for your answers.

- 100-metre sprint
- Archery
- Marking in football
- Motor car racing
- Receiving a pass in netball
- Serving in tennis
- Vault in gymnastics
- Tenpin bowling

CHECK & CHALLENGE

Evaluate

1. Which of the stages of skill learning do you think requires the most input from a coach? Why?

Elaborate

2. For each of the five categories of skills, list three skills or activities which exhibit the characteristics of that type of skill.

Evaluate

3. Which of the five categories of skills do you believe would be the most difficult to teach or learn? Which would be the easiest? Justify your answers.

1.5 Factors affecting skill acquisition

1.5.1 Practice, feedback and transference

Skills are learned by practising in a range of ways. Practice is important, but so too is feedback about the performance. This is best provided by a teacher or coach, who should understand that a number of factors can influence skill learning. These factors include practice, feedback and transference.

ENGAGE

Skills can be practised as a whole or broken down into parts. Practice can be spread over a number of sessions or be completed in one intense block. Which of these methods is best for learning a new skill? In this section, each of these methods is investigated and you will be able to make a decision about which is best.

Practising is an important part of skill learning.



1.5.2 Practice

Practice is essential for the acquisition and development of movement and sport-specific skills. The teacher or coach should be aware of the different types of practice and should select the method that optimises the individual's ability to learn. The main types of practice are:

- massed and distributed practice
- whole or part practice

- mental and physical practice.

Massed and distributed practice

Massed practice involves practice over a long period of time. This type of practice is most suitable for highly skilled and motivated performers. An example would be practising 50 tennis serves in succession.

Distributed practice involves short sessions interspersed with periods of rest, during which either feedback is provided or another skill is practised. Distributed practice is more suitable when the athlete is learning a new skill, when the skill is complex and/or physically demanding or when the learner's motivation is not high.

Whole or part practice

Whole practice involves practising a skill in its entirety, whereas **part practice** involves breaking down the skill to practise it in parts. Some skills are best practised in their entirety; for example, a golf swing. Others, such as a basketball lay-up, might best be broken down into component parts, with each part practised in isolation, before the parts are combined and practised as a whole. In this example the dribbling and shooting components would be practised in isolation before they are combined for the lay up.

Physical and mental practice

Most of us are familiar with **physical practice**, which involves actually performing a skill. In contrast, **mental practice** involves imagining or visualising the skill in your mind. Elite athletes use such mental imagery to improve their skill levels.

1.5.3 Feedback

Feedback provides us with information about the quality of our performance. This is usually in the form of knowledge of performance or knowledge of results.

Knowledge of performance is information about the actual quality of performance itself; for example, was the skill performed with the correct technique? This feedback may be provided by an external source, such as the coach, or it may come from the individual performing the skill who has a ‘feel’ for the quality of the performance.

Knowledge of results is feedback about the outcome of the movement or performance; for example, whether a serve in tennis was in or out.

A coach can provide valuable feedback to an athlete about his or her performance.



There are other types or forms of feedback. Internal or **kinaesthetic feedback** is about the 'feel' of the movement. For example, a golfer can often feel whether the shot was a good one by the way the movement felt and the way his or her body flowed during its execution. On the other hand, external or **augmented feedback** can be provided by visual, verbal or aural (hearing) signals. For example, a golfer can tell that he or she hit the ball well by the sound made on contact, by seeing the ball flying down the fairway or by being told that the shot was a good one.

Feedback is very important if players are to improve. For feedback to be effective, it is best given as soon as possible during or after the performance and it should be positive rather than negative. People are much more receptive to feedback that is positive in nature. It is likely to motivate more, increasing the likelihood of the performer practising more, increasing their success that serves as a further motivational tool. The precision of the feedback given is also very important. Feedback such as 'well done' is good for encouraging beginners. Feedback such as 'you need to follow through more at the end of your throw' followed by 'try putting your throwing hand in your back pocket after you have released the ball' is also specific and valuable for the learner. It is vital that a teacher or coach moves around and provides feedback to as many individuals as possible. It is important to use feedback effectively so that individuals and teams can optimise their performance.

DID YOU KNOW?

People are able to process only two or three pieces of information at once. Feedback regarding performance should be limited and should be given as soon as possible upon completion of the skill.

1.5.4 Transference

Skill transference occurs when the learning or development of one skill can be used in the acquisition and development of another skill. This is possible because we are able to ‘withdraw’ past experiences from our ‘skills bank’ and transfer them to similar movements and skills. For example, there are certain similarities and basic principles that apply to all methods of kicking, regardless of whether it is in Australian Rules football, rugby or soccer. Transference can also relate to the way individuals think about rules, space, time, tactics and strategies. Familiarity with the use of space and time in soccer, for example, can be beneficial to hockey and lacrosse.

Transference also enables a player to adopt movement strategies and elements appropriate for a game or performance. This includes athletes being aware of their own body in relation to space, such as in a diving or gymnastics routine. This spatial awareness is vital in team games, as performers need to be aware of other players and their movements. An understanding of the elements of space and time are vital for an athlete to thrive in sport. The use of time and space can be manipulated by skilled performers to improve the chances of a successful outcome. Examples include:

- use of space — space can be used by a team to enable a performer more time while in possession of a ball, increasing the likelihood of an accurate pass. This can be achieved in a sport such as soccer where a ball is passed to a player on the other side of the field. Conversely, defenders attempt to close down space, to apply pressure on the ball carrier and reduce their time in possession.
- use of time — time can be used to advantage. A basketball team playing against another who has poor speed may increase the speed of play to reduce the time available for the opponents to defend the ball, increasing the chance of success. A team leading may also decide to ‘waste time’ by deliberately holding onto and passing the ball instead of trying to shoot.

Skill transference occurs when the learning or development of one skill can be used in the acquisition and development of another skill.



ACTIVITIES

Do it

Complete the laboratory activities in the **Feedback** worksheet in your Resources section and comment on the effect of feedback on performance.

CHECK & CHALLENGE

Explain

1. List three key factors that affect skill learning.
2. Use an example to illustrate the difference between internal and external feedback.

Evaluate

3. Evaluate how open and closed environments affect the learning of skills.
4. What type of feedback is most useful for your learning?

Elaborate

5. Outline the difference between a technique that is incorrect and one that is individualised.
6. How is skill transference important for achieving and promoting an active lifestyle?
7. Describe an open skill from a sport of your choice and explain how you would ‘close it down’ when teaching it to a beginner, and then gradually ‘open’ the skill when success has been achieved at the previous stage.

on Resources

Complete this digital doc: Feedback
Searchlight ID: doc-14831

1.6 Biomechanics and its application to human movement

1.6.1 Using biomechanics to produce better results

Biomechanics is an area of sports science that applies the laws of physics and mechanics to promote performance in sport. A basic knowledge of biomechanics can assist athletes and coaches to produce better results.

ENGAGE

In this section key biomechanical concepts will be presented to help explain how each can be applied to improved performance. When combined with good technique, the result is maximal performance. The concepts to be presented are:

- application of force
- projectile motion
- balance and stability.

Sumo wrestlers try to maximise their stability to ensure success against an opponent who is attempting to knock them off balance.



The Fosbury Flop is a high jump technique pioneered by Dick Fosbury at the 1968 Olympic Games. Fosbury was successful in clearing 2.24 m because this technique allowed him to clear the bar in an arched position while his body's centre of mass passed under the bar. This is an excellent example of how biomechanical principles can be applied to improve athletic performance. Fosbury's technique is still the technique used today by all elite high jumpers.

Use the **Fosbury Flop** weblink in your Resources section to see footage of Dick Fosbury's performance at the 1968 Olympic Games.

on Resources

Explore more with these weblinks: Fosbury Flop

1.6.2 Biomechanics

Skills can be very complex to perform, and to understand how such movements are produced, we can turn to the science of biomechanics. Biomechanics studies the forces and their effects on and within the human body.

Understanding biomechanics can produce the following benefits for coaches, teachers and athletes:

- Optimisation of skill performance and proficiency by developing the most efficient and effective technique
- The design and development of improved equipment and materials to maximise sports performance, as well as the development and modification of sports equipment to widen participation; for example, junior-size equipment allows participation at a younger age
- The transference of skills from the practice field to the playing field; for example, batting tees, ball-throwing machines, swimming flumes, and video and computer software allows athletes to enhance technique in practice and apply this in competition
- Prevention and reduction of injuries through an understanding of injury causes and the development and application of proper technique.

1.6.3 Force production and application

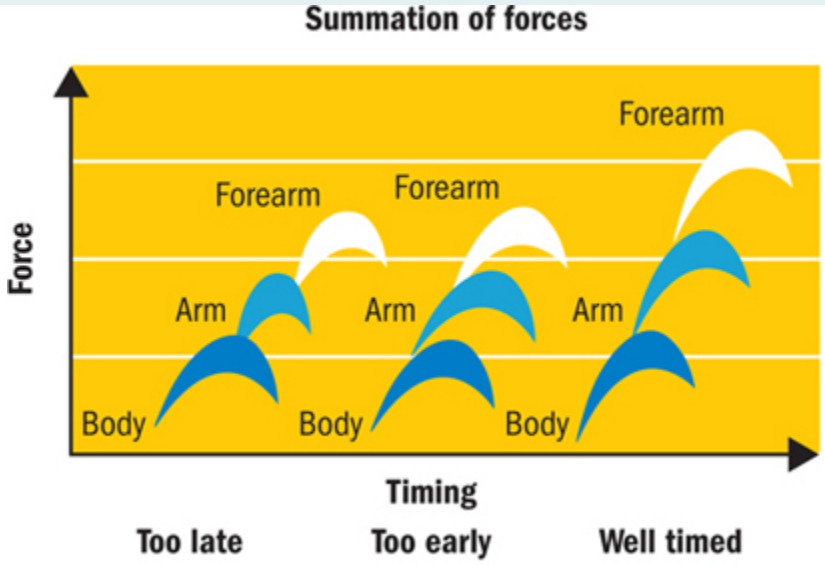
The performance of all movement and motor skills — including running, jumping, throwing, kicking and striking — requires muscular force being produced and applied. How effectively the force can be developed and applied often goes a long way towards determining the proficiency with which the skill is performed. The following biomechanical principles are important factors to consider in force production and application.

Summation of forces

Summation of forces is necessary when a maximal effort is required, such as kicking a football for distance, throwing a javelin, fast bowling a cricket ball, performing the high jump or performing a vault in gymnastics. This summation means the adding of different body parts to accumulate a greater overall force via the contribution of all these parts. To achieve the best results, the individual must combine movements of these different body parts into a coordinated sequence of movements. Summation of force can occur in two ways: the sequential summation of force or simultaneous summation of force.

Sequential summation of force is when a sequence of body movements takes place, starting with the larger, more powerful body parts to produce the initial force, and then transferring this force to the next moving part and eventually finishing with the smaller, lighter body parts. To achieve the greatest possible force, each segment must contribute by developing its greatest force before the next body part comes into action. As well as developing the maximum force of each preceding body part, each subsequent body part needs a stable base to summate the force effectively.

Timing of sequential summation of forces

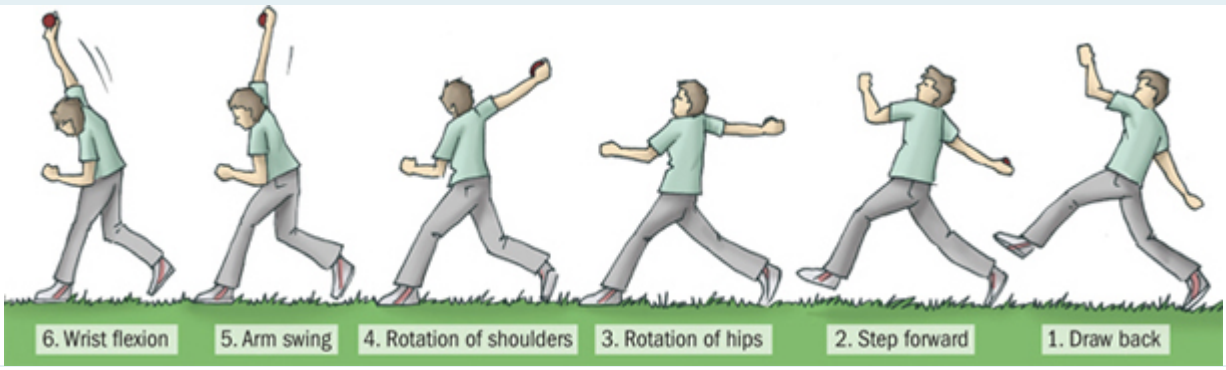


Fast bowling in cricket is a good example of sequential summation of force. In the delivery action, there is a sequence of body movements beginning with the larger, heavier body parts (legs, trunk) and finishing with the smaller, lighter body parts (wrist, hand):

1. The first part of the delivery action is the step forward onto the front foot.
2. This then provides a stable platform for the rotation of the hips and trunk.
3. Momentum is then transferred to the shoulder and the arm swing, followed by wrist flexion and the release of the ball from the hand and fingers.

The figure below illustrates the concept of sequential summation of force in bowling.

The delivery action in fast bowling in cricket showing the sequential summation of force



Players who cannot throw a ball as far as expected may not be carrying out summation of forces correctly. You may need to ask yourself when analysing the movement or skill:

- Are as many body parts as possible being used to contribute to the desired outcome?
- Are the body parts that are larger and stronger operating before the smaller, faster muscles?
- Are the body parts being used accelerating in the correct order, so that each body part contributes to an optimal level before the next body part comes into operation?
- Is each body part stabilising around a solid base to enable each following action to accelerate optimally?
- Are the body parts that are lighter but move more quickly used at the point of release? You may like to apply this to other skills.

Simultaneous summation of force takes place when an individual performs a skill like the high jump or a gymnastics vault. The performer carries out an explosive action with maximum force over a very short period of time. The aim of this type of force production is to develop vigorous and powerful movements of the arms and legs to produce a powerful take-off.

Impulse

Another means of increasing the amount of force production or momentum imparted during a movement is by applying the force for a longer period of time. This is the principle of **impulse**. Impulse is important in many sports, including the start of the 100-metre sprint in athletics, leaving the blocks in swimming, pitching in softball and baseball, the discus throw, and performing the push pass in hockey. For example, in discus, it is beneficial to perform a circular spin before releasing the discus, rather than throwing from a standing position; this allows the athlete more time to generate muscular force.

In the 100-metre sprint, two techniques are used at the start of the race to generate greater impulse:

1. Pushing from the blocks to maintain a strong forward force for as long as possible
2. Taking short, sharp steps over the first 10–20 metres, which allows the feet to push repeatedly against the track and magnify the force applied.

Absorption of force

Just as a person can generate force by applying it over a period of time, the same principle can be used to absorb force. This is important in instances such as catching a ball. Absorbing the force means that the object that is in motion is being slowed or stopped. The longer the force is absorbed the easier it is to slow down. This absorption of force can be achieved via a number of ways. Examples include altering the technique of a skill or by using equipment that can absorb the impact for a period of time. Some examples are listed in table 1.1.

TABLE 1.1: Example of absorption of force

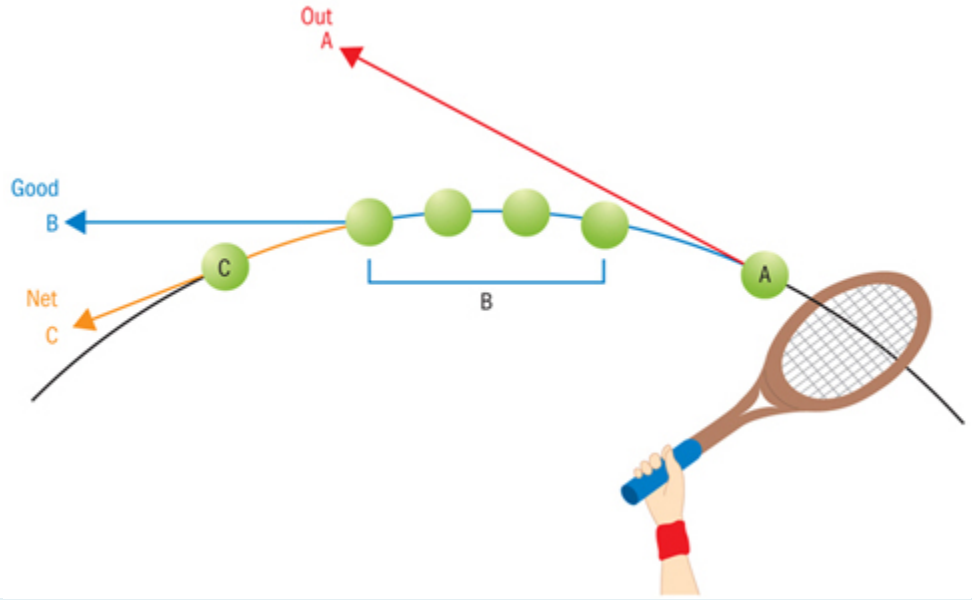
Absorption of force by altering technique	Absorption of force via use of equipment
A cricketer attempting to catch a hard cricket ball will let the ball hit their hands and move their hands in the direction the ball is going, enabling the force to be absorbed over time.	A high jumper performing the Fosbury Flop will have their force absorbed by a thick high jump mat. The thicker the mat, the longer the force can be absorbed and the easier it is for the jumper to slow down safely, with the mat absorbing the force instead of the jumper.
A netballer who jumps up to receive a pass will land and attempt to absorb the force over a long period of time. This is achieved by bending their knees when landing and continuing to do so until the force is absorbed.	A tennis racquet with loose strings will absorb the force of a tennis ball easier, as the ball is in contact with the strings over a period of time. If the strings were tight, then the ball will not be absorbed by the strings as readily, requiring the player themselves to generate more force to overcome the force of the ball.

Accuracy

In some sports, maximum force is not required; rather, accuracy is more important. Accuracy in throwing and striking can be improved by ‘flattening the arc’. This is achieved by moving the axis of rotation (the shoulder joint) forward in the direction of the throw just prior to the time of release of the ball. The arm should straighten as the shoulder moves forward because of the transfer of weight onto the front foot and the rotation of the trunk.

When a player serves in tennis (see the figure below), he or she creates a flattened arc of the racquet head by the shift of body weight forward and the rotation of the body prior to the moment of contact. When a player hits a softball, the arc is flattened due to the rotation of the trunk, which moves the shoulders forward, and the transference of weight onto the front leg just prior to contact.

The correct trajectory is obtained by striking the ball at point B; this is called flattening the arc.



Resources

Try out this interactivity: Cricket: fast bowling
Searchlight ID: int-5484

1.6.4 Projectile motion — velocity of release and angle of release

Throwing, striking and kicking skills all involve objects such as balls and implements (for example, discus or javelin) being projected into the air. In biomechanics, this is known as **projectile motion**, where the object moving through the air is referred to as a **projectile**. A projectile's flight path (trajectory) is influenced by a number of factors, of which velocity of release and angle of release are the most important.

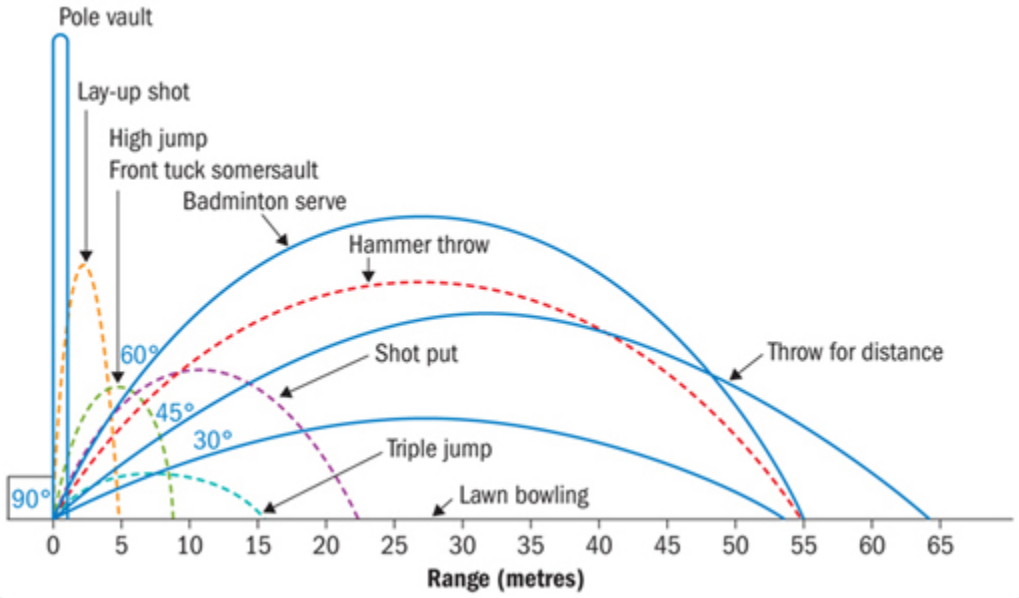
Velocity of release

Velocity of release is the most important factor for achieving maximum distance of a projectile. Basically, the greater the velocity of release, the greater the distance achieved. Velocity of release is largely determined by the principles of force production (summation of force and impulse) discussed previously.

Angle of release

When attempting to achieve maximum distance in throwing and kicking skills, the optimal **angle of release** of a projectile is 45 degrees for any given velocity of release. This angle of release provides equal components of vertical and horizontal force. However, this applies only when the height of release and height of landing are the same, and when spin and air resistance are not present. Given that this is rarely the case, the optimal angle of release for achieving maximum distance in most sporting activities is usually less than 45 degrees, with an angle of between 35 and 45 degrees being most common. The figure below shows the optimal angles of release for various sporting skills. When height is required, the angle of release increases, such as during a pole vault or high jump.

Optimal angles of release and associated trajectories for various sporting skills



1.6.5 Balance and stability

In sport, balance and stability can make the difference between an effective or ineffective performance. **Stability** is an object's resistance to movement from a balanced position. There are two types of stability:

- *Static stability* — when an object is at rest
- *Dynamic stability* — when an object is in motion.
  The stability of an object depends on a number of factors, including:
- the area of the object's base of support
- the height of the centre of gravity of the object above the base of support
- the position of the line of gravity relative to the base of support.

The area of the base of support

The area of the **base of support** of an object refers to the part or parts of the object in contact with the support surface. For example, the hands are in contact with the floor in a handstand, and the head and hands are in contact for a headstand. The area of the supporting base of the object is directly related to its stability; the greater the area of support, the greater the degree of stability. Therefore, stability can be increased by increasing the area of the base of support. This can be achieved by making contact with more body parts or by spreading the body parts so that they cover a greater area, such as when placing the feet further apart prior to receiving a bump in football.

Centre of gravity

The **centre of gravity** of an object refers to the point in the object or body through which the downward force of gravity acts. Generally, the higher the centre of gravity of the object above its base of support, the less stable the object. Lowering the centre of gravity of an object relative to its base of support acts to increase the stability of the object. Individuals can increase their stability by bending their knees and thereby lowering their centre of gravity.

The height of our centre of gravity changes according to the skill we are performing.

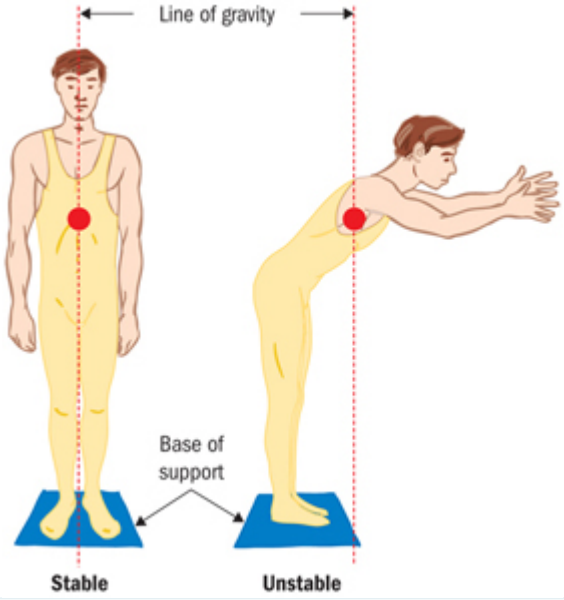


Line of gravity

The **line of gravity** is an imaginary vertical line passing downwards through the centre of gravity. The closer the line of gravity is to the limits of the base of support, the less stable the object. In some sports and skills, athletes deliberately position the line of gravity close to the limits of their base of support so that only a small force is required to get them moving in the required direction. Swimmers and runners on the blocks lean forward in the direction of intended movement, so that when the gun goes off, they require only a small amount of force to begin moving in the required direction (see the figure below). In a sprint, as soon as an athlete removes their hands from the ground (when using starting blocks) their line of gravity is in front of the body, causing quick rotation of the body and an explosive start. The athlete is prepared for this and puts their foot out to stabilise themselves so they don't fall over. This is an example where a lack of stability is actually a good thing, allowing movement to be far quicker than it would otherwise be.

Other athletes who require a position of stability, such as sumo wrestlers (shown at the beginning of this section), attempt to do the opposite by positioning the line of gravity as far inside the base of support as possible.

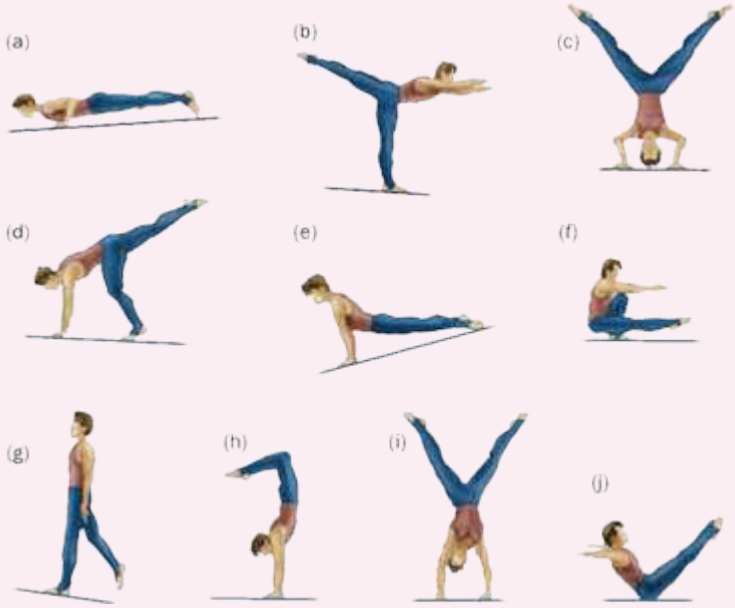
Stability is lost when the line of gravity falls outside the base of support.



ACTIVITIES

1 Stability

Rank the figures below from least stable to most stable. Then use the **Stability** worksheet in your Resources section and complete the activity.



2 Summation of forces

Use the **Summation of forces** worksheet in your Resources section and complete the activity.

3 Projectile motion

Use the **Projectile motion** worksheet in your Resources section and complete the activity.

4 Analysing the use of force using ICT

1. In pairs, use the **Video analysis software** weblink in your Resources section or similar software on your laptop, tablet or phone to record a partner perform a bowl in cricket. After recording this action, compare it to the action found in the bowling illustration in this section. Based on these comparisons, make suggestions about how the performer can generate more force. Swap over on completion.

2. Describe the benefits of using digital tools in helping to analyse a particular movement such as a bowl in cricket. What feedback can be provided that a coach cannot provide? Describe the link between feedback and improved performance, using this activity as a guide.

CHECK & CHALLENGE

Explain

1. Explain the concept of impulse and its relationship to the amount of force or momentum that can be generated during the performance of a skill, such as throwing or kicking for distance.

Elaborate

2. Outline the difference between simultaneous and sequential summation of force.
3. What are three sporting skills that require sequential summation of forces and three that require simultaneous summation of forces?
4. Using a sporting example, explain the difference between static and dynamic stability.

Evaluate

5. What are the benefits that a knowledge of biomechanics can provide for coaches, teachers and athletes?
6. Select one of the following activities and then identify the biomechanical principles which can be applied to it. In each case, describe how the principle operates for the activity you have chosen.
    a. Javelin throw
    b. Tennis serve
    c. Greco-Roman wrestling
    d. 100-metre sprint

on Resources

Complete this digital doc: Stability
Searchlight ID: doc-14833

Complete this digital doc: Summation of forces
Searchlight ID: doc-14834

Complete this digital doc: Projectile motion
Searchlight ID: doc-14832

Explore more with these weblinks: Video analysis software

1.7 Practice and training regimes to improve performance

1.7.1 Training requires rehearsal of skills

Performance of skills in a game or competitive situation requires practice and training in a less competitive and more controlled situation. Coaches set up practice regimes which allow the athlete to rehearse their skills and movement repeatedly.

ENGAGE

What are the different types of practices and training regimes available to and used by coaches and athletes? What tactics can be practised and rehearsed and how can athletes apply these to a game situation? In this section you will explore and answer these questions.

Use the **Training drills** weblink in your Resources section to view some training and skill drills. Do you think they are basic, intermediate or advanced drills? As a class, discuss what you think characterises an advanced skill drill.

There are many types of practice drills.



Resources

Explore more with these weblinks: Training drills

1.7.2 Practice and training regimes

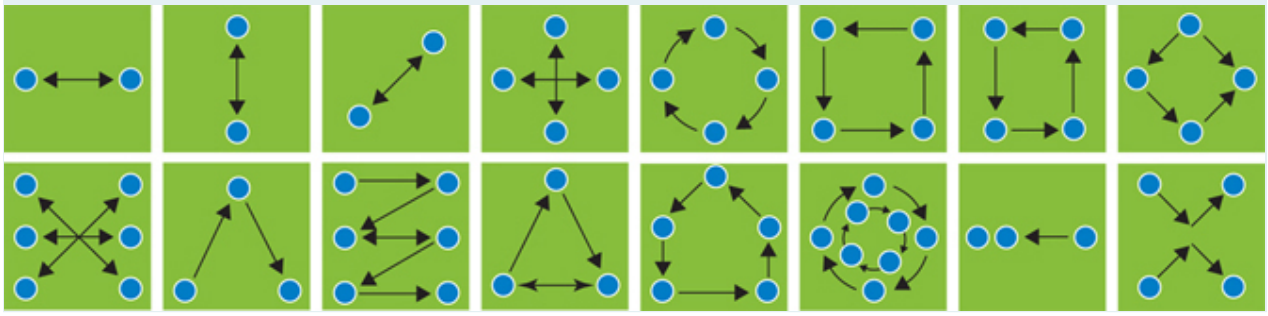
In previous sections, we discussed practice as an essential factor in enabling individuals to acquire and develop proficiency in motor skills. We learned that practice could be massed or distributed, whole or part, and mental or physical. We will now consider some other aspects of practice that can assist us in acquiring and developing motor and sporting skills. An important element in developing skill proficiency is having the ability to perform the skills in game-like situations. Most often, skills are initially taught and practised through the use of basic skill drills. Many of these drills take place in lines, lanes, circles, squares or triangles, which can result in individuals attending to what is happening in only limited situations. If there is an overemphasis on practising the skills in this way, the individual may struggle to apply these skills in game situations, where peripheral vision and an awareness of teammates and opponents are required. Therefore, skills should be developed through basic skill drills to begin with and, once learned, individuals should advance their performance of these skills through intermediate skill drills, advanced drills and, eventually, game-like practice activities. This is to prepare individuals for the type of movements and situations that take place during actual games.

1.7.3 Basic skill drills

Basic skill drills are designed to allow the individual to learn and perform the skills in an environment where they do not have to consider outside elements such as the opposition or movement. In other words, they are performed in a closed environment. These types of drills are often performed with the individual stationary, or moving slowly at a walking or jogging pace. In this early phase of skill learning, if the individual is required to direct his or her attention to anything other than performing the skill itself (such as moving to provide support or taking notice of where an opponent is positioned), his or her focus can be distracted, leading to a lack of concentration on the performance of the skill.

In ball games such as basketball, Australian Rules football, soccer, netball and hockey, basic skill drills are usually set up with the players in formations such as lines, circles, squares or triangles (see the figure below). The ball is generally played in the direction of the arrows, with players performing the skills in a stationary position, or while walking or jogging. It is easy to imagine setting up such drills for any number and range of skills, such as the push pass in hockey or handballing in Australian Rules football. It is important that players are fully capable of performing a skill before advancing from basic to more advanced drills.

In ball games, basic skill drills are usually set up with the players in formations such as lines, circles, squares or triangles.



1.7.4 Intermediate skill drills

Once players have acquired the basics of the skill, the skill may then be practised using an intermediate skill drill. In intermediate drills, movement is the only other factor that the player must consider. The player must learn to perform the skill with movement involved, and with the pace of the movement slowly progressing, all the while attempting to perform the skill correctly. The types of movement involved should include:

- *stationary to moving* — performing the skill from a stationary position, or playing the ball to a moving partner or into a moving zone
- *moving to stationary* — performing the skill while moving, or playing the ball to a stationary partner or into a fixed zone
- *moving to moving* — performing the skill while moving, or playing the ball to a moving partner or into a moving zone.

Intermediate skill drills can also be set up with the players forming lines, circles, squares or triangles. In a moving to moving skill drill, the ball may move in one direction and the player in another.

1.7.5 Advanced skill drills

As the difficulty of the drill is increased, the aim is to make the activity more like a real game situation. With advanced drills, the challenge to the player is heightened by progressively increasing the speed with which the drill is performed, so that it eventually reaches match tempo. In addition, reducing the space and time the players have to perform the skill, introducing opponents and asking players to modify their skills (such as application of spin in a tennis serve) are ways to increase the degree of difficulty.

Use the acronym SSTEP to change any one or more of the parameters in table 1.2 to advance a skill drill.

TABLE 1.2: SSTEP parameters

Speed	• The speed at which the drill is being performed • Having the player perform a number of repetitions within a set time limit or time frame
Space	• Changing the amount of space available to the player performing the skill
Time	• Changing the period of time in which the drill is being performed • Increasing the time period in which the skill has to be practised; this increases the physical demands on the performer • Decreasing the time period in which the skill has to be practised; this increases the speed of the performance
Equipment	• Introducing different equipment, or setting up a drill with different equipment By altering the equipment, the performer can be challenged to complete a skill using a more advanced technique. An example is a junior tennis player who learns to play using a short racquet that is easy to swing and hit a ball accurately. When the player is using this technique correctly, they can be challenged by introducing a longer racquet that will be harder to control but produce more force. The technique used for this longer racquet may be altered. For example, the player may hold the racquet closer to the head to maintain control and gradually lengthen this as they improve their skills.
Pressure	• Introducing opposition to the person performing the skill • This can be done progressively — first with token opposition, where the performer is not challenged for possession; second, allowing the performer to get possession and then providing opposition in the form of attempted blocking; and, finally, by providing full opposition where the possession is contested in a game-like manner.

1.7.6 Opposed drills

Introducing opposition into any skill drill will provide the stepping stone to performing the skill in a game-like situation. Opposed drills entail the player and opponent weighing up the available options and choosing the best way to perform the task. Other skills, such as tackling and evasion, are also developed alongside the focus skill in some sports.

1.7.7 Grid games

Grid games are an extension of intermediate and advanced skill drills. They take place, as their name suggests, within a grid or defined area and usually involve a relatively small number of players, such as three to five players per side. An example of a grid game would include a keeping-off type passing game, which requires players from each side to make a certain number of passes while moving continuously within the defined grid or area. As the players' movements are not as defined as in a skill drill, players must make decisions on where and when to move, as in a real game situation. Such games not only encourage awareness of time and space but also help develop characteristics of teamwork, such as running to support and communication. In grid games, it is also possible to limit the movement of players to certain zones within the grid or area (non-invasive practices). This allows players to develop positional sense, and limits the type and amount of opposition that they encounter. Grid games provide an opportunity for players to begin developing what is referred to as **tactical proficiency**.

1.7.8 Tactical proficiency

Tactical proficiency or **decision making** is the ability to weigh up game situations and decide which option to take and when to take it; for example, whether to carry the ball or pass it to a teammate, or whether to shoot for a score or pass to a player who is in a better position. Tactical proficiency can be developed through activities that closely mirror game situations.

Game sense

Game sense can also be considered as an approach to coaching that uses the game as the focus of the practice session. By focusing on the game (not necessarily a full game but, often, a modified version of the game), players are encouraged to:

- start thinking strategically about game concepts
- become more tactically aware and able to make better decisions during the game
- develop skills within a realistic context rather than practising them in isolation
- develop a greater understanding of the game being played.

By using a game sense approach, players are challenged to think about what they are actually doing and why. Game sense activities require players to perform skills while in situations that simulate those they may be exposed to in a real game. Players are forced to weigh up the choice of which skill to perform, and how to perform the skill in order to complete the drill. These sessions help players quickly choose the appropriate technique at the right time during the heat of a game.

Game sense activities are an essential link between the development of skill or technical proficiency and being prepared to play in full-game situations. A game sense approach to developing tactical awareness and proficiency is addressed in more detail in chapter 3.

Learning about rules, strategies and tactics educates players to make good decisions during a game.



Synchronicity

An even more advanced skill is the creation of movement sequences aligned to the movement of others. Sometimes these are **synchronous** movements that require two or more athletes to move in unison for optimal performance to occur. Synchronous movements mean to move at the same time. Synchronised diving is an example of such an activity where two divers perform the same dive simultaneously. In a game of volleyball, a skill that requires synchronous movements is that of two athletes jumping up at the net together to block an incoming spike.

Individual movements are done by a performer in isolation. Using the above examples, a diver performing by themself or a volleyballer independently performing a serve, dig or set are examples of these types of movements. In team sports the individual movements performed by different players are combined to create a set play. This can occur at the same time, such as in a game of soccer where two athletes may perform a run into the penalty area to enable the player with the ball to keep dribbling and provide options for a pass to these players. Others are done in sequence, such as in volleyball where one player receives and passes a serve via a dig, then a different player sets the ball up for a third player who attempts to spike the ball down for a winner.

ACTIVITIES

1 Drill down

1. Work with a partner and select a skill from a sport of your choice.

2. Describe a basic, intermediate and advanced skill drill that you could use when teaching the skill to a group of secondary school students. Make sure that your three skill drills show progressions.
3. Demonstrate any one of your skill drills to the class during a practical session.

2 Game, set, match

List as many examples in sport as you can where set plays and routines can be applied to the advantage of the team.

3 SSTEP parameters

Refer to table 1.1 and create a skill drill for each of the five steps by using one of the following skill drill levels.

- Basic
- Intermediate
- Advanced
- Opposed

4 Creating a synchronous routine

In a group size of your choice, complete the following tasks in relation to *either* a dance routine or gymnastics routine.

1. Choreograph (plan) together a routine of your choice.
2. Practise the routine, aiming to incorporate synchronous movements between participants.
3. Video the performance using a tool of choice, such as Dartfish or Coach's Eye (many free options out there for you to use!).
4. Using this footage, critique the performance, highlighting areas of individual and group strengths and weaknesses.
5. Use this feedback in your next stage of practice with an emphasis on improving the quality of individual and group performance.
6. Video the 'final' performance and again critique the quality of the performance.
7. Discuss the benefits of using ICT as a mechanism to improve performance, particularly in regards to synchronicity and timing of movements.

CHECK & CHALLENGE

Explain

1. Outline the key differences between a basic, intermediate and advanced skill drill.
2. Which level of skill drills are grid games best suited for?

Evaluate

3. How can training and skill drills be used to build and improve the game sense of an athlete?
4. What does ‘game sense’ mean to you?
5. Explain why a long distance runner will prefer to use a shoe with thick padding on the sole as opposed to a sprinter who wants a thin padding.

1.8 Review

1.8.1 What have I learned?

- Fundamental motor skills are common movement activities such as running, jumping, catching, throwing, kicking and striking. They are the precursor movements to the more specialised, complex skills used in games, sports and physical activities.
- Measures used to assess movement proficiency include observation; checklists; rubrics and rating scales; measurements; norm- and criterion-referenced standards and percentile ranks; and statistical information.
- Teachers and coaches often possess movement and sport-specific knowledge and experience, as well as an understanding of the principles of skill acquisition and biomechanics.
- Skill acquisition is the movement science concerned with the processes and ways in which individuals acquire and learn motor skills.
- Feedback and practice are two other important factors affecting skill learning and acquisition.
- Biomechanics is the science that applies the laws of mechanics and physics to human movement.
- Summation of forces can involve either sequential summation of forces or simultaneous summation of forces.
- Impulse refers to the amount of force applied to an object and the period of time over which this force is applied. It is important in many sports, including the sprint start technique in athletics, pitching in baseball and performing the push pass in hockey.

- Accuracy in throwing and striking skills is often obtained through the application of the concept of ‘flattening the arc’.
- The stability of an object depends on a number of factors, including the area of the object's base of support; the height of the centre of gravity of the object above the base of support and the position of the line of gravity relative to the base of support.
- Skills should be practised through basic skill drills to begin with, progressing through more complex intermediate and advanced drills, and, eventually, game-like practices such as grid games and game sense drills.

CHECK

1. Link a fundamental movement skill to a manipulative skill by describing an example of how this works in a sport of your choice.
2. Explain how you would ensure consistency in assessing a gymnastics or dance routine. List the criteria you would expect judges to follow.
3. For a specific sporting skill, outline a plan of action to take a beginner from the cognitive stage through to the associative stage of skill learning.
4. For a specific sporting skill, explain how you would close this skill down so that a beginner could learn it, and then how you would gradually open it up as the learner became more proficient.
5. Select a sport and describe a typical training session that improves performance in a game situation.
6. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

Why is it important to identify and measure the proficiency of movement in athletic performance?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14835

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5383

Try out this interactivity: True/false quiz
Searchlight ID: int-5384

Try out this interactivity: Crossword
Searchlight ID: int-5385

Chapter 2: Participation, teamwork and fair play

Contents

2.1 Overview

2.2 Patterns of participation in sport and physical activity

2.3 Role of exercise in the lives of Australians

2.4 Roles and responsibilities in sport

2.5 Elements of teams and teamwork

2.6 Fair play and sporting conduct

2.7 Project: Organising a sports competition

2.8 Review

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2 Participation, teamwork and fair play



2.1 Overview

2.1.1 The benefits of being involved in sport

Learning objectives

- Examine the role physical activity, outdoor recreation and sport play in the lives of Australians and investigate how this has changed over time (ACPMP104) (VCHPEM157)
- Devise, implement and refine strategies demonstrating leadership and collaboration skills when working in groups or teams (ACPMP105) (VCHPEM158)
- Reflect on how fair play and ethical behaviour can influence the outcomes of movement activities (ACPMP107) (VCHPEM160)

What sports or recreational activities do you do? What Australians participate in and how often they do so has changed over the last 100 years. Participation brings physical, social and emotional benefits. Being involved in sport is not just about playing; officials, umpires and coaches all play a part. The different roles in sport all have different responsibilities, but fair play, ethics and effective teamwork are essential.

Good teamwork teaches many life lessons important in endeavours outside of sport.



ESSENTIAL QUESTION

How important is it for individuals to be involved in sport and physical activity?

STARTER QUESTIONS

1. What sports did you play when you were younger?
2. What sports do you play now?
3. How important do you think a coach, administrator or umpire is?
4. What do you think fair play is?
5. Does teamwork have a big impact on a team's success?

INQUIRY SEQUENCE

2.2 Patterns of participation in sport and physical activity

2.3 Role of exercise in the lives of Australians

2.4 Roles and responsibilities in sport

2.5 Elements of teams and teamwork

2.6 Fair play and sporting conduct

2.7 Project: Organising a sports competition

2.8 Review

on Resources

Watch this eLesson: Participation, teamwork and fair play
Searchlight ID: eles-2333

2.2 Patterns of participation in sport and physical activity

2.2.1 Active and passive participation in sport

Participation in sport and physical activity can take many forms. The participation can involve activity as a player or performer, or be more passive as a coach, umpire or administrator. ‘Spectating’ is not considered participation.

ENGAGE

There are many aspects of participation in sport and physical activity. In this section you will investigate the levels of participation of various groups and the methods of participation. The data presented provides information about:

- whole population participation
- male and female participation across all age groups
- children's participation in organised sport
- playing and non-playing involvement in organised sport and other physical activities.

This data is important for government bodies and sports organisations when campaigning to increase sport participation. Use the weblinks in your Resources section to research groups and organisations that promote participation in sports, and activities available to children and adults. During your research, consider the following.

- What is the purpose, goal or vision of the group or organisation?
- Who are the target groups?
- What activities, resources and opportunities are offered by the organisation?
- Is the content provided on each website relevant to you?

How do you interpret ‘participation in physical activity’?



on Resources

Explore more with these weblinks: ACHPER
Explore more with these weblinks: Better Health Channel
Explore more with these weblinks: Life. Be in it.
Complete this digital doc: Researching sporting websites
Searchlight ID: doc-14836

2.2.2 Participation in sport and physical activity — a statistical overview

In 2014, the Australian Bureau of Statistics (ABS) conducted a survey on the sports and physical activities in which people participated during the 12 months prior to the time of interview. This survey inquired about participation in sports or physical activities that are usually organised by a club or association (for example, netball and football), as well as other forms of non-organised sport such as swimming lessons. This survey found that 60 per cent of children between the ages of 5–l4 were engaged in organised sport outside of school time. For 15–17-year-olds, a total of 74 per cent of Australians participated in sport and physical recreation. This included 73 per cent of males and 75 per cent of females.

For adults, from about the age of 35 onwards, the percentage of people involved in sport and recreation declines, with about 45 per cent of women and 48 per cent of men over the age of 65 participating.

TABLE 2.1: Participants in sport and physical recreation

Age group (years)	Participation rate		
	Males (%)	Females (%)	Persons (%)
15–17	72.8	74.8	73.8
18–24	76.2	67.0	67.2
25–34	67.7	60.6	63.9

35–44	67.3	66.1	64.6
45–54	61.9	60.8	61.4
55–64	54.5	56.4	55.6
65 and over	48.3	44.8	46.6

Source: Australian Bureau of Statistics, *Participation in Sport and Physical Recreation*, Australia, 2011−12 (cat. no. 4177)

DID YOU KNOW?

By far the most active participants in sport, exercise and recreation are the residents of the Australian Capital Territory (ACT). In children, adolescents and adults, physical activity levels of ACT residents are well above the level of the rest of Australia!

For children aged 5−14 years, popular sports for males include soccer, swimming and Australian Rules football, while for females, dancing, swimming and netball were the most popular in 2012.

TABLE 2.2: Top 10 organised sports and dancing for children aged 5−14, 2006, 2009 and 2012

	2006	2009	2012
	Participation rates for males (%)		
Soccer (outdoor)	19.6	19.9	21.7
Swimming/diving	16.5	17.2	16.5
Australian Rules football	13.8	16.0	14.9
Basketball	7.4	8.5	9.2
Cricket (outdoor)	10.1	9.7	8.6
Tennis	8.0	9.4	8.4
Martial arts	6.1	7.5	7.8

Rugby League	7.9	7.0	7.5
Rugby Union	3.9	3.8	4.0
Dancing	2.4	3.0	3.5
Athletics, track and field	2.6	3.0	3.2
	Participation rates for females (%)		
Dancing	23.1	26.3	27.1
Swimming/diving	18.2	19.8	18.9
Netball	17.3	17.0	16.2
Gymnastics	—	—	8.1
Basketball	5.7	6.3	6.6
Soccer (outdoor)	6.4	6.2	6.5
Tennis	6.6	6.3	6.3
Martial arts	2.9	3.7	3.7
Athletics, track and field	3.2	3.5	3.1
Horse riding/equestrian/polo	2.8	2.4	2.0
Hockey	2.2	2.4	2.0

Source: Australian Bureau of Statistics, *Children's Participation in Cultural and Leisure Activities*, Australia, April 2012 (cat. no. 4901.0)

For all Australians aged 15 and above, the most popular physical activity is walking for exercise, although this is substantially higher for females (see table 2.3). Nearly half of all females aged 15 and above walk or go to the gym. Males are more likely than females to cycle, jog or play golf.

TABLE 2.3: Participation rates in selected sporting and recreational activities

	Number ('000)	Participation rate (%)
Males		
Walking for exercise	1474.1	16.5
Fitness/gym	1343.6	15.1
Cycling/BMXing	875.5	9.8
Jogging/running	775.3	8.7
Golf	732.5	8.2
Swimming/diving	671.9	7.5
Tennis	436.1	4.9
Soccer (outdoor)	368.6	4.1
Cricket (outdoor)	268.3	3.0
Basketball	245.6	2.8
Females		
Walking for exercise	2784.7	30.4
Fitness/gym	1745.7	19.1
Swimming/diving	729.2	8.0
Jogging/running	585.4	6.4
Cycling/BMXing	490.6	5.4
Netball	410.5	4.5
Tennis	314.2	3.4
Yoga	298.9	3.3
Dancing/ballet	229.1	2.5

	Number ('000)	Participation rate (%)
	Males	
Bush walking	216.8	2.4

Source: *Australian Bureau of Statistics, Participation in Sport and Physical Recreation*, Australia, 2011−12 (cat. no. 4177.0)

DID YOU KNOW?

The most common sporting activities that children participate in are swimming, soccer and netball.

There Is a physical activity suitable for everyone. Make sure some of your recreational activilies include physical activity to optimise your health.



ACTIVITIES

1 Physical activity in your community

For your own gender, does the information found in table 2.2 reflect what you think is happening in your own community? Does your community have resources that promote physical activity or potentially have barriers that prevent activity?

2 Your physical activity

Predict what might happen to your own physical activity levels over the next year. Discuss ways in which you might be able to increase the amount of physical activity you do to improve your health.

3 Predicting future trends

1. Using the information in table 2.2 and the **Australian Bureau of Statistics** weblink in your Resources section, analyse the trends in children's participation in organised sport.
2. Which sports have had the largest rise in participation rates? Why do you think this is? Using this information, predict which sports you think will grow the most in the next three years. Are there differences in the growth sports for males and females?

4 The quiet achievers

How important is the work of volunteers in organised sport in Australia? How could you go about recruiting people to act as volunteers for a local sporting club or team? What reasons or benefits could you sell to them about volunteering?

5 Collect and evaluate

Use the **Collect and evaluate** worksheet in your Resources section to complete a sophisticated task requiring data collection, evaluation and elaboration of results.

CHECK & CHALLENGE

Explain

1. Why would participation rates in physical activity and organised sport tend to decrease with age in people over 34?

Evaluate

2. Look at the top two activities for people 15 and over for both males and females. Why do you think these are the most popular?

Elaborate

3. Make a list of recommendations you could suggest to a local city council about providing facilities and programs to promote participation in sport and physical activity by the local residents. In particular, consider members of the following groups:
    - families
    - pre-school children
    - retired adults.

on Resources

Explore more with these weblinks: Australian Bureau of Statistics
Complete this digital doc: Collect and evaluate
Searchlight ID: doc-14837

2.3 Role of exercise in the lives of Australians

2.3.1 Exercise affects all aspects of our wellbeing

Australians recognise the importance of physical activity in maintaining a healthy lifestyle. However, many don't appreciate the significance of exercise to all dimensions of health.

ENGAGE

The link between participation in physical activity — whether it be organised sport or recreation — and good health is very strong. Federal and state governments, as well as local councils, fund and promote participation in physical activity as a means of maintaining and improving:

- physical wellbeing

- social wellbeing
- mental wellbeing (this can also be referred to as emotional health).

Consider what Australia would be like if no-one participated in physical activity. List as many consequences as you can. Then list at least four benefits that physical activity has on each of our physical health, social health, and mental health.

Physical activity benefits our physical, social and mental wellbeing.



2.3.2 Why participate in physical activity?

Throughout our lives, we are encouraged to participate in regular physical activity, and involvement in sport and recreation is seen as highly desirable. Campaigns that encourage us to become physically active, such as the Australian Government's Shape Up Australia, are continually being developed. But why do we need to participate in physical activity?

There is strong evidence to demonstrate that a range of health benefits (physical and mental) are gained from regular active participation in physical activity.

2.3.3 Physical health benefits

Physical health benefits of participation in physical activity include:

- reduced risk and incidence of cardiovascular disease
- reduced risk and incidence of stroke and heart attacks
- lower risk of high blood pressure and reduction of blood pressure levels in people who already have hypertension (high blood pressure)
- reduced risk and incidence of type 2 diabetes

- reduced risk of some types of cancer, for example, colon cancer
- building and maintaining healthy bones, muscles and joints
- prevention of osteoporosis
- improved posture
- help in achieving and maintaining a healthy body weight
- protection against musculoskeletal injuries in children
- improvement in movement and motor skills.

DID YOU KNOW?

Local governments provide contacts for, and information about, walking groups, bicycle paths, play groups and many other services that are aimed at promoting involvement in physical activity and healthy lifestyles. To find information about free services provided by your local government, visit their website.

2.3.4 Social health benefits

Social health benefits of participation in physical activity include:

- provision of opportunities for social interaction that helps to build community networks and reduces isolation and exclusion
- encouragement of family links
- reduction in workplace absenteeism (being absent from work) due to illness
- environmental benefits to society, with less pollution due to reduced car use through increased walking and cycling, referred to as ‘active transport’
- social and economic benefits to society — employment, sponsorships, national pride, role modelling and volunteer opportunities.

DID YOU KNOW?

The more you exercise, the lower your resting heart rate. This is because your heart is becoming more efficient and is able to pump more blood per beat.

2.3.5 Emotional and mental health benefits

Mental health benefits of participation in physical activity include:

- reduction in depression, anxiety and stress
- enhanced self-esteem and self-confidence

- improved concentration and enhanced memory and learning
- improved sleep patterns.

2.3.6 Trends in sport and physical activity

In Australia, ‘traditional’ sports such as cricket, netball, Australian Rules football and rugby have typically been popular. Over the last 100 or so years there has been a significant impact on the types of physical activity played by Australians as more migrants have arrived in this country, bringing with them sports and activities from their own cultures. Over this time an abundance of additional activities has been introduced by people from different cultures. Games like squash, badminton, lacrosse and bocce are examples of these.

In a world becoming more globalised, sports and activities from all around the world are accessible via the internet and television, bringing previously unheard of sports into the homes of Australians. Soccer has overtaken all other organised sports as Australia’s most popular junior organised sport. Seeing games from the English Premier League and World Cup games live has increased the popularity of the ‘world game’. Other examples of activities becoming more popular in Australia include activities from the Asia region such as yoga, tai-chi and a myriad of martial arts including taekwondo, karate, judo and kung-fu.

Within Australia, a significant contribution has also been made to the sporting landscape by Aboriginal and Torres Strait Islanders. For example, the sport of Marn Grook, a type of football played with possum hide, is played by Indigenous Australians from western Victoria. Some historians believe Marn Grook inspired the invention of Australian Rules football.

Famous Indigenous Australians have also made an enormous contribution to Australia’s sporting profile. These include:

- Cathy Freeman — gold medal winner of the 400-metre event at the Sydney 2000 Olympics
- Patrick Johnson —the first Australian to break 10 seconds for the 100-metre sprint (9.93 seconds)
- Patrick Mills — Australian basketballer playing in the NBA
- Lionel Rose — Australian of the Year in 1968, an icon of boxing in this country
- Adam Goodes — another Australian of the Year, famous AFL footballer and anti-racism campaigner
- Wendell Sailor — a Torres Strait Islander, famous Australian rugby league and union player
- Evonne Goolagong Cawley — winner of 14 Grand Slam events, a pioneer in Australian tennis.

Adam Goodes is an Indigenous Australian who has made an enormous contribution to Australia's sporting profile.



Over the last century the introduction of a huge variety of games and activities has changed the way in which Australians have viewed physical activity and sport. Australians have embraced multicultural sports and leisure pursuits, opening up the opportunity for us all to engage in activities that appeal to us, regardless of where they have come from. In a globalised world, it will be interesting to see what new sports and activities Australians indulge in over the coming years.

ACTIVITIES

1 Town mayor

If you were the local mayor of a new town, what activities would you promote, which facilities would you build and why? Write a report on your plans.

2 Sport promotion

Create a flyer/jingle/speech that targets a particular demographic and that promotes the benefits of sport.

3 Local research

Research your local government expenditure on sport and physical activity.

1. Do you think governments spend enough?
2. Do they target different sports equally?
3. Do you agree with the spending?

Justify your answer to each question.

4 Fact sheet

Use the **Shape Up** weblink in your Resources section to visit the website for this health initiative. Describe the purpose of this program and provide a fact sheet to help summarise the information provided at this site.

5 Encouragement

Imagine you are talking to an adult member of your family, such as an uncle or aunt. You are encouraging them to take up some form of exercise or sport. What would you say to them about possible immediate benefits and long-term benefits?

6 Martial arts investigation

Investigate a type of martial arts from around the world. Research its history and when it was first introduced into Australia. See if you can identify another form of martial arts not readily heard about or seen in Australia. Report back about this.

7 Indigenous Australians and sport

Research and report on a famous Indigenous Australian and their contributions to sport in Australia.

8 Activities from Asia

Participate in a low-intensity activity that originated from Asian culture, such as tai-chi (China) or yoga (India). Identify and then link the physical, social and emotional benefits of participating in the activity. Explore the importance of your chosen activity to the culture it has derived from.

CHECK & CHALLENGE

Explain

1. Explain why you think the federal government promotes the Australian Physical Activity and Sedentary Behaviour Guidelines. Give reasons for your answer.

Elaborate

2. Of the many health benefits of sport and physical activity, which five do you believe are the most important for the average Australian teenager? Explain your reasoning.
3. Visit the **Better Health Channel** weblink in your Resources section and provide a summary of the website, including its aims and strategies to improve the health of Australians.

on Resources

Explore more with these weblinks: Shape Up
Explore more with these weblinks: Better Health Channel

2.4 Roles and responsibilities in sport

2.4.1 The various ways people can become involved in sport

Participants in sport are expected to undertake specific roles and to accept the responsibilities that go along with those roles.

ENGAGE

Individuals can be involved in sport in many ways. These include:

- as a player, captain, or coach

- as an official, umpire, referee, timekeeper or scorer
- as an administrator, club president, team manager, trainer, runner or equipment manager.

It is very important that the roles and responsibilities of each participant are clearly defined for the sport to be conducted in a fair and orderly manner.

List the various roles you have played in organised sport, either in school or outside school. Which roles have you enjoyed performing and why? Which roles did you least enjoy performing and why?

Team-mates are responsible for the team culture and the team's success.



2.4.2 Players

Players participate either as individuals or as team members, depending on the nature of their sport or activity. In either case, players usually need to work closely with coaches and other support personnel to improve their performance and achieve their best. Team players also need to work cooperatively with others to help the team achieve its goals. Players generally have a number of expectations to fulfil as part of their role in sport and physical activity, such as:

- attending training and games, and working cooperatively with others in the pursuit of their individual and team goals
- being attentive to what is being said by the coaching staff, and being disciplined in the performance of activities, both during practice and during competitive matches
- participating positively and displaying good sporting conduct, and showing respect towards team-mates, opponents, coaches and officials.

2.4.3 Team captain

One player in a team who has a special role to play is the team captain. Captains are often selected by team-mates but may be selected by the coach or administrators of the sport, because such people have experience, ability in and knowledge of the game, as well as an understanding of strategies and tactics. The captain is often expected to:

- make important strategic and tactical decisions in the game
- be responsible for the conduct and behaviour of the team in general and of fellow players
- lead by example and to be an inspiration to other players
- perform media and sponsorship duties on behalf of the team
- communicate with officials (umpires and referees) and administrators on behalf of the team
- support and assist the coaching staff.

The role of the team captain, in this case Australian test cricket captain Michael Clarke, is crucial to the success of many teams.



2.4.4 The coach

Most athletes and sporting teams commit to a coach to help them achieve their goals. Coaching is central to the development of sport at every level, whether in a school environment, the local club or at an elite level. Coaches guide and assist athletes in developing their full potential. They are responsible for training athletes by analysing their performances, teaching skills and tactics, and provide encouragement, motivation and other forms of psychological assistance.

Roles and responsibilities of the coach

The roles and responsibilities of coaches are very broad. While a coach may not always be personally responsible for providing all of the expertise in each particular area, their overall aim is to prepare the players for competition with the aim of enhancing their performance.

Some of the roles and responsibilities that a coach may be expected to perform include:

- *educator* — teaching skills and techniques to players
- *strategist and tactician* — formulating and implementing game plans and strategies, in order to gain a competitive advantage over the opposition
- *fitness adviser* — improving player fitness through the development and application of appropriate fitness training programs
- *organiser* — planning and conducting training sessions, as well as coordinating the contributions of other staff, such as assistant coaches and medical staff (trainers, physiotherapists and doctors)
- *motivator* — motivating players, instilling a determination and a desire to succeed
- *disciplinarian* — developing and implementing player and team codes of conduct and behaviour
- *counsellor* — advising and supporting players
- *public relations officer* — providing publicity and acting as a marketing representative of the team, club and sport
- *role model* — personifying the positive attributes of being involved in the game or sport
- *nutritionist* — advising athletes and players about appropriate dietary and nutritional requirements
- *scientist* — keeping up to date with the latest developments and technology in sport and applying this knowledge to the benefit of the athletes and team.

The role of the coach is central to the development of sport at just about every level of competition and performance. Socceroos coach Ange Postecoglou talks to the players during a team training session.



Skills and characteristics of the effective coach

Effective coaches possess various skills, characteristics and personal attributes that enable them to develop productive relationships with the athletes with whom they work. Some of these skills are described below.

- *Knowledge of the game* — coaches must possess a thorough knowledge of the rules, skills, techniques and strategies for their sport.

- *Knowledge of coaching principles and sports science* — coaches need to understand and be able to apply coaching principles, as well as knowledge about skill acquisition and biomechanical principles. They also need to possess an understanding of exercise physiology and sports psychology.
- *Communication skills* — coaches must be able to communicate effectively with their athletes. Well-developed verbal and written communication skills are essential, as is the use of appropriate nonverbal communication, such as body language and gestures.
- *Observation and analysis skills* — coaches must possess the ability to observe and analyse a player's performance and, if necessary, implement modifications and corrections to the player's technique or performance.
- *Organisational and management skills* — the ability to plan and implement training schedules and programs, and to manage and coordinate the role of other coaching and support staff are essential skills required of the coach.

  Some of the characteristics and personal attributes that an effective coach has include:
- *patience, persistence, understanding and enthusiasm* — coaches need to be aware of and understand the personal goals and motivation of their athletes. Enthusiasm also tends to be infectious, rubbing off on players and encouraging them to strive for excellence!
- *values and integrity* — coaches should personify the positive aspects of involvement in sport such as respect, responsibility, determination, fair play and good sporting conduct. Acceptance and practice of the Coach's Code of Behaviour helps to ensure that coaches deal with their athletes honestly, and demonstrate the appropriate values and integrity expected of a coach.

DID YOU KNOW?

The tradition of the rousing motivational half-time speech by coaches is no longer embraced by elite level sporting teams. The focus today is on individualising feedback to each player and specific groups of players. An excellent coach knows the best way to motivate each individual member of his team, and this usually cannot be done in a group situation. Elite teams have a number of coaches who specialise in various aspects of the game.

Styles of coaching

Although coaches all bring their individual personalities and characteristics to the role of the coach, a number of recognisable styles of coaching have been identified. Traditionally, there have been three basic styles: the **authoritarian** or autocratic style, the **democratic** or cooperative style and the **casual** style. More recently, other styles have been identified, including the **command** style, the **reciprocal** style, the **problem-solving** style and the **guided discovery** style. Rarely do coaches fit these profiles exactly; rather, they tend to display the characteristics of one style more than the others. It is also true that many coaches combine elements from each of the main coaching styles.

2.4.5 Officials — umpires and referees, scorers, and timekeepers

An **official** is any person who controls the actual play of a sporting competition by applying the rules and laws of the sport to make judgements on rule infringement, performance, time and score. Officials in sport are most commonly referred to as umpires or referees, scorers and timekeepers.

Umpires and referees are responsible for ensuring players adhere to the rules.



The duty of the sports official is to act with integrity during competition, aiming to perform their role accurately, consistently and objectively.

Umpires and referees

Umpires and referees are responsible for regulating the conduct and playing of sporting events. They are responsible for ensuring that sports are played correctly and fairly, they penalise those players who break the rules, and they resolve disputes between teams. Umpires and referees also play a key role in ensuring the spirit of the game is observed by all.

Umpires and referees are required to have a thorough understanding of the sport's rules and the ability to make decisions quickly, accurately and fairly, often while under pressure. They must possess good communication skills and be attentive to detail. They also have personal and legal responsibilities towards the players; for example, ensuring that games are halted if the safety of players is jeopardised.

Scorers

Scorers are responsible for maintaining an accurate record of the scores achieved during the course of a game. This information is usually recorded on a scoresheet or scorecard, with at least some of the information displayed on a scoreboard so that all players, spectators and other officials are constantly aware of the state of the game. In some sports, scoring can be quite a complex process, and the person fulfilling this role needs to have a good understanding of the complexities of the task. For example, the scorer in cricket records all runs scored, both in total and by each batsperson, all wickets taken, both in total and by each bowler, and the number of overs bowled, both in total and by each bowler. They record how each batsperson was dismissed, the overall score at the time of each dismissal, and the number of runs scored by each batting partnership. They also record extras such as no-balls, wides, byes and leg byes.

Timekeepers

Timekeepers monitor the time during a game or sporting event. Their role is to ensure that competition times are adhered to and that periods of play are in accordance with the rules of the sport. Timekeepers are also responsible for recording times taken by athletes and sportspersons to complete events in sports such as athletics, swimming, cycling, skating, skiing and motor racing.

2.4.6 Administrators

Administrative roles in sport generally relate to the planning and organisation of sporting events or competitions, or to the running of a team, club, sporting association or sporting facility. Sports administrators may occupy positions such as team manager, executive officer, committee member, centre manager and event manager.

2.4.7 Fairness and ethical behaviour in sport

All participants, coaches and officials have an obligation to adhere to the rules of the game. They also have responsibility to act ethically at all times. Although the term ‘acting ethically’ can be interpreted a number of ways, most people would agree that this means that people should behave in a manner that is consistent with the values considered appropriate in a sporting context. Examples are behaviours consistent with the maintenance of the spirit of the sport, a level playing field for all, maintaining the health and safety of all and good role modelling for others.

There are a number of organisations around Australia that aim to promote ethical behaviour in sport, including:

- the Australian Institute of Sport which, through its website, promotes a coach’s code of behaviour that gives coaches advice on how to act with integrity and respect, while aiming to promote safety, health and excellence in the athletes they work with

- the Australian Sports Anti-Doping Authority (ASADA). This organisation works in conjunction with national sports organisations, providing advice and guidelines about promoting doping-free sports environments around the country.

CASE STUDY

ASADA is a national organisation that enforces the world anti-doping rules in this country. It provides education to all officials and athletes about how to behave ethically and within the rules. There are eight categories of doping violations:

1. an athlete having a prohibited substance in their sample
2. an athlete using or attempting to use a prohibited substance or method
3. refusing or failing to submit a sample collection when requested
4. failing to be available for out-of-competition testing, including failure to file required whereabouts information
5. tampering or attempting to tamper with any part of doping control
6. possessing prohibited substances and prohibited methods
7. trafficking or attempting to traffic any prohibited substance or prohibited method
8. administering or attempting to administer to any athlete in-competition or out-of-competition any prohibited method or any prohibited substance, or covering up an anti-doping rule violation or any attempted anti-doping rule violation.

ACTIVITIES

1 Captain

1. In groups of three, brainstorm the qualities that you think are important for a team captain to possess or display. List at least five of these qualities in a table or mind map.
2. Identify a captain in a sports team who possesses these qualities and write a report explaining in what ways these qualities make him or her a successful captain.

2 Coaching

1. List the most widely recognised coaching styles.
2. Which of these coaching styles would you most relate to as a player and why?
3. Rank, in order of priority, the top six skills and characteristics that you believe would be most important for a coach of an under-15 mixed netball team to possess and display. Be prepared to justify your selections and ranking.

3 Have a go

As a class, organise a team round-robin competition. Take turns to trial different roles throughout the competition, such as player, coach, scorer, umpire or timekeeper. Reflect on these different roles by using the **Round-robin roles** worksheet in your Resources section. Discuss the pressures of being an official rather than a scorer.

4 Match up

Complete the **Recognising roles in sport** and **Coaching styles** interactivities in your Resources section to identify different sporting roles and coaching styles.

5 Research task

Choose either option 1 or option 2.

1. Select and research one of the eight categories of anti-doping violations, then answer the following.
    - Provide an example of an anti-doping violation in this category. Indicate what the outcome was.
    - Explain why you think this particular rule is in place.
      What would happen if there were no anti-doping violations?
2. Research other organisations that promote fairness and ethical behaviour in sport. Identify their role and provide an example of their work in practice.

6 Different roles

Imagine yourself in the role of umpire, coach and official. For each role, explain how you would ensure you fulfil your role efficiently.

CHECK & CHALLENGE

Explain

1. Discuss the difficulties associated with umpiring and refereeing. How important is it that umpires and officials be treated with respect?

Elaborate

2. How could umpiring and refereeing be made more appealing to people?

Evaluate

3. How can players, coaches and officials assist referees and umpires to carry out their key responsibilities during the game?

Elaborate

4. Draw up a table that compares the advantages and disadvantages associated with each of the most widely recognised styles of coaching. Which style do you think would be most successful today? Explain your reasons.

Evaluate

5. Imagine you are a coach of the local junior sporting team. What do you see as the most important aspects of your role? How, as the coach, would you cater for the individual needs of the players in your team?
6. In how many ways can an athlete and coach contravene anti-doping violations?

on Resources

Explore more with these weblinks: ASADA

Complete this digital doc: Round-robin roles
Searchlight ID: doc-14838

Try out this interactivity: Coaching styles
Searchlight ID: int-5483

Try out this interactivity: Recognising roles in sport
Searchlight ID: int-2392

2.5 Elements of teams and teamwork

2.5.1 Good teamwork brings success

Success is more likely when there is great teamwork between all individuals involved in the team. A team is a group of people with complementary skills who are committed to a shared purpose.

ENGAGE

In this section, many aspects of teamwork will be investigated. Think about any teams you have been associated with in the past 12 months. Were they effective or ineffective, successful or otherwise? What was it about these teams that made them this way? What are the key elements of high performing teams? How can great teamwork be developed?

Use a range of research tools, including the internet, to create a database of definitions or characteristics of what makes a successful team. Collect at least three definitions.

Teams provide an opportunity for individuals to work together to achieve a common purpose.



on Resources

Explore more with these weblinks: Teamwork

2.5.2 Teams and teamwork

Being involved in a sporting team provides opportunities to:

- improve and develop individual and group skills
- meet other people who share a mutual interest
- work cooperatively with others to achieve a common purpose
- work and socialise with others, and develop friendships and relationships
- respond to challenging situations
- develop leadership skills
- improve self-confidence and self-esteem.

DID YOU KNOW?

The Hockeyroos, Australia's gold medal winning women's hockey team at the Sydney Olympics, voted to share any financial rewards they might receive as a result of their performance at the Sydney Olympic Games among the whole squad of 25 players, rather than only those 16 players who would be named in the team for the Games. Ric Charlesworth, the team coach at the time, stated, 'The strength of a team lies within the capacity of its individuals to agree on and strive towards common goals and rewards'.

2.5.3 Key elements of high-performing teams

Most people interested in how teams perform and how teamwork develops agree that high-performing or successful teams, regardless of whether they are sporting teams, tend to display certain key elements or characteristics. These key elements can be summarised as follows.

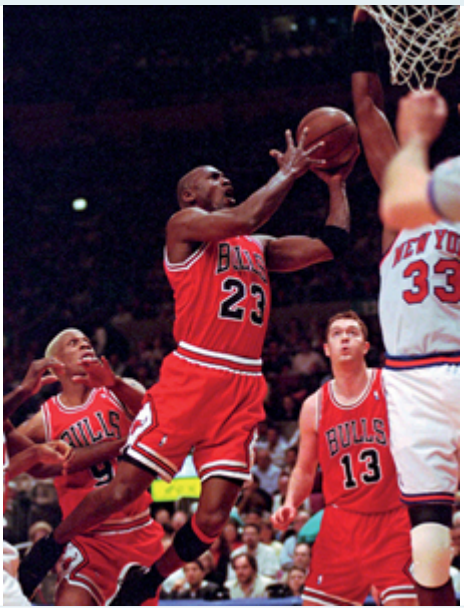
- There is a clear and common purpose. The vision or purpose of the team has been defined and accepted by everyone. Goals and tasks are understood and committed to by everyone.
- There is a climate of trust between members of the team.
- Open and honest communication exists among members. Team members feel free to express their feelings on the goals and tasks, as well as on the group's operation.
- Diversity of opinions and ideas is encouraged.
- Creativity and positive risk-taking is evident.
- A sense of belonging and pride in accomplishments is promoted and encouraged.
- The team is constantly learning and aiming to improve.
- Procedures are developed to diagnose, analyse and solve problems.
- Participative leadership is practised; while the team may have a formal leader or leadership group, leadership functions shift from time to time, depending upon the circumstances, the needs of the situation and the skills of the team members.
- Decisions are supported and made together; for important decisions, there should be substantial, but not necessarily unanimous, agreement through open discussion of everyone's ideas and the avoidance of formal voting.
- There are clear roles and assignments. Expectations about the roles played by each team member are clear, and the workload is evenly and fairly distributed among all members.
- The team is diverse and has a broad spectrum of team member types.
- Self-evaluation is apparent. Periodically, the team examines how well it is functioning and what may be interfering with its effectiveness.

2.5.4 Team building and developing teamwork

Developing a sense of team and teamwork can be a very complex and challenging task, but the rewards can be substantial. Most sportspeople would agree that a champion team will always beat a team of champions.

Team building, which is often a key role expected of the coach, is very much a matter of putting in place ingredients and strategies that allow for the characteristics of successful teams to develop and flourish.

According to basketball legend Michael Jordan, ‘talent wins games, but teamwork wins championships’.



Selection of team members

The selection of team members is very important when building teams and developing teamwork. Effective teams are made up of a range of different types of team members who develop confidence and trust in one another. Effective teams also consist of a range of team members with different skill sets and experience. Balancing skill sets and the experience of team members can help build an effective team.

Establishing a common purpose or goal

Establishing a common purpose or goal within the team is essential in team building. Teams need to understand what they are trying to accomplish and why. This gives the team direction and offers each member a sense of value and commitment. Team members also need a detailed understanding of how the team will accomplish its tasks and goals.

Allocation of roles within the team

Assigning roles to team members helps individuals to assume an active and productive position within the team. However, individuals must be willing and able to adapt to new roles if required by the team. Teamwork also requires people who are willing to assist others in their roles at times.

Training on how to work together

A team must know how to work together to be productive and successful. Sometimes, specific training in how to work together is necessary or advantageous. Such teamwork training might include instructional workshops and courses on communication skills, conflict resolution, goal setting and other topics that provide skills necessary to be an effective team player.

Many teams also participate in training camps and challenge activities whose primary goal is team building and the development of team spirit. Typically, players are subjected to challenging and demanding situations that require them to make good decisions while under pressure, to problem solve and to work together to achieve a certain goal. AFL football teams, Rugby League teams and the Australian cricket team are just a few of the many teams that engage in these types of camps and activities.

Many sporting teams participate in training camps and challenge activities, the primary goal of which is team building and the development of team spirit.



Motivation

A variety of strategies can be adopted to motivate players and teams. Some of the easiest methods include use of ‘self-talk’ and encouragement to each other. A famous Australian tennis player, Leyton Hewitt, regularly used self-talk as a way of increasing motivation and energy levels during a match. His famous catchcry was ‘come on’, which he regularly expressed at times where he needed to energise himself. This often inspired others in the crowd to also make some noise, increasing the likelihood of encouragement from them, therefore raising his expectation motivation.

Similar tactics are used in team sports, where team members aim to use encouraging language to increase the motivation of others. This encouragement in team sports should be reciprocal, meaning that all team members have the responsibility to encourage others in addition to being the recipient of positive comments.

Support within the team

Team support is not only about individual team members being warm, empathetic and caring about their team-mates, but it is also about providing four distinct types of support: emotional support, informational support, instrumental support and appraisal support.

- Team **emotional support** refers to the notion of a shoulder to cry on, an encouraging word and sympathetic understanding of another team member's emotional pain or distress.
- Team **informational support** refers to the extent to which team members exchange necessary information.
- Team **instrumental support** focuses on the practical support that team members offer each other.
- Team **appraisal support** is the help individual team members can provide one another in making sense of a particular situation, and providing feedback to others.

Team building will be successful if the team members can provide each of these types of team support.

Communication between team leaders and team members

One of the most important contributions a team leader can make to a team is to ensure that a climate exists within the team that enables members to speak honestly and deal openly with any obstacles or problems that might be preventing the team from achieving its goals.

ACTIVITIES

1 Recipe for success

1. List five benefits of being involved in a sporting team.
2. Summarise the ingredients required for an effective team.

2 There is no ‘I’ in team

What sayings or team bonding games do you know that promote teamwork? Create a class folder of games and sayings.

In rowing, the cox communicates with the rowers to ensure everyone works together as a team.



3 Teamwork

1. As a class, set up an obstacle course in the gym or other suitable area, using safe equipment such as gymnastics items (for example, vaulting horse, beam, parallel bars, gym mats), benches, hoops, tyres, wall bars and ropes.
2. Divide the class into teams of about five or six students.
3. The aim is for each team to work together to move around the obstacle course in the shortest possible time. Each team could have one common handicap; for example, the team might have to transport a container of water around the course without spilling it, or have one team member who is blindfolded. The time taken to complete the course is measured when the last member of each team crosses the finish line.
4. a. At the end of the activity, reflect upon your experiences and record some details about the factors and characteristics that helped each team to work together and function effectively as a single unit. Consider leadership styles and team dynamics.
   b. Consider the factors and characteristics that hindered cooperation and effective teamwork. Consider leadership styles and group dynamics.

4 Assessing teamwork

1. List the characteristics that you think are desirable in team members, such as in a game of basketball. The focus should be on the factors that influence teamwork and being a valued member of the group. As a group, come together and highlight the main five characteristics that you think are important in a team player. After this, design a rubric that can assess these five characteristics.

2. After this, partake in a game of basketball against another group that has completed their own rubrics on what they think is important in a team player.
3. After the game each team member is assigned to assess another team-mate using the rubric designed. Pass this to the team-mate who is to complete two tasks. First, write a short summary of ‘what makes me a good team-mate?’ Second, write a short summary stating ‘how can I become a better team-mate?’

CHECK & CHALLENGE

Explain

1. Explain the four types of support that can help to build effective teams.
2. Have you ever participated in a team-building activity? If so, describe what you did and whether or not it was successful. Identify what aspects made the activity successful or unsuccessful.

Elaborate

3. Identify and discuss the characteristics you have that would contribute to the success of an effective team.

Evaluate

4. Research and provide a brief written report on a team leader who you believe made a significant contribution to the success of the team that they worked with or were part of. Provide information about the leadership qualities they possessed and demonstrated. Evaluate how these qualities contributed to the success of the team.

2.6 Fair play and sporting conduct

2.6.1 Being a good sport

It is important for individual team members and teams to learn to lose gracefully and to win with humility.

ENGAGE

In small groups, discuss the aspects of what constitutes good sporting conduct, and then write your own definition. To extend your discussion, use the **A response** and **Behaving badly** weblinks in your Resources section to watch behaviour displayed by Serena Williams during a heated tennis match, and read some comments about the same incident.

on Resources

Explore more with these weblinks: A response
Explore more with these weblinks: Behaving badly

2.6.2 Fair play

Although competition can be positive and rewarding, it can also result in negative behaviours being exhibited by some players or teams. Factors such as poor performance, frustration or anger, external pressures (such as peer pressure or parental pressure) and a win-at-all-costs mentality can result in individuals or teams displaying unsporting conduct. Learning to lose gracefully, as well as learning how to win, are important habits for individual team members and teams as a whole to develop. It is the team's responsibility to develop the high standards of attitude and behaviour in its players and members.

2.6.3 Sporting conduct

Put simply, good **sporting conduct** means conforming to the rules of sport. More grandly, it may be considered the ethos of sport. The activity will be enjoyed for its own sake, with proper consideration for fairness and ethics, and respect for one's opponents. Basically, good sporting conduct occurs when team-mates, opponents, coaches and officials treat one another with respect and consideration. Good sporting conduct starts with something as simple as shaking hands with an opponent before a game, and includes acknowledging skills displayed by others and accepting unfavourable decisions gracefully. Good sporting conduct means acknowledging your victories without demeaning your opponents. Even if you win comfortably, good sporting conduct means still finding ways to compliment your opponents.

Gracious winners and losers characterise a good sporting contest.



Poor sporting conduct can manifest itself in many ways, such as arguing with or not accepting the umpire's decisions, winners ‘rubbing salt in the wounds’ of the losers, and the losers acting or speaking offensively, or blaming others for their loss. Poor sporting conduct can also include booing national anthems and failing to congratulate or acknowledge winners.

Coaches and parents who emphasise good sporting conduct see winning as just one of several goals. They help young athletes take pride in their accomplishments and in their improving skills, so that they see themselves as winners even if the scoreboard doesn't show it. The best coaches and parents encourage young players to have fun, to play fairly by the rules, and to concentrate on helping the team while developing and improving their own skills.

Sporting conduct case study: John Landy

The 1956 National Mile (1500 m) Championship in Melbourne is remembered for one of the greatest sporting gestures of all time. John Landy had become the world champion miler in 1954. No-one in the world was faster week after week over the mile and three miles than John Landy. Ron Clarke, another Australian, held the Australian and World Junior Mile record. As the 1956 Olympics loomed, everybody was looking to Landy to set a new world record. Many thought that if Landy got a fast start in the championship race he would set a new world record.

At the end of the first lap of this race, Robbie Morgan-Morris had completed the first quarter mile in 59 seconds, followed by Ron Clarke, Alec Henderson, John Plummer and then John Landy. The time was right on target for a world record. At the half-mile, Morgan-Morris was still leading and the time was two minutes and two seconds. At the start of the third lap, young Clarke and Landy moved forward. A new world record beckoned. Then an event occurred which is etched into the minds of many who witnessed it.

Clarke was moving to the lead as they came into the corner on the third lap. Landy was on his shoulder. Alec Henderson tried to squeeze between the two runners and the inside edge of the track. In doing so, Clarke, with his spikes, clipped his heel. Clarke sprawled forward onto the cinder track while Henderson was knocked onto the inside arena. Landy leaped over the falling body of Clarke in front of him and, as he did, his sharp spikes tore into the flesh of Clarke's shoulder. The rest of the field either jumped over Clarke or ran round him.

The 1956 National Mile Championship. After this incident, John Landy offered his hand to the fallen Ron Clarke in what many people believe to be one of the greatest examples of good sporting conduct.



Then, to everyone's amazement, Landy stopped, turned around, ran back to the fallen Clarke and helped him up to his feet. Landy had forgotten about the Australian mile title, his world record bid, even the approaching Olympic Games, in a spontaneous gesture of good sporting conduct. Clarke got to his feet and, together, Landy and Clarke set off after the other runners. They were 60 yards (55 metres) behind the rest of the field, who had kept on running, and the crowd did not expect them to continue. Clarke and Landy sprinted off in pursuit. The crowd was shouting as, with every stride, Landy hauled in the front runners.

Landy quickly ran round the rest of the field, and came into the home straight, leaving Clarke behind with a powerful finish. He stormed down the straight and in the last ten yards passed the two leading runners to win the Australian Championship in four minutes and four seconds. There was no question Landy could have set a new world record that day. Stopping and going back, picking up Clarke and then running back over his tracks had cost him eight or ten seconds.

John Landy was to go on and set new world records and become a hero at the 1956 Olympic Games (he also became Governor of Victoria from 2001 to 2006), but nothing compares with that race in 1956 when he stopped, picked up Ron Clarke and then continued to run himself into athletic immortality.

Use the **A good sport** weblink in your Resources section to watch an interview with John Landy in which he reminisces about his sporting conduct.

Developing good sporting conduct

Good conduct learned through sport often carries over into other areas of your life. At school, for example, you are better able to appreciate the contributions made by classmates, and know how to work as part of a team to complete a project.

You can develop good sporting conduct by adopting the following advice.

- Learn as much as you can about your sport and always play by its rules.
- Realise that, on a team, everyone deserves a chance to play.
- Speak politely and act courteously toward everyone before, during, and after games and events.
- Stay cool, even if others are losing their tempers.
- Never settle disputes by resorting to violence. Remember that if you respond with violence, you could be penalised or even injured.
- Support your team-mates with positive statements and avoid trash-talking.
- Acknowledge good plays, even when someone on the other team makes them.
- When officials make a call, accept it gracefully, even if it goes against you.
- Whether you win or lose, congratulate your opponents on a game well played.

DID YOU KNOW?

Adam Gilchrist, who opened the batting in the cricket World Cup semi-final in 2003, created enormous debate about what constituted good sporting conduct and fair play when he 'walked' after being given 'not out' by the umpire. The debate centred on whether Gilchrist had set an unreasonable precedent for all future batsmen by declaring himself 'out'.

on Resources

Explore more with these weblinks: A good sport

2.6.4 Codes of behaviour

Codes of behaviour or conduct are also useful tools in educating and encouraging athletes to play fairly and in a correct fashion. The Australian Sports Commission (ASC) has developed various sporting codes of conduct that apply to players, coaches, administrators, spectators, officials and parents, as well as a general code of behaviour. Use the **ASC** weblink in your Resources section to find out about these, as well as codes of ethics developed by the ASC.

Resources

Explore more with these weblinks: ASC

2.6.5 Resolving conflict in sporting environments

In many types of social situations, conflict between individuals can arise. The sporting environment is certainly no exception to this. Conflict and, on some occasions, violence, can arise on the field between players and teams, and between players and officials.

Conflicts and acts of violence need to be resolved to the satisfaction of all parties involved. Within professional and elite sporting ranks, most sports have judiciaries that examine incidents that may have occurred, and make judgements about them. Often, sanctions in the form of suspensions and fines are handed down to players found guilty of breaches of rules and standards of conduct. These sports have often invested a lot of time, thought and resources into analysing the types of conflicts that occur and working on solutions that will be fair and just.

Athletes need to be careful that natural on-field aggression does not become violent, or turn into a conflict.



Conflicts can also arise in games and activities during lunchtimes or in classes. Conflicts might arise because of disputes over rules, or if one person feels threatened or treated unfairly. Not sharing equipment and facilities are also common causes of conflict. Often, these types of conflicts will be resolved through the intervention of a teacher. However, this is not always the case, and the conflict can quickly escalate if young people do not have the skills and ability to resolve such issues appropriately. The following strategies can be employed to help resolve situations of conflict.

- Focus on the problem or behaviour, not on the person.
- Listen attentively and with an open mind to the other person.

- Explain your point of view clearly and calmly.
- Try not to lay blame on other people.
- Make your actions and responses positive at all times.
- Be willing to compromise so as to bring about the best outcome for all.
- Seek help from teachers if you think it is required.
- If conflict arises between others, try to mediate rather than taking sides.
- View each situation of conflict as an opportunity to develop and improve your interpersonal and relationship skills.

ACTIVITIES

1 Conduct

1. Use the **Codes of conduct** worksheet in your Resources section and read the codes provided.
2. What do they have in common?
3. How do they vary?
4. What improvements or amendments would you suggest for each code of conduct?

2 Observe

Observe a class member as he or she participates in a game or activity in class, and assess his or her level of fair play and sports etiquette. Rate their level of performance from 1 to 5 in each criterion.

- Encouraged team-mates (for example, said things like ‘well done’ or ‘good shot’)
- Displayed respect and courtesy towards opponents; did not sledge, put down or abuse opposition players
- Involved all other players in the game by sharing the ball and ensuring that no-one ‘hogged the ball’; did not attempt to dominate play at all times
- No evidence of cheating or attempting to take unfair advantage of situations
- Displayed respect and courtesy towards umpires and officials; accepted decisions without complaint and did not abuse or criticise
- Won or lost gracefully — shook opponents' hands after the game and congratulated opposition

Levels of performance

1. Student never demonstrated criterion.
2. Student demonstrated criterion in fewer than 50 per cent of the opportunities presented.
3. Student demonstrated criterion in more than 50 per cent of the opportunities presented, but fewer than 75 per cent.
4. Student demonstrated criterion in more than 75 per cent of the opportunities presented, but fewer than 100 per cent.
5. Student always demonstrated criterion.

3 It's your turn

Develop a code of behaviour that outlines how your class should behave when engaged in sporting competition in class. Using ideas from all students, this may become the basis for a class code of behaviour.

4 Someone else's shoes

What would you have done if you were Adam Gilchrist in the situation described in this section? Explain and justify the motivation for your action to a partner.

5 Sports boycotts

Use the internet and other sources to research famous boycotts of sporting events. As a class, discuss whether political conflict should have a role in defining fair play and good sporting conduct.

DID YOU KNOW?

Sports diplomacy is used to influence politics, usually through boycotting sporting events or teams. In 1964, South Africa was excluded from the Olympics because of its policy of apartheid. As well as other limitations, apartheid forbade people of different races to play sport together. Many teams refused to play in South Africa until apartheid ended in the 1990s.

CHECK & CHALLENGE

Explain

1. How do you think parents should behave when watching their children participate in sport?
2. What impact do you think parents with poor sporting conduct might have on their children, and their children's continued participation in sport or physical activity?

Elaborate

3. What actions should local sporting clubs and associations take to ensure that all member groups are aware of and abide by appropriate standards of behaviour?

Evaluate

4. Outline five conflict resolution strategies that you might recommend to help resolve a situation of conflict occurring between two groups of students playing basketball at lunchtime. Rate which strategy you think would be most effective.

on Resources

Complete this digital doc: Codes of conduct
Searchlight ID: doc-14840

2.7 Project: Organising a sport competition

projectsplus

2.7.1 Scenario

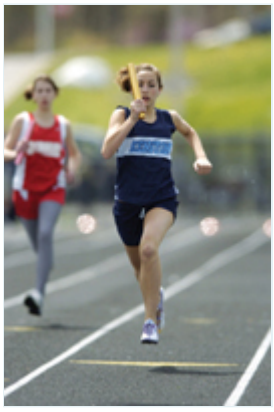
Our new sports program wants more students involved in organising the sporting competitions. Being part of the sporting culture is so important at our school and to your house team — we need you to be involved.



2.7.2 Your task

Your group has been appointed to manage a sports competition within your school. As a group, you are responsible for organising, promoting and conducting the competition. With your teacher, decide whether your group will manage a lunchtime sporting competition, or assist with an existing sporting event for the school, such as a swimming carnival or athletics day. For this task, you will need to work in a group of at least six people.

2.7.3 Process



- Open the ProjectsPLUS application for this chapter in your Resources section. Watch the introductory video lesson, click the ‘Start Project’ button and then set up your project group. Save your settings and the project will be launched.
- Navigate to your Research Forum. Here you will find a number of pre-loaded topics that you may need to research in order to organise a sporting event. These include ‘Roles and responsibilities in sport’, ‘Rules of the game’, ‘Organising a sports competition’ and ‘Running the event’. You may also add other research topics that you think may help you in your task.
- In your group, there are many decisions you will need to make. As a group, determine what competition within the school calendar or a new competition at lunchtime you could organise. Decide who will be involved in your competition and select an appropriate sport to play — you might want to poll the students as to their preferences. Decide on when and where the competition will be held. You will probably need to liaise with the teachers to arrange these details. Determine how many teams can enter your competition and the length of time it will run for. Each group member needs to be involved in all areas of the competition. This includes coaching, refereeing, being team captain, timekeeper, team manager and crowd control. Don't forget fans and reporters can watch the competition! Make notes of reminders, tips or reflections as the project moves ahead.

- Enter the information that you find as articles under your topics in the Research Forum. You should find at least two sources (other than the textbook) to help you find advice about running a sporting competition. You can view and comment on other group members' articles and rate the information that they have entered.
- There are three parts to this project; promotion, organisation and awards.

  – *Promotion* — as a group, promote your sports competition. Your mission is to make people participate in the sporting competition. You could make posters, newsletters or create and participate in assembly presentations.

  – *Organisation* — as a group organise how the competition will run. Assign members in your group different roles such as umpires, scorers, timekeepers and recorders. These roles will require some notes or templates to be used on the day. Use **Word** to create scoresheets or lists. You might need sign-up sheets, equipment lists, schedules and scoresheets to record results. If you are doing a lunch-time activity, once entries have been received, organise and publish a sports draw — either round robin or a knock out competition. If you are in charge of team morale for a school event, you want to create banners or chants to cheer on the competitors.

  – *Awards* — promoting a sporting culture never ends. At the conclusion of the competition you should have some kind of award ceremony or presentation. This could be at your school assembly or a notice in the school newsletter. Use **Photoshop**, **Word**, **Publisher** or a communication tool of your choice to share the sporting news with your school. You could give out awards or certificates. Remember to recognise all those who participated, not only those who won.

- In your report, include such things as:

  – the number of teams and students who took part

  – details of the draw (include a copy of your notes)

  – roles and responsibipties that needed to be undertaken in order to conduct the sporting competition

  – an outpne of any problems or difficulties your group faced and what you did to overcome these problems.



- Include in your presentation any photos or video footage you make have taken during the competition.
- Print the Research Report from your ProjectPlus Research Form and hand this in to complete your project.

SUGGESTED SOFTWARE

- ProjectsPLUS
- Microsoft Word
- PowerPoint
- Photoshop
- Microsoft Publisher

MEDIA CENTRE



Your Media Centre contains:

- a video outlining organisational tasks for a competitive event
- templates to help you organise your plans and record keeping
- images for your advertisement or competition awards
- an assessment rubric.

Resources

Watch this eLesson:
Searchlight ID: pro-0064

2.8 Review

2.8.1 What have I learned?

- Participation in sport and physical activity can take many forms. These include playing or performance of the sport or activity, coaching, officiating, administrative roles, and support roles such as trainers and medical assistants.
- There is strong evidence to demonstrate that a range of physical, social and mental health benefits are gained from active participation in regular physical activity.
- Most athletes and sporting teams commit to a coach to help them achieve their individual or group goals.
- Coaches require a wide range of skills and characteristics, including knowledge of the game, knowledge of coaching principles and sports sciences, communication skills, observation and analysis skills, organisational and management skills, patience, persistence, understanding and enthusiasm.
- A team can be defined as a number of people with complementary skills who are committed to a shared purpose, performance goals, and approach for which they hold themselves mutually accountable.
- Codes of conduct are useful tools for educating and encouraging athletes to play fairly.

CHECK

1. Describe and explain the change in patterns of participation in physical activity as people move from childhood to adolescence, and then into adulthood.
2. What are the short- and long-term benefits of participating in sport?
3. What are the two most important characteristics the person in these roles should display?
    a. Team captain
    b. Junior coach
    c. Elite coach
    d. Senior coach
    e. Parent spectator
4. Provide your own definition of what it is to be a:
    a. great team member
    b. great team
    c. fair sportsperson.
5. What is the role of the coach in developing each of the characteristics identified in question 4?
6. How does a good coach build team relationships?
7. What is the role of a code of conduct in:
    a. promoting fair play
    b. promoting high quality performance
    c. providing penalties for indiscretions?
8. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

How important is it for individuals to be involved in sport and physical activity?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14841

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5386

Try out this interactivity: True/false quiz
Searchlight ID: int-5387

Try out this interactivity: Crossword
Searchlight ID: int-5388

Chapter 3: Movement concepts, game sense, tactics and strategies

Contents

3.1 Overview

3.2 Movement concepts

3.3 General principles of team organisation

3.4 Set plays, tactics and strategies in Australian Rules football and badminton

3.5 Developing strategic thinking, tactics and strategies: a game sense approach

3.6 Review

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3 Movement concepts, game sense, tactics and strategies



3.1 Overview

3.1.1 Developing effective strategies

Learning objectives

- Develop, implement and evaluate movement concepts and strategies for successful outcomes with and without equipment (ACPMP101)
- Develop, implement and evaluate movement concepts and strategies for successful outcomes (VCHPEM154)
- Design, implement and evaluate personalised plans for improving or maintaining their own and others' physical activity and fitness levels (ACPMP102) (VCHPEM155)
- Examine the role physical activity, outdoor recreation and sport play in the lives of Australians and investigate how this has changed over time (ACPMP104) (VCHPEM157)

Movement concepts, game sense, tactics and strategies provide a framework for enhancing movement performance within individual and team sports. Being aware of the many different ways your body can move and interact with objects and people helps you choose and develop effective strategies for your movement. This topic will show you how to learn, use and devise basic skills, movements and strategies to counter tactical challenges you will face during complex physical activities.

Game sense means knowing the rules. Does this photo show a foul or a good tactic? When playing sport, how have strategies helped you?



ESSENTIAL QUESTION

How can game sense training develop better tactical decisions during a match?

STARTER QUESTIONS

1. How many different ways can you move your body?
2. What are elements of movement?
3. What type of skills do you use in your favourite game or activity?
4. How do you adapt your skills to counter challenges within the game?
5. What tactics have you used in offensive or defensive game situations?
6. How do you show effective game sense?

INQUIRY SEQUENCE

3.2 Movement concepts

3.3 General principles of team organisation

3.4 Set plays, tactics and strategies in Australian Rules football and badminton

3.5 Developing strategic thinking, tactics and strategies: a game sense approach

3.6 Review

on Resources

Watch this eLesson: Movement concepts, game sense, tactics and strategies
Searchlight ID: eles-2334

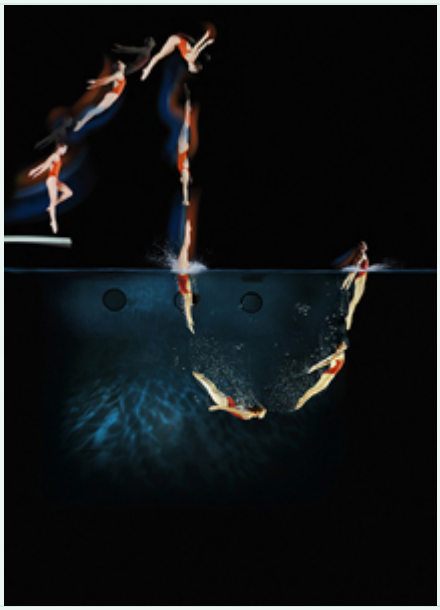
3.2 Movement concepts

3.2.1 A framework for how to move your body effectively

The primary goal of knowledge and understanding of Physical Education is to provide opportunities to develop skills, and to have confidence with the ways you can perform them. You need to understand **movement concepts** and the skills that enable you to complete the movement because this gives you a framework for how to effectively move your body and develop your motor skills. Using this framework encourages you to develop into a skilful adult who can enjoy a wide range of sports and physical activities.

ENGAGE

In sports and physical activities, individuals must learn basic movement concepts and skills. Movement concepts refer to how the skill is to be performed, for example, a ball might be struck *hard*, and a hurdle action might be *quick*. In the following image, a skilled performer has developed some basic skills and movement concepts before completing a dive. As a class, list the basic skills required to complete a complex dive. As a class, try to describe how parts of the dive are to be performed.



3.2.2 Skill themes

In Physical Education you are gaining skills and confidence to let you competently participate in and enjoy many physical activities. Fundamental motor skills form the foundation for many basic movement skills. Sometimes, you may know the rules of the game before having adequate motor skills to enable successful and positive participation. One way of learning is to focus on the development of these essential motor skills. This approach is called learning by **skill themes**. Skill themes are action words that are grouped into three main categories:

- locomotor — when you move from one place to another
- non-locomotor (non-manipulative) — moving on the spot without changing location
- manipulative — movement skills that require the ability to handle an object or piece of equipment with control.

Each category describes the type of movement that is used. Focusing on the skill allows you to develop a group of skills that are used in different types of games. For example, improving catching and throwing generally allows you to competently play netball, basketball, softball and other games. Once the skill theme is developed, it can be applied in the particular way different games require. Table 3.1 lists the various skill themes.

TABLE 3.1: Examples of skill themes taught in Physical Education

Locomotor skills	Non-locomotor (non-manipulative) skills	Manipulative skills
Walking	Turning	Throwing
Running	Twisting	Catching and collecting
Hopping, jumping	Bending	Kicking
Skipping, leaping	Balancing, swaying	Punting
Galloping	Transferring weight	
Sliding, rolling	Swinging	
Chasing, fleeing, and dodging	Stretching	
Floating		

on Resources

Try out this interactivity: Skill themes
Searchlight ID: int-5488

3.2.3 Movement concepts

The concept of dribbling a basketball at a slow or fast pace increases the complexity of the skill. Movement concepts describe how the skill is to be performed, for example, run forward at a fast pace in a straight line down the hockey field. The movement concepts modify the skills, such as dribbling a hockey ball in a straight line compared to dribbling a hockey ball in a zig-zag pathway. Movement concepts (or elements of movement) are grouped into four main categories:

- body awareness
- spatial awareness
- effort awareness
- relationship awareness with objects, people and spaces.

Table 3.2 lists the various movement concepts.

TABLE 3.2: Examples of movement concepts taught in Physical Education

Movement concept	Example
Body awareness	• body parts (e.g., arms, legs, elbows, knees, head) • body shape (e.g., stretched, curled, wide, narrow, twisted, symmetrical, asymmetrical) • body action (e.g., flexion, extension, rotation, swing, push, pull)

Spatial awareness	• location (e.g., personal and general space) • directions (e.g., forward, backward, sideways, up, down) • levels (e.g., high, middle, low) • pathways (e.g., curved, straight, zig-zag) • planes (e.g., frontal, horizontal, sagittal)
Effort awareness	• time (e.g., fast, slow) • force (e.g., strong, light) • flow (e.g., free, bound)
Relationship with objects, people and space	• person (e.g., alone, with partner, with group, meet, part, match, mirror, follow, lead) • objects (e.g., near, far, in, out, over, under, around, through, on, off, above, below) • space (e.g., moving in relation to music, to the environment)

Many sports require you to use a combination of motor skills and movement concepts, so the Physical Education teacher places emphasis on teaching skill themes and movement concepts. Teaching a combination of motor skills and movement concepts is known as movement sequences. This enables you to develop effective skills in response to a stimulus. In preschool and primary school settings Physical Education teachers focus on movement concepts before skill themes because it is a time when students are learning new words and moving.

The movement analysis framework wheel (see the figure below) shows how the skill themes and movement concepts interact with each other. The two inner circles represent the skill themes and the three outer circles represent the movement concepts.

Movement analysis framework wheel



Transfer of movement concepts and tactics across games

Before you learn basic tactics, you need to spend time practising movement concepts and skills. For example, you might focus on dribbling in basketball with no defenders and in a straight line, then on angular pathways around defenders. This learning of movement concepts and basic skills will help you to adapt the skills in various activity situations. This will enable you to transfer your knowledge (concepts, skills and tactics) to other games. For example, a basketballer is able to transfer his knowledge of dribbling and getting around opposition players to football. Scott Pendlebury, a current AFL player, was a talented young basketballer who represented Australia in junior basketball. He successfully used his skills from one game and applied them to another game situation.

Table 3.3 shows how skills, movement concepts and tactics can be transferred.

TABLE 3.3: Transfer of skills, movement concepts and tactics

Game category	Skills, movement concepts and tactics	Potential for transfer
Dribbling with a hockey stick	• Dribbling on straight pathways without defenders • Dribbling on angular pathways around defenders	• Dribbling basketball • Cradling ball in lacrosse • Running with rugby ball
Kicking a football	• Kicking a football while stationary • Kicking a football while running and dodging the opposition	• Kicking a soccer ball • Dodging a player to make a pass in rugby • Kicking the football to a moving target

ACTIVITIES

1 My movement concepts

Conduct an activity for your group using at least two movement concepts from each category. The activity must be suitable for a primary school class and focus on the vocabulary of movement concepts. For example, working in pairs, follow your partner using various movements around the basketball court as the group leader instructs different movement strategies (fast, slow, backwards, straight, zig-zag).

2 My skill themes

Divide the class into three main groups. Each group must conduct a minor game activity that has a different skill theme (locomotor, non-locomotor (non-manipulative) or manipulative) for the class. Be prepared to explain to the other groups why we teach these skills in Physical Education.

3 Movement strategies

Divide the class into three groups. Two groups play a throwing and catching type game and the third group evaluates the effectiveness of the movement concepts and strategies. Use the following table to assess each player. Rotate groups.

	Usually	Sometimes	Rarely
Options for the player to pass the ball			
Player moves off the ball			
Player changes direction to evade defenders			
Player make leads to free space			
Player jumps for the ball			
Player uses suitable passes			

4 Gymnastics to aerial skiing



Nearly all of the world's top aerial skiers have had a gymnastics background. Lydia Lassila was an elite level gymnast who competed in three Winter Olympics as a freestyle aerial skier. Describe how an elite gymnast is able to transfer the skills of gymnastics to the sport of aerial skiing. Investigate other sports where this has occurred.

CHECK & CHALLENGE

Explain

1. Explain the difference between movement concepts and skill themes.
2. Explain how two or three skill themes might be combined and used in a game situation.

Evaluate

3. Why do educators suggest teaching movement concepts with skills?

Elaborate

4. How might you conduct an activity that develops the concepts of space awareness using locomotor skills?
5. Select a sport. Describe three examples of how body awareness (parts/shape/action) is important for the athlete to succeed.

on Resources

Try out this interactivity: Movement concepts
Searchlight ID: int-5489

3.3 General principles of team organisation

3.3.1 Strategies for success

For teams to be successful, they must develop a game plan and include tactics and strategies for offence and defence. Tactics and strategies should be developed by the coach and players, and practised by the team during training sessions.

ENGAGE

In most sports and activities, individuals and teams rely upon a style of play or team organisation, often referred to as a game plan, developed by or in conjunction with their coach. Game plans provide individual athletes and teams with a fundamental structure and style of play. The game plan is often formulated on the basis of particular strengths that an individual or team may possess. Game plans incorporate general principles of offence and defence, and may involve other things such as team rules, various tactics and strategies, and set plays that have been developed and practised for some time. Game plans tend to remain essentially unchanged over the course of a season, although there may be some refinement along the way.

As a class, use the **Strategic sports** worksheet in your Resources section to complete a practical activity about strategies and tactics in various sports.

Game plans and set plays developed for specific tactics and strategies from the elite levels of sport competition have filtered down to junior levels of competition.



Resources

Complete this digital doc: Strategic sports
Searchlight ID: doc-14694

3.3.2 Tactics and strategies

Game plans tend to remain fairly constant over the course of a season. Tactics and strategies, on the other hand, may change from week to week, and are determined by such things as opposition team structure (including strengths, weaknesses and knowledge of opposition game plans), environmental (weather) conditions and playing environment (for example, ground size and conditions). Tactics and strategies in most sports and competitive games generally relate to either offensive or defensive principles.

Offensive tactics and strategies

Offensive tactics and strategies are structured plans or moves whose primary purpose is the achievement of a score or scoring opportunity, such as a goal, point, run or try. In ball games such as basketball or soccer, the team would generally be in possession of the ball.

In most sports and games, offensive strategies and tactics are governed by certain principles, including:

- *maintaining possession* — generally speaking, the more an individual or team has control of the ball, the greater the number of scoring opportunities
- *availability and positioning* — in team ball games, players need to position themselves so that they are able to receive the ball in the best possible position while reducing the possibility of being intercepted by the opposition
- *space and direction* — players need to be constantly creating and utilising available space. This is explored further in the next section.

Space and direction

Space can be created by using fake moves and changes of direction to momentarily place opposition players at a positional disadvantage. A sudden change of direction often results in the ball being released to free space. Changing the direction of play can also affect the movements of the opposition team; for example, a kick to the opposite side of the field in football or soccer will often draw the opposition players to that side of the field. A quick pass in the other direction can catch the opposition out of position and thereby create space for your team. Players can also ‘lead’ into areas not taken up by other players. Players who find themselves in ‘space’ then have sufficient time and opportunity to execute the correct skills and movements rather than having to worry about evading the opposition. In individual sports such as tennis and squash, players attempt to make their opponent move around the court as much as possible to create maximum free space in which to hit the ball, thereby making it more difficult for an opponent to return it. In striking sports such as baseball or softball, a batter will try and hit the ball to free space on the field.

Creating space: the tactics of attackers 1 and 2 have forced defenders 1 and 2 across the field. Attackers 3 and 4 can then run into the space created.



Directional change: a quick switch of play to the opposite side of the ground can catch a team out of position and thereby create space for the other team.



3.3.3 Defensive tactics and strategies

Defensive tactics and strategies refer to those structured plans or moves used by a team or individual to prevent the opposition from scoring. In a ball game such as football or netball, the team would usually not be in possession of the ball when defensive strategies are employed.

Most defensive tactics and strategies are designed to counter the principles of offence outlined previously. Defensive strategies focus on dispossessing the opposition, reducing scoring opportunities and reducing available space. For example, defensive organisational strategies such as **one-on-one defence** and **zone defence**, utilised in sports such as basketball, soccer, hockey, netball, European handball and Australian Rules football, are designed to reduce the space available to the opposition team, thereby reducing its scoring opportunities.

One-on-one defence

This basic defensive arrangement (also referred to as ‘man-on-man’) involves each player on a team being responsible for one opposition player. The player marks that opposition player at all times while he or she is on the field or court. One-on-one defence is widely used in sports such as Australian Rules football, basketball and netball.

Zone defence

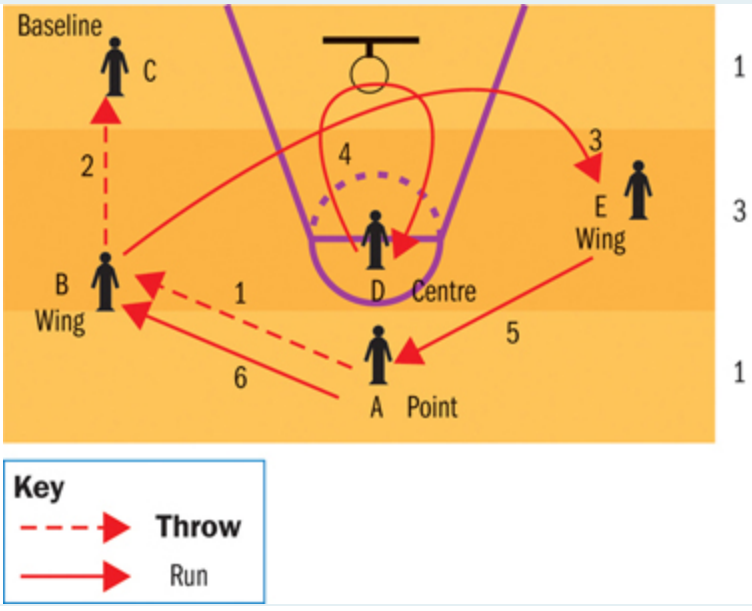
Under this principle, players do not mark a specific opposition player, but are responsible for guarding or defending a particular space on the court or field. The player defends against any opponent who enters his or her particular area of responsibility. Zone defence is utilised in many sports, including basketball, European handball, soccer and, increasingly, Australian Rules football.

Offensive teams often develop certain tactics and strategies to counter defensive formations such as zone defences. For example, in basketball, the 1–3–1 offence is an attack pattern often employed to penetrate a zone defence.

The basic zone defence in basketball: each player guards a designated zone against any opponent who moves into it.



The 1-3-1 offence in basketball is an example of a tactic employed to counter a zone defence.



ACTIVITIES

1 My offensive strategy

Choose any sport or game and explain an offensive tactic or strategy employed in that sport. Include any relevant diagrams to help explain how the strategy or tactic is employed. Be prepared to explain and demonstrate the strategy to the rest of the class during a practical session.

2 My defensive strategy

Choose any sport or game and explain a defensive tactic or strategy employed in that sport. Include any relevant diagrams to help explain how the strategy or tactic is employed. Be prepared to explain and demonstrate the strategy to the rest of the class during a practical session.

3 Transfer of strategies

Participate in a game of basketball and listen to the strategies your teacher will direct you to do (for example, moving into space and playing one-on-one defence). Then play a game of netball using the same strategies. At the end of the games, discuss as a group why the strategies were effective in both sports.

CHECK & CHALLENGE

Explain

1. Explain the three main principles on which most offensive strategies and tactics are centred.
2. Explain the differences between the defensive strategies of one-on-one defence and zone defence.

Evaluate

3. Why do teams generally formulate game plans?
4. What advantages do game plans provide? Are there any disadvantages?

Elaborate

5. How might teams overcome the difficulties experienced in implementing strategies or tactics or set plays in real-game settings?

3.4 Set plays, tactics and strategies in Australian Rules football and badminton

3.4.1 Specific tactics and strategies

Effective teams utilise game plans and set plays, as well as specific tactics and strategies, particularly at the elite and higher levels of competition. In this lesson you will explore some of the set plays and strategies used in Australian Rules football and badminton.

ENGAGE

Australian Rules football is a sport that, over the past 25 years or so, has undergone significant change in the way the game is played. This development has largely come about because of the increasing development and application of game plans and set plays, as well as specific tactics and strategies. Changes in the way the game is played have also come about due to improvements in the skill and fitness levels of players, and also because of some modifications to the rules of the game.

For a long time, Australian Rules football was governed by the following basic beliefs and ideas:

- Players were instructed never to kick the ball across their own defensive goal line.
- Players were discouraged from handpassing in the backline and, instead, were instructed to kick the ball long out of defence.
- Players rarely gave any thought to kicking the ball backwards.
- Play generally centred on kicking long to a marking contest.
- Players were instructed to play their position and their immediate opponent.
- The interchange bench was used mainly for emergencies.

As a class, outline some of the changes you know that have occurred to the game of Australian Rules football in the past 20 years or so as a result of strategies and tactics being adopted from other sports.

Football uses specific tactics and strategies.



3.4.2 Case study: Australian Rules football

The modern game of Australian Rules football now involves a running possession game coupled with a close-checking defensive style. This style of play has evolved over the past few decades, as players' fitness levels have steadily improved and coaches have adopted formations, strategies and tactics from other sports and applied them to the game. Some of the ideas adopted from other sports are listed below.

- More flexible playing positions have been adopted from sports such as soccer and hockey. Players are now more likely to be considered as defenders, mid-fielders or forwards, although most players are expected to be able to switch between these roles.
- Maintaining possession of the ball has become paramount in today's game. Players are instructed to maintain possession of the ball and avoid kicking to a contest. Instead, they attempt to keep possession of the ball — even if this means kicking the ball backwards and/or across goal — until a free player is available. This idea has been adopted from sports such as hockey and soccer, where it is very important to maintain possession of the ball until in a position to strike at goal.
- The use of zone defensive arrangements rather than the traditional man-on-man defence has been adopted from sports such as basketball.

- The use of the interchange bench in order to rotate players (particularly mid-fielders) on and off the ground has become a key strategy in the modern game of Australian Rules football, designed to ensure that players are able to perform at high intensity throughout the game. This notion was adopted from sports such as ice hockey.

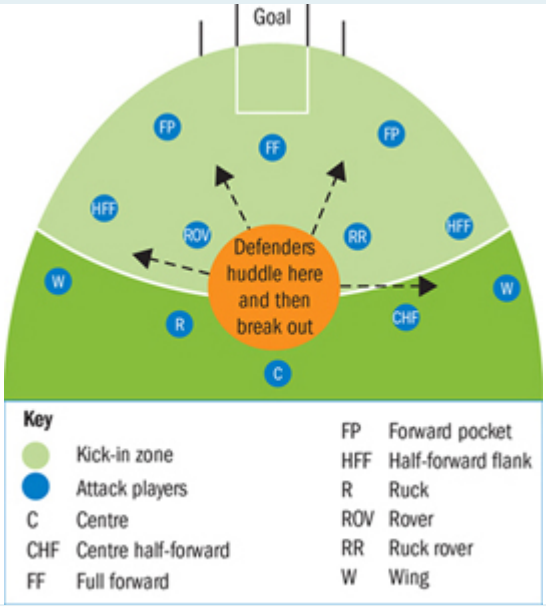
Set plays, tactics and strategies in Australian Rules football

Set plays and specific tactics and strategies have introduced terms such as the **huddle**, **kick-in zone**, corridor and flooding to the lexicon of Australian Rules football jargon over the past 20 or so years.

The huddle

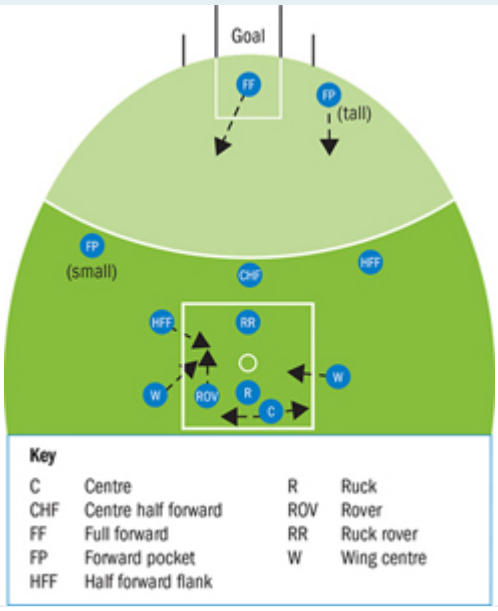
The huddle was first developed in the early 1980s and is generally credited to Robert Walls when he was coaching the Fitzroy football club. This tactic, shown in the figure given below, is employed by teams when they attempt to kick the ball back into play after a behind has been scored. Defenders and mid-field players typically huddle together as a group at the centre half-back area as the nominated kicker prepares to kick the ball back in. Players then break from the huddle in different directions, leading and calling for the ball. Certain players run to provide a short-kick option while others run to provide a long-kick option. On occasion, the majority of players may all break to the one spot. The aim of the huddle is to free up players to either receive the ball unopposed or be in a position where they have superior numbers to the opposition.

The huddle and kick-in zone tactics used by teams in Australian Rules football



According to Robert Walls, the huddle came about after a number of discussions between himself and his fitness adviser of the time, Chris Jones. Jones had a strong international sporting background after working in English soccer and American basketball, and he had questioned Walls about tactics like, ‘Why does the full-back kick in even when he might be the worst kick in the team?’ and ‘Why do you kick out long to the half-back flank when everyone knows that's where it's going?’ Walls developed the huddle as a way of creating space for his team's skilful running players. Walls states that, ‘We had a good two years’ advantage with it, and we had an 80–90 per cent success rate, where we would take the ball from the kick-in into our forward half. We had a few variations on the huddle. The most common one was the huddle at centre half-back to open up the flanks, but we’d also have one close to the kicker to open up the area behind the huddle at centre half-back; or huddle on one flank or in a pocket to open up the other. We mixed it up and had different players do the kicking-in’.

Centre bounce set-up in Australian Rules football



The kick-in zone

The kick-in zone, shown in the figure above, was developed in response to teams using the huddle. Rather than attempting to have players break with their opponents from the huddle, teams defending the huddle place their forwards and mid-field players in certain predetermined positions. These players must then defend against any opposition player who breaks from the huddle and enters their area or zone. A number of variations of this ‘kick-in zone’ have been developed, including the 9-player zone, the 12-player zone and the 16-player zone.

Set plays and set-ups

Australian Rules football teams also utilise set plays and set-ups in situations such as centre bounces, boundary throw-ins and ball-ups; for example, the centre bounce is one of the most crucial parts of the game. A team that can consistently win the ball out of the centre bounce gains a tremendous advantage; it allows their forward line to have first use of the ball and immediately puts the opposition defenders under pressure. The figure above shows a typical centre bounce set-up.

The ruckman is responsible for getting the tap-out and directing the ball to a predetermined spot. The sweeper is responsible for roving the opposition ruckman's knock and putting pressure on the opposition receiver if he gets the ball. It is important that this player does not overcommit or get too close to the contest so that the opposition taps the ball into space behind the sweeper. The receiver is responsible for gathering the tap from the ruckman. This player must have eyes only for the ball and be committed absolutely to getting the tap. The protector is responsible for assisting the receiver in getting the ball by shepherding and blocking out the opposition. This player's role should not be underestimated. The amount of time that the receiver has to collect and dispose of the ball effectively is determined by the amount of space and time he gets from the protector doing his job efficiently.

If the ball is not won from the centre bounce, it is usually because a player has not done his job properly; either the ruckman did not win the tap or misdirected it, the receiver did not run to the right spot or fumbled the knock, or was tackled because the protector did not support the receiver well enough. It is important for the ruckman to vary the direction of the tap as well as the length of the tap or punch. This makes the opposition have to constantly guess where the next tap might be heading. Players also need to swap the roles of the sweeper, receiver and protector to provide more variation. Usually, if one of the players in the centre bounce contest is being tagged, he immediately becomes the sweeper. This negates the tag because the tagger is then defending a defensive position.

DID YOU KNOW?

When the huddle was introduced in the early 1980s, then-Collingwood coach Leigh Matthews recalls, ‘No-one seemed to know how to counter the huddle. If you went man-on-man, it was easy for them (the opposition) to put on blocks and free up players in space.’ Instead, Matthews had his Collingwood players spread in such a way that there was no space for the opposition to lead into, like there would have been if they had been playing traditional man-on-man style. Gradually, the zone defence at kick-ins became almost standard practice as a means of countering the huddle tactic.

Resources

Explore more with these weblinks: The huddle

3.4.3 Case study: badminton

Badminton is a fast-moving racquet sport that can be played by singles (two opposing players) or doubles (two opposing pairs). Players or pairs take up positions on opposite halves of a rectangular court that is divided by a net. Points are scored by striking a shuttlecock with a racquet so that it passes over the net and lands in the opponent's half of the court. Each opponent or pair may strike the shuttlecock only once before it passes over the net. To view a clip from a game of badminton, go to the **Badminton** weblink in your Resources section.

on Resources

Explore more with these weblinks: Badminton

Tactics and strategies in badminton

Badminton requires players to employ a wide variety of strokes in the right situations; this includes clears, drop shots and smashes. However, just knowing how to smash powerfully will not necessarily bring you success. When players are equally matched for skill and fitness, tactics and strategies play a very important part in determining the eventual winner. Basically, these tactics and strategies are designed to make your opponent play a weak shot so that you will then be in a position to make a 'kill' shot.

Thinking strategically is an important skill for badminton success.



Singles

In singles, you are required to cover the entire court; hence, singles tactics are based on forcing your opponent to move around the court as much as possible. One simple strategy often used by beginners in singles is to serve long and high to the opponent's backcourt. This forces the opponent to move back to the baseline and open up his or her forecourt. Long clears to the rear of the court and drop shots to the forecourt are the shots to manoeuvre your opponent around the court, with a view to forcing errors or creating open space to play the faster smash shot. When playing any shot in singles, it is important to try to return to a central base position in the midcourt, from where all possible replies can be covered. When caught out of position, the shuttle should be cleared as high as possible to the backcourt to allow time to recover to base.

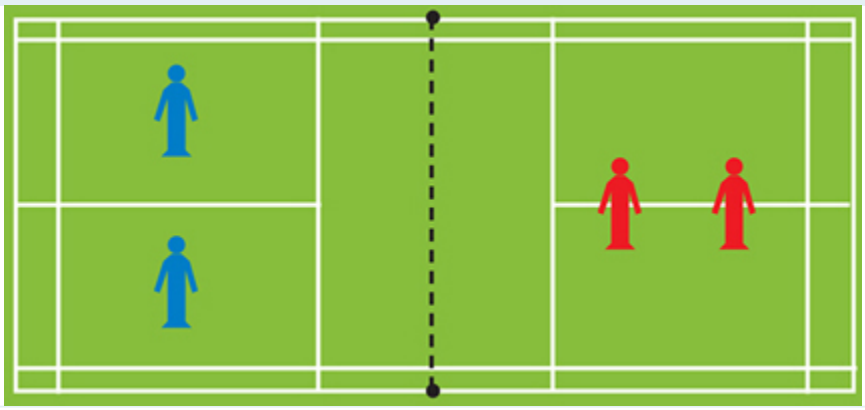
Doubles

In doubles, both pairs should try to gain and maintain the attack by hitting downwards as much as possible. Where possible, you and your partner should adopt the ideal front and back attacking formation, with one player positioned in the backcourt and the other in a forecourt or net position as shown in the figure given below. In this attacking formation, the backcourt player should keep hitting downwards in a straight direction so that his or her partner knows roughly where the shuttle will be played. The net player should be looking to intercept any replies that pass within reach.

If you and your partner are forced onto the defensive, you should adopt a side-by-side position in the mid-court in order to cover the full width of the court against your opponents' smashes.

When using this defensive formation, the aim is to play shots that the opposition will not be able to attack; these are usually drives through the front player or net shots in front of him or her. When a shot like this is attempted, as soon as the shuttle reaches a position on your opponents' side of the net from where it cannot be attacked (i.e. at or below net height), the striker should immediately move in towards the net. This converts a defensive position into an attacking one. If these shots are not feasible, the shuttle should be cleared as deep as possible to the rear of the court to allow time in which to cover the next shot from your opponents.

Front and back attacking formation (red) and defensive side-by-side formation (blue) used in doubles in badminton



ACTIVITIES

1 Case study: tactics and strategies for your sport

Research and present a report as a poster or PowerPoint presentation that outlines and explains a range of tactics and/or strategies commonly employed in a sport of your choice. Provide an explanation of each tactic or strategy, what each aims to achieve, and how it is implemented. Include appropriate diagrams to aid your explanations.

2 Rule changes and strategies

Research what effects, if any, changes to the rules governing kicking-in after a point in Australian Rules football have had on kick-in strategies such as the huddle and kick-in zone.

3 Flooding

Research the development of 'flooding' as a strategy in Australian Rules football. When did this strategy first emerge, and who or what team is generally credited as introducing it into their game plan? What does flooding actually involve? What tactics or strategies have teams adopted to counter flooding?

4 Singles and doubles

Compare and contrast the strategies and tactics of badminton to other singles and doubles sports, such as tennis or volleyball.

5 Practical

Use the **Practical footy** and **Badminton practical** worksheets in your Resources section to try the tactics and strategies outlined in this lesson. Use the **Badminton assessment** worksheet in your Resources section to conduct a peer assessment on your badminton game.

6 Game plan in action

Play a game of AFL football or badminton. After each goal or point won, spend time analysing the performance to make changes to game plans.

7 Case study: explore performance

Research and present a report as a poster, PowerPoint or video that outlines and explains how various sports review and analyse their performance before making changes to their game plan.

CHECK & CHALLENGE

Explain

1. Explain the concepts of space and direction as offensive strategies.
2. How can space be created by attacking teams in invasion games such as soccer, netball and basketball?
3. In what context are the terms ‘space’ and ‘direction’ used in sports such as tennis and baseball?

Evaluate

4. Why did the huddle and kick-in zones develop in Australian Rules football?

Elaborate

5. Outline the differences between the defensive strategies of one-on-one defence and zone defence.

on Resources

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Complete this digital doc: Badminton practical
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3.5 Developing strategic thinking, tactics and strategies: a game sense approach

3.5.1 A game sense approach

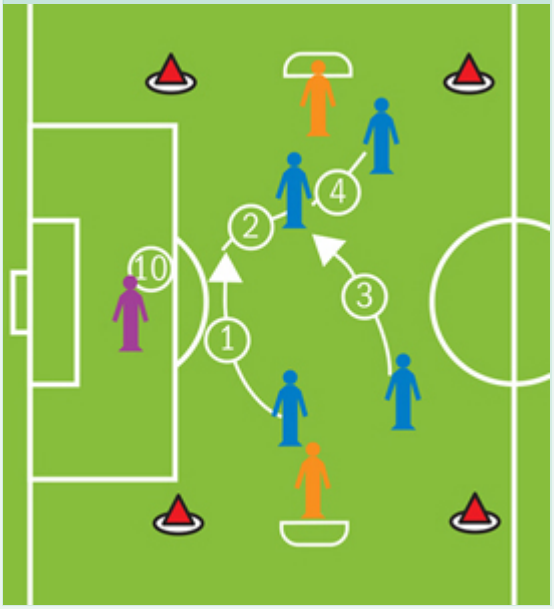
Players need to develop decision-making and problem-solving skills and learn how to utilise these in a competitive environment.

ENGAGE

The development of decision-making skills by team players is critical to the success of tactics and strategies. Players need to be able to adapt to situations and devise alternative strategies, even when the opposition are able to 'read' what is going on. Through constant practice and rehearsal of tactics and strategies during training, players are able to develop decision-making and problem-solving skills, and to learn how to utilise these in a competitive environment.

Use the **Shifting tactic** weblink in your Resources section to watch Andy Murray lure a tennis player into a slow baseline rally before shifting tactics to win the point.

Developing new strategies



on Resources

Explore more with these weblinks: Shifting tactic

3.5.2 Game sense

Game sense, as defined by Launder (2001), is 'the ability to use an understanding of the rules, of strategy, of tactics, and most importantly, of oneself to solve the problems posed by the game or by one's opponents in the game'.

When strategising, it is a good idea to have something on which to transfer your thoughts.



Game sense is an approach to teaching and coaching in which players are encouraged to start thinking strategically about game concepts and to become more tactically aware and better able to make appropriate decisions during the game. Often, in the coaching and teaching of sports and games, skill and technique development has been over emphasised within practice sessions. Although proper skill and technique development is a very important part of learning a game, it has often been taught in isolation, without requiring players to think and apply the skills and techniques to the situations required in the game. By using a game sense approach, players are challenged to think about what they are actually doing, and why. Players are taught to use the appropriate skill technique at the right time and place in the pressure situations of a game. Players are encouraged to develop and implement tactics, strategies, and quick decision-making and problem-solving skills within a game-like environment.

With a game sense approach, tactics and strategies are developed through the gradual introduction of strategic principles (for example, space and time), and increasingly complex scenarios. The teacher or coach facilitates the decision-making process through questioning — for example, 'What can you do in this situation?', 'Who could you pass to?', 'How can you do it?' and 'What other options did you have?' Game sense approach also allows the coach to develop problem-solving skills for the group or individual to solve various movement challenges to enable greater success with plays.

An important aspect of the game sense approach is that it groups activities and games into four categories:

- *Invasion games* — netball, soccer, basketball, hockey and Australian Rules football
- *Court/net games* — tennis, squash, badminton and volleyball
- *Target games* — golf, archery and tenpin bowling

- *Striking/fielding games* — baseball, softball and cricket.

The strategic principles and tactics within each of these categories are similar; for example, invasion games are those that are played within a shared area. The objectives of invasion games are to:

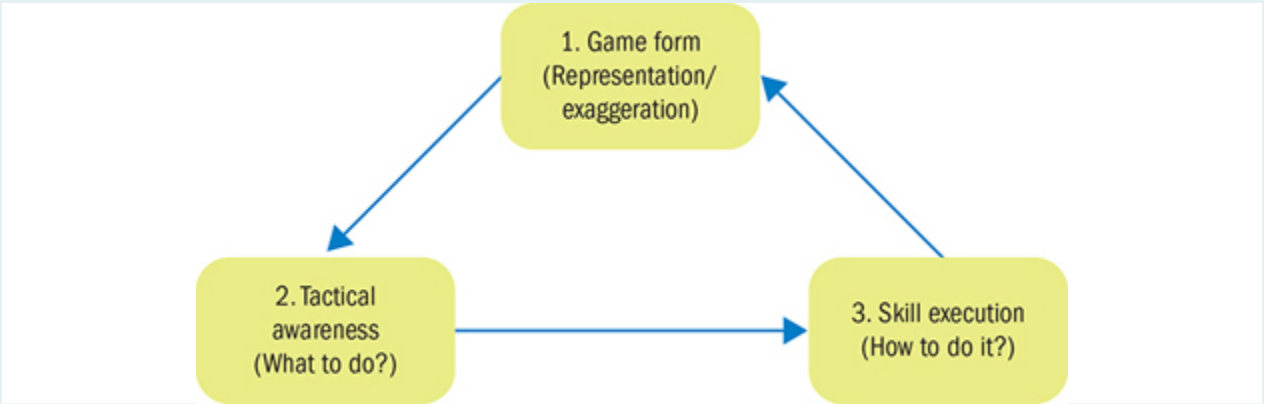
- score by sending or carrying the ball to a special target, such as a line or goal, through territory defended by the opposing team
- prevent the opposing team from scoring
- have the higher score at the end of an agreed period of play.

Furthermore, in invasion games, the strategic principles and tactics of offence and defence are similar, with offensive players trying to penetrate the opposition defences until they are in a position to score, while defensive players try to prevent this from happening.

3.5.3 A game sense model

The following model outlines a typical game sense approach to teaching and instruction.

Game sense approach to teaching and instruction



The model suggests that teaching and instruction should commence with a game or 'game form' that is usually modified to some extent so that it represents the true game. Elements of the game are also typically exaggerated to present players with particular strategic and tactical situations. For example, by establishing a three-versus-three game in a restricted playing area, with the objective of making a specific number of consecutive passes, players are forced to confront the problem of what to do to maintain possession. After experience of the game form, and through questioning by the coach or teacher, the players will soon realise that accurate passing and swift ball control are essential skills. Once players have identified that accurate passing is necessary, they can be prompted to consider, 'How do I do it?' Formal teaching and practice of passing skills is now appropriate before players return to the game. The process continues, with additional modifications to the game so that new aspects of strategic and tactical understanding can be explored.

Benefits of a game sense approach

The benefits of such a game sense approach are listed below.

1. It allows for a player-centred, problem-solving approach.
2. It empowers players to think for themselves.
3. It creates effective long-term learning, as the players are learning or discovering things for themselves.
4. It encourages players to use and develop strategic thinking, perception and decision making.
5. Games intrinsically motivate the players, creating an environment that is both challenging and enjoyable.
6. Games set physical and mental challenges that encourage and promote the understanding of tactics and strategies.

DID YOU KNOW?

The game sense approach was developed in the 1990s.

ACTIVITIES

1 Modified game

In small groups, design a modified game that could be used as a lead-up, game sense activity prior to playing a proper or complete version of the sport. In your description of the modified game, indicate the major objective of the game, the key rules required, the key skills involved and any tactical or strategic principles that the game could incorporate. Be prepared to run your group's activity for the class. Evaluate your activity.

2 Full-sided approach

A full-sided approach involves at least seven players using an area of no smaller than 20 m × 20 m. Minimum rules are given at the start of the game. Gradually, more rules and techniques are introduced into the game. Touch football is an invasion game that involves passing and catching to score as many touchdowns as possible within a time frame. In small groups, develop a full-sided game sense plan for touch football. Use the following sub-headings to develop your plan.

- How to play
- Game rules
- Skills to focus on
- Variations in rules

Evaluate your activity.

3 Small-sided approach

A small-sided approach always commences with one-on-one situations and gradually progresses to one-on-two, two-on-two, three-on-two and so on. Softball and baseball are striking/fielding games that involve hitting to achieve as many home runs as possible within a time frame. In small groups, develop a small-sided game sense plan for softball/baseball. Use the following sub-headings to develop your plan.

- How to play
- Game rules
- Skills to focus on
- Variations in rules
- Evaluate your activity.

4 Outcomes approach

An outcomes approach places an emphasis on achieving certain outcomes. For example, in hockey, games could be planned for outcomes such as keeping the ball within the attacking zone or maintaining possession of the ball. In small groups, develop and outcomes approach game sense plan for hockey. Use the following sub-headings to develop your plan.

- How to play
- Game rules
- Skills to focus on
- Variations in rules
- Evaluate your activity.

CHECK & CHALLENGE

Explain

1. List and explain the four categories of games and activities identified in a game sense approach to teaching and learning.

Elaborate

2. What are the benefits of a game sense approach to teaching and learning physical activities and sports? Can you think of any disadvantages associated with this approach?

Evaluate

3. Use the **KWL strategic thinking** worksheet in your Resources section to evaluate what you have learned about strategic thinking and what more you want to find out.

on Resources

Complete this digital doc: KWL strategic thinking
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3.6 Review

3.6.1 What have I learned?

- Teaching movement concepts with motor skills in Physical Education enables greater transfer of knowledge for tactics and strategies.
- Coaches and athletes spend time analysing performances to change tactics and strategies.
- When individuals and teams oppose one another in competition, they often rely upon strategies and tactics to give themselves an advantage over their opposition.
- Game plans provide individual athletes and teams with a fundamental structure and style of play.

- Although game plans tend to remain fairly constant over the course of a season, tactics and strategies may change from week to week and are determined by such things as opposition team structure, environmental conditions and playing environment.
- Tactics and strategies in most sports and competitive games generally relate to either offensive or defensive principles.
- Offensive strategies and tactics are governed by certain principles, including maintaining possession, availability and positioning of players, and space and direction.
- Most defensive tactics and strategies are designed to counter the principles of offence. Defensive strategies focus on dispossessing the opposition, reducing scoring opportunities and reducing available space.
- Game sense is an approach to teaching and coaching in which players are encouraged to become more tactically aware and better able to make appropriate decisions during the game. Players are taught to use the appropriate skill technique at the right time and place in the pressure situations of a game.

CHECK

1. Explain how teaching movements concepts can assist with learning tactics.
2. Outline the basic differences between game plans, and tactics and strategies.
3. What factors influence the development of tactics and strategies?
4. Which three principles are most offensive strategies and tactics designed to achieve?
5. Which three principles govern the development and implementation of most defensive strategies and tactics?
6. Explain the basic aim of the huddle as a strategy employed in Australian Rules football. How do teams go about implementing this strategy in a game?
7. Explain the game sense model to teaching and learning.
8. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

How can a game sense training approach develop better tactical decisions during a match?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14699

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5389

Try out this interactivity: True/false quiz
Searchlight ID: int-5390

Try out this interactivity: Crossword
Searchlight ID: int-5391

Chapter 4: Understanding how the body moves

Contents

4.1 Overview

4.2 Systems of the body

4.3 The skeletal system

4.4 The muscular system

4.5 The cardiovascular system

4.6 The respiratory system

4.7 Review

Note to students and teachers: This PDF has been provided as an offline solution for times when you do not have internet access or are experiencing connectivity issues. It is not intended to replace your eBook and its suite of resources. While we have tried our best to replicate the online experience offline, this document may not meet Jacaranda's high standards for printed material. Please always refer to your eBook for the full and latest version of this title.

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4 Understanding how the body moves





4.1 Overview

4.1.1 The components of your body

Learning objectives

- Understand the systems of the body. <no curriculum link>

Every time you run along the beach with your friends, or score against your opponents during a game of football, you're using your bones, muscles, joints, heart and lungs. Without these components of the body, you would be unable to sit, stand, walk, or do any of the activities you do every day.

Playing sport, having fun with friends and other everyday activities rely on your bones, muscles, joints, heart and lungs all working together.





Note to teachers and students: The material presented in this chapter, while not directly linked to the Australian curriculum content descriptions or elaborations for Health and Physical Education, is considered very important by the authors of this text. Knowledge of the body systems is vital to enable students to make the link between physical fitness and:

- components of fitness
- energy systems
- training for fitness.

This information then helps form a foundation of energy system knowledge for senior studies in Physical Education.

ESSENTIAL QUESTION

How do the body systems work together to produce movement?

STARTER QUESTIONS

1. What is our body made of?
2. What major structures in the body work together to produce movement?
3. How do we get oxygen to our muscles to create movement?
4. Why can some people move more efficiently and faster than others?
5. How can we make ourselves run faster or jump higher?

INQUIRY SEQUENCE

4.2 Systems of the body

4.3 The skeletal system

4.4 The muscular system

4.5 The cardiovascular system

4.6 The respiratory system

4.7 Review

on Resources

Watch this eLesson: Understanding how the body moves
Searchlight ID: eles-2335

4.2 Systems of the body

4.2.1 The anatomy of the human body

Some body systems play a larger role in the production of human movement than others. However, all systems work together to allow us to enjoy physical activity. This topic focuses on developing knowledge and understanding about how our body moves and what is happening on the inside to create and sustain movement for everyday life as well as for sporting and recreational activities.

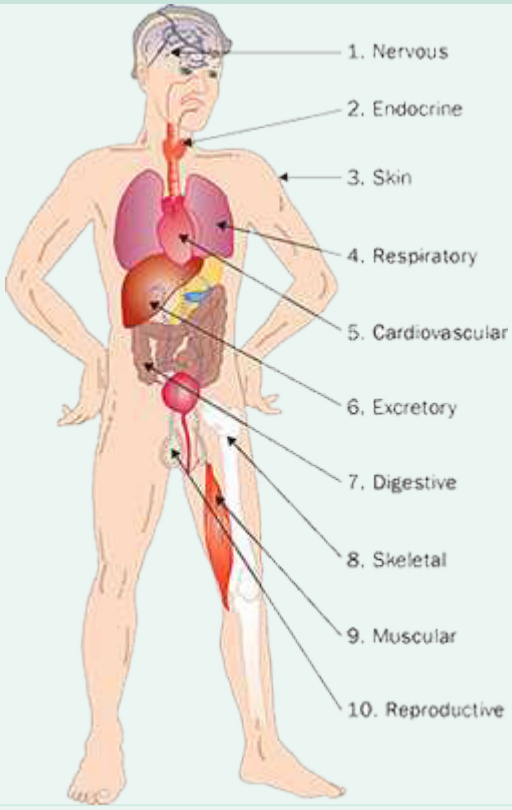
ENGAGE

In order to understand how the body moves, it is important to gain an in-depth knowledge of the anatomy of the human body and how it works.

The human body has 10 distinctive systems:

- *Nervous* — controls all other systems, sends messages to muscles
- *Endocrine* — energy release for work and growth, adrenalin production
- *Skin* — protection from disease, transfer of body heat
- *Respiratory* — oxygen intake and carbon dioxide removal
- *Cardiovascular* — transport of materials to and from all body cells
- *Excretory* — excretion of waste products
- *Digestive* — provides nutrients for energy production
- *Skeletal* — provides movement, shape, protection of vital organs
- *Muscular* — creates movement by pulling on bones, aids in digestion and breathing
- *Reproductive* — reproduction, propagation of the species.

The systems of the body do not work independently, but as a whole. Physical, mental and emotional health depend on all systems of the body being in balance.



4.2.2 Physical activity and body systems

Four body systems are recognised as being the most responsible for physical activity:

- the skeletal system
- the muscular system
- the cardiovascular system
- the respiratory system.

These systems are covered in detail in the next four sub-topics.

These body systems work together to create movement, gather and transport oxygen and other nutrients to sustain movement, and assist in the removal of waste products from the body. For example:

- bones form the framework of our body and provide the levers for movement
- muscles pull on the levers across joints
- joints allow the framework to bend, allowing movement
- the heart and blood vessels bring nutrients to the muscles so that they have energy for movement
- respiration provides oxygen for energy production
- skin helps to cool the body during exercise.

In each sub-topic, you will learn about the system's anatomy, function and special features, and the effects of exercise on the system.

ACTIVITIES

Individually, or with a partner, choose one of the human body's 10 distinctive systems from the list in the Engage section. Use the **KidsHealth** weblink in your Resources section to investigate the role that particular system plays within the body, then present your research to the rest of the class. You can complete the **Ten systems of the human body** interactivity before you start to help your research.

Include the following in your report.

a. Where is the body system located within the human body? Draw/insert a labelled diagram.
b. What other systems of the human body does it connect to?
c. What is the function of the system?
d. What are common illnesses or diseases of that system, how are they treated and what is the estimated recovery time?
e. Can the human body function without part of or without the whole system?

CHECK & CHALLENGE

Explain

1. Which of the body systems are recognised as being the most responsible for physical activity?
2. Complete the **Ten systems of the human body** interactivity in your Resources section to test your understanding.

Elaborate

3. Describe how two or more of the human body's systems work together to create movement. Give two different examples.
   Hint: In addition to the information in this section, use the **Muscle and joints** weblink in your Resources section, which demonstrates the relationship between muscles and bones to create movement.

on Resources

Try out this interactivity: Ten systems of the human body
Searchlight ID: int-5490

Explore more with these weblinks: KidsHealth

Explore more with these weblinks: Muscle and joints

Explore more with these weblinks: Bones, muscles and joints

Explore more with these weblinks: Body systems

4.3 The skeletal system

4.3.1 A framework for the body

The skeletal system provides a framework for the body, allows movement and protects vital organs.

ENGAGE

Have you ever broken a bone in your body or know someone who has? Do you know the name of this bone?

What would your body look like without your internal skeleton holding you up? What other functions are there for our bones besides giving us shape?

Use the **Name that bone** worksheet in your Resources section to explore the common and anatomical names of the bones in our bodies. In pairs, use sticky labels to identify as many bones on your partner's body as you can.



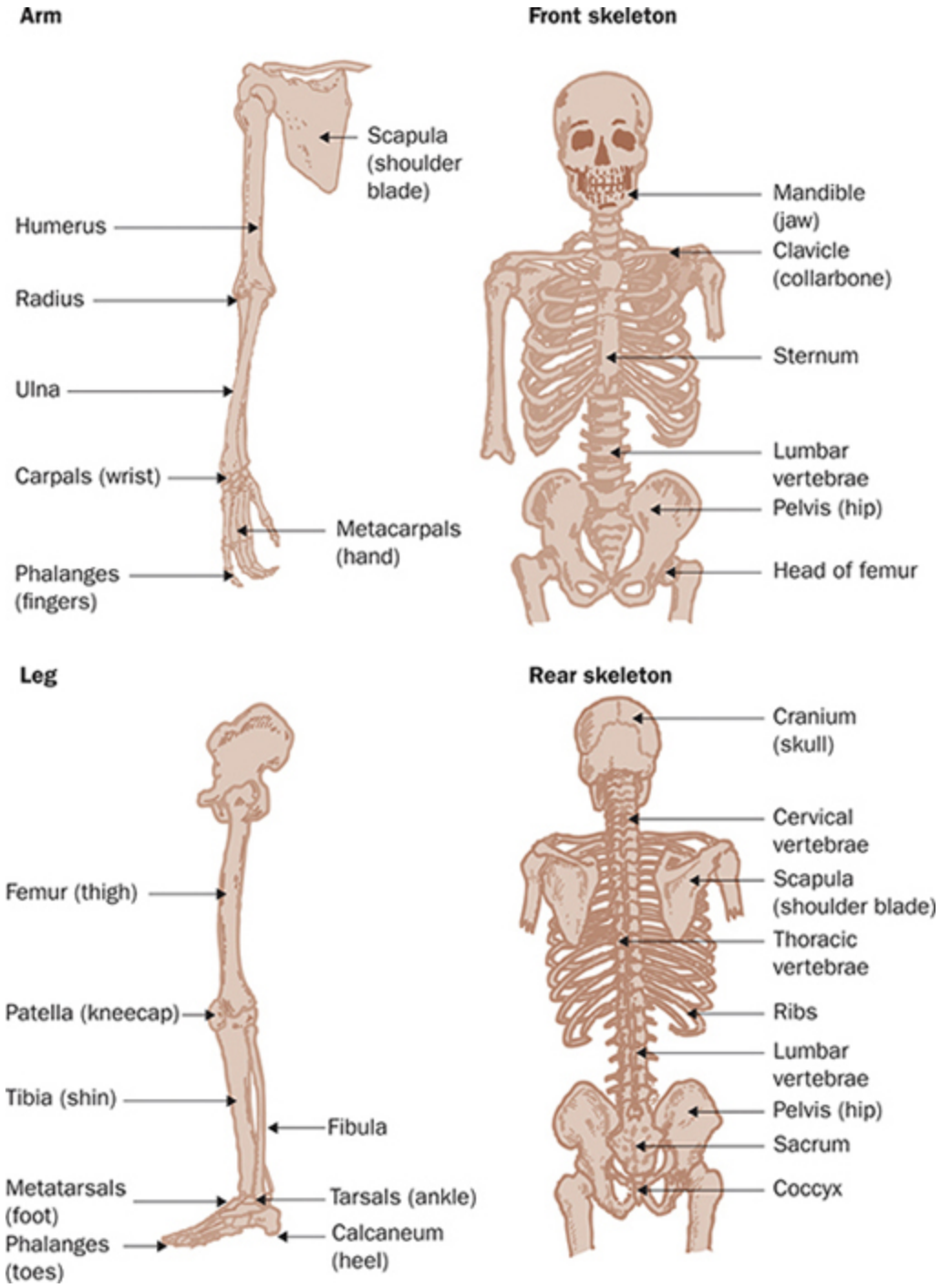
Resources

Complete this digital doc: Name that bone
Searchlight ID: doc-14701

4.3.2 Functions of the skeletal system

The skeletal system has five main functions.

- It provides the framework to which the soft tissues attach, and gives the body its shape.
- It helps with movement. The bones are the levers upon which our muscles pull.
- It protects vital organs; for example, the skull protects the brain, and the ribs protect the heart and lungs.
- Blood cell formation — the long bones contain bone marrow, which produces all the new red blood cells and some white blood cells.
- It stores mineral salts, especially **calcium**. Degradation of bones and joints can lead to diseases and abnormalities such as **osteoarthritis** and **osteoporosis**.



4.3.3 Bone — what is it?

Bone is approximately 50 per cent water and 50 per cent solid matter (consisting mostly of calcium and phosphate). Bones are living structures, capable of growth, adaptation and repair. Our bones grow in length until the age of 13–15 years for girls and 16–18 years for boys. Some bones have a hollow centre containing bone marrow, which produces blood cells.

DID YOU KNOW?

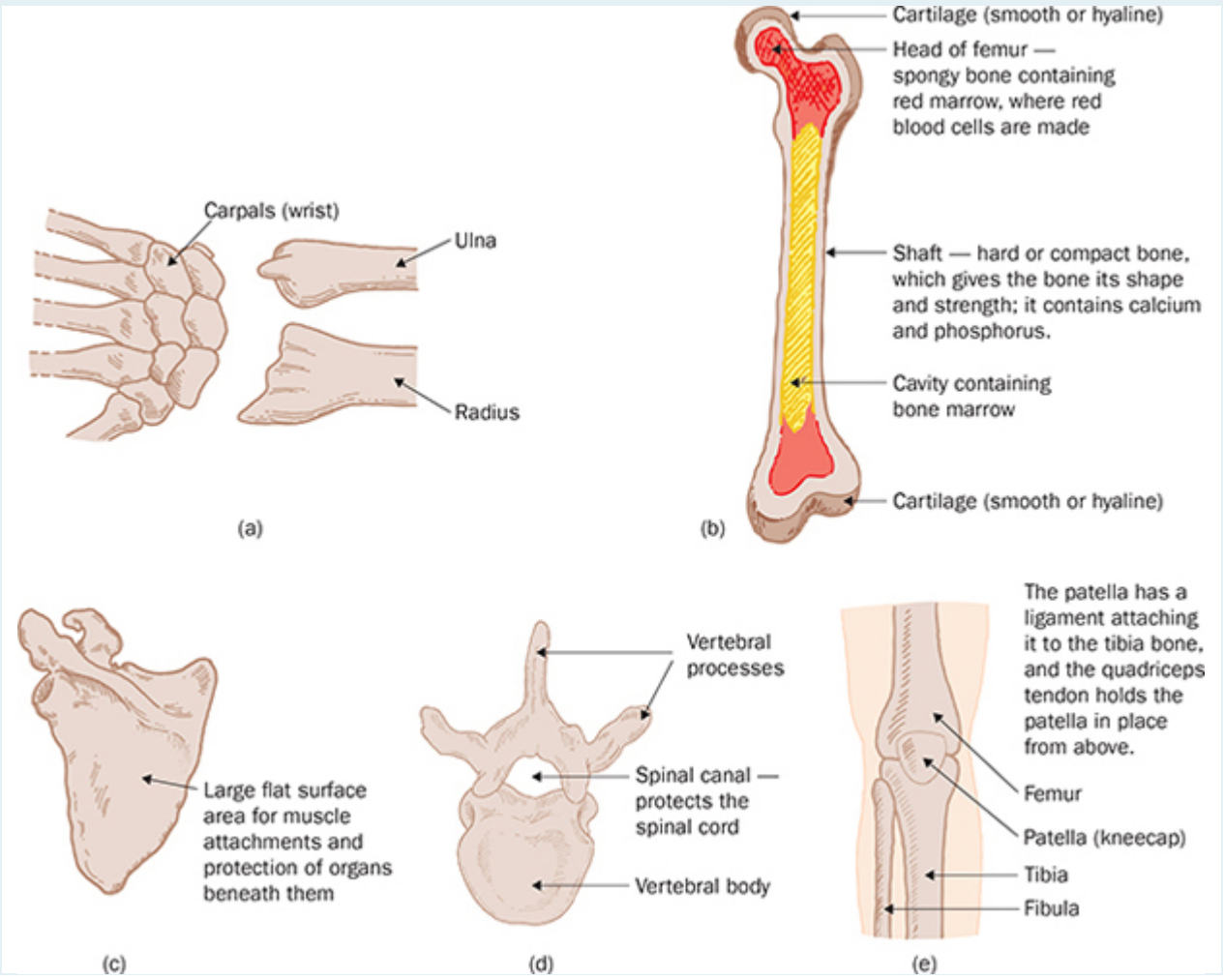
The largest bone is the pelvis, or hip bone. The longest bone is the femur; it makes up almost one quarter of the body's total height. The smallest bone is the stirrup, which is found deep in the ear. It is roughly the size of a grain of rice.

Types of bone

There are five types of bone, distinguished by their shape:

- *Short bones*, shown in figure (a) below, are roughly cubical; that is, they have the same width and length. Some examples are the carpal bones of the wrist and the tarsal bones of the foot.
- *Long bones*, shown in figure (b) below, are longer than they are wide and have a hollow shaft containing marrow; for example, femur, phalanges and humerus.
- *Flat bones*, shown in figure (c) below, provide flat areas for attachment of muscles and usually enclose cavities for protection of organs; for example, scapula, ribs, sternum and skull.
- *Irregular bones*, shown in figure (d) below, have no regular shape characteristics; for example, vertebrae and bones of the face.
- *Sesamoid bones*, shown in figure (e) below, are small bones developed in tendons around some joints; for example, the patella at the knee joint.

a. Short bones – the carpal bones in the wrist b. A long bone – the femur c. A flat bone – the scapula d. An irregular bone – a vertebra e. A sesamoid bone – the patella



4.3.4 The vertebral column

Some special features of the spine (or vertebral column) are listed below.

- Each vertebra has a hollow centre through which the spinal cord travels. In this way, the cord is protected (see figure (d) above).
- As the vertebrae descend from the cervical to the lumbar region, they increase in size (see the figure at right). This helps them to support the weight of the upper body.
- Movement between two vertebrae is very limited. But the range of movement of the vertebral column as a whole unit is great, allowing bending, twisting and rotation.

on Resources

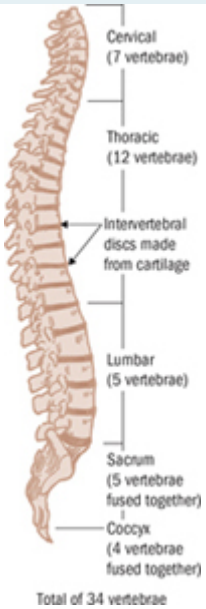
Complete this digital doc: Vertebral column
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4.3.5 Joints

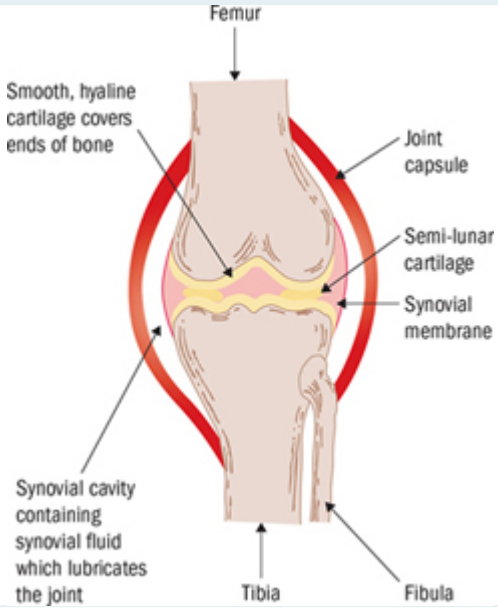
Joints occur when two or more bones meet or join together. There are three types of joint:

- *Immoveable fibrous joints* — bones are fixed or fused together and no movement is possible, for example, skull, pelvis, sacrum and sternum.
- *Slightly moveable (cartilaginous) joints* — bones are joined by cartilage and only a small amount of movement is possible, for example, ribs joining sternum, vertebrae of spine.
- *Freely moveable (synovial) joints* — allow free movement in at least one direction. They have cartilage, ligaments and a lubricating fluid (called **synovial fluid**), and are the joints which allow us to move and exercise (see the figure below). Most of the joints in our body are **synovial joints**; for example, the knee, elbow, ankle, hip, shoulder, fingers, wrist and toes.

Side-on view of the vertebral column. Note how the vertebrae increase in size as they descend from the cervical spinal region to the lumbar.



The knee joint is a freely movable (synovial) joint. The synovial fluid and cartilage provide lubrication and ease of movement.



DID YOU KNOW?

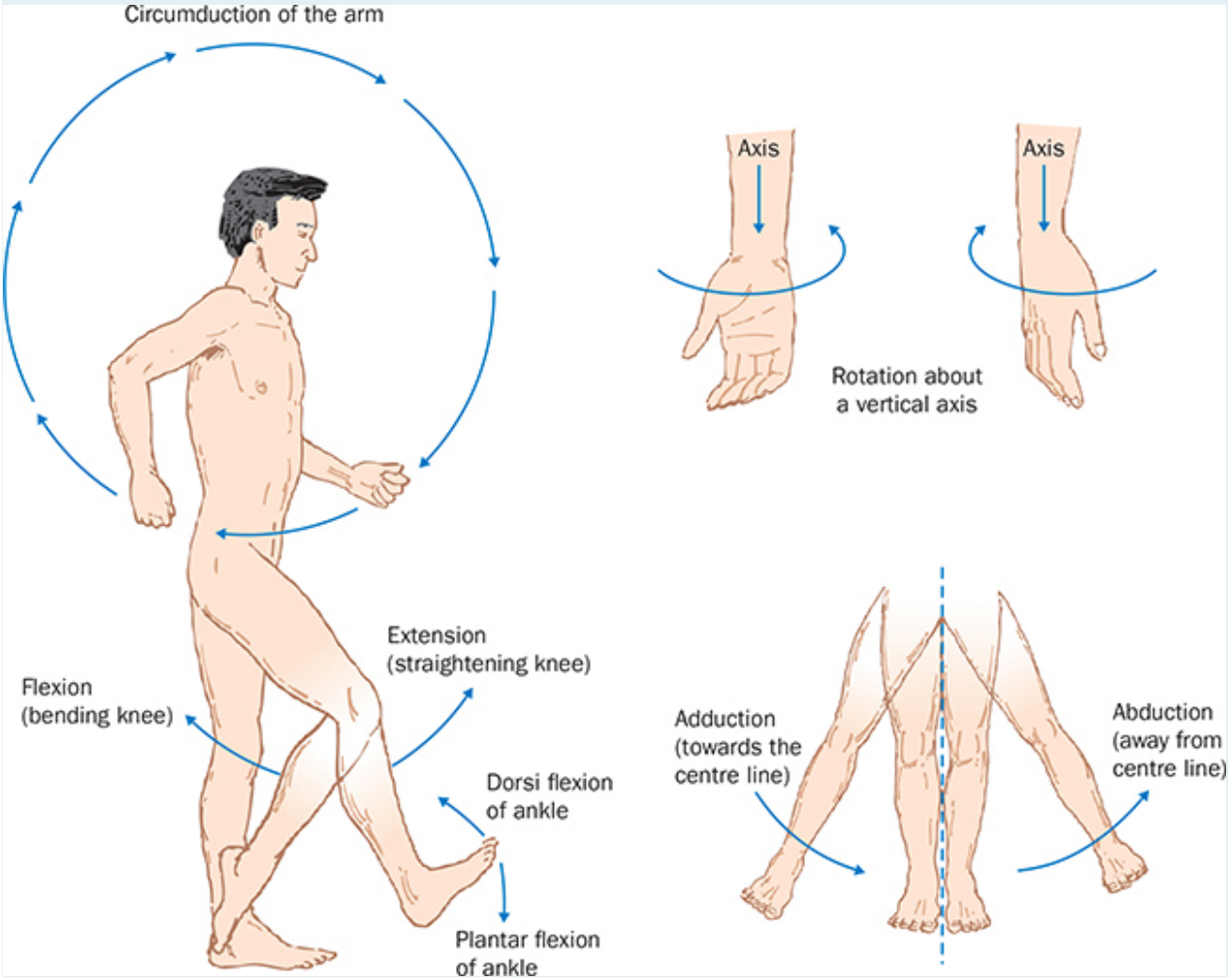
A baby has over 300 bones, but an adult has roughly 206 bones. This is because some of our bones, such as those of the skull and pelvis, fuse together to form one bone as we grow.

There are several types of synovial joints. Each is capable of a different range of movement. The table and figures that follow illustrate the movements possible at each of the synovial joint types.

TABLE 4.1: Synovial joint classification

Type	Example	Anatomical movements possible
Hinge	Elbow, knee	**Flexion** and extension only
Ball and socket	Hip, shoulder	Flexion, extension, adduction, abduction, rotation, circumduction
Saddle	Thumb	Flexion, extension, adduction, abduction, some circumduction
Pivot	First two cervical vertebrae (i.e. atlas, axis)	Allow rotation only
Gliding	Carpals, tarsals	Flat surfaces of bones allow some gliding movement
Condyloid	Wrist where carpals meet ulna and radius	Flexion, extension, sideways movement

Movements at synovial joints



Connective tissue

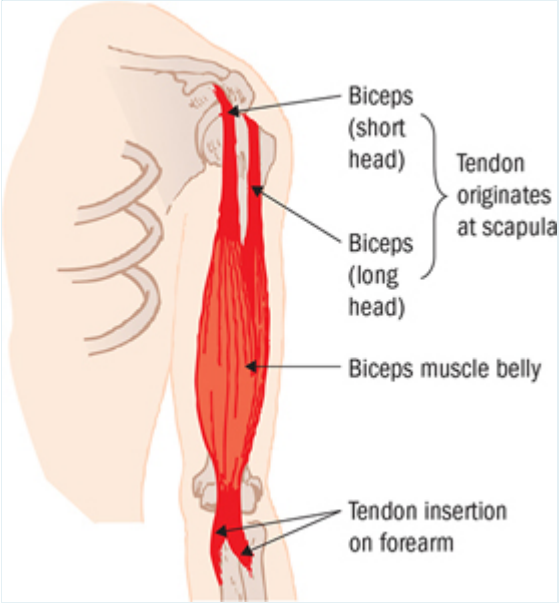
Connective tissues play a large part in stabilising the joints of the body. In addition, they may help create movement at the joint and act as a lubricant and shock absorber between bones. The three main types of connective tissue are **cartilage**, **tendons** and **ligaments**.

Cartilage is a smooth, slightly elastic tissue. It is found in various forms in the body. The ends of the bones in synovial joints are coated with smooth, shiny cartilage called hyaline cartilage. Some synovial joints also have cartilage between the bones, for example, the knee. The vertebrae of the spine are separated by discs of cartilage, and the ribs attach to the sternum by way of cartilage. The cartilage in the knee and between the vertebrae provides shock absorption during movement. The hard part of the ear and the tip of the nose are also cartilage.

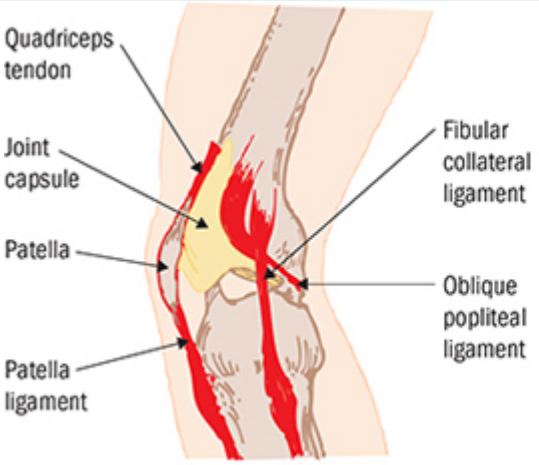
Tendons, which attach muscles to bones, are inelastic and very strong. They allow movement to take place, as they help muscles pull across the joints on the bones (see the figure below).

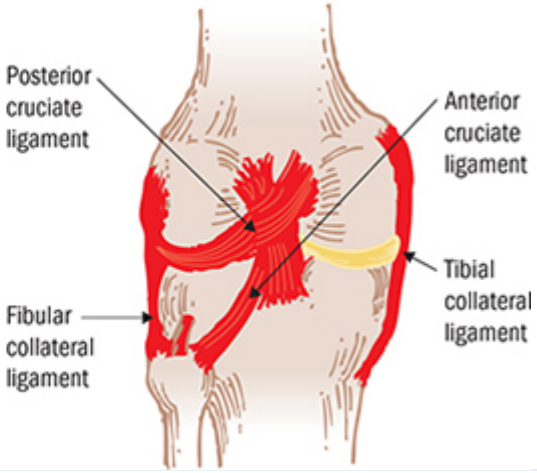
Ligaments cross over joints, joining bone to bone. They are slightly elastic, allowing some small movement of the bones at the joint. Their main function is to provide stability of the joint, preventing dislocation. Unfortunately, ligaments cannot repair themselves if damaged or torn, and often surgery is necessary to repair them. The most common ligaments to be damaged are those found in the knee joint (shown below).

Tendons of the bicep



Ligaments provide stability to the knee joint — (a) side view; (b) rear view





Take care of yourself and your teammates when playing sport. Bones and ligaments take a long time to heal.



To learn more about bones, follow the weblinks in your Resources section.

on Resources

Explore more with these weblinks: Skeletal system game

Explore more with these weblinks: Whack a bone

ACTIVITIES

1 Skeleton labelling

Use the **Skeletal system** interactivity in your Resources section to complete the activity on labelling the skeleton.

2 Investigating movements

In pairs, perform the following movements or actions. For each identify and record in the table below:

1. the primary joint used
2. what type of joint it is
3. the anatomical movements performed.

Use the **Joint actions** and **Joint movement** worksheets in your Resources section to help you. The first row of the table has been completed for you.

Movement	Joint	Type of joint	Anatomical movement(s)
Pull-up	Elbow	Hinge	Flexion, extension
Push-up			
Bowling a cricket ball (arm action)			
Deep knee-bend			
Legs in star jump			
Turning head from side to side			

CHECK & CHALLENGE

Explain

1. What are the two main functions of flat bones? Provide examples.
2. Name the three types of connective tissue and describe the characteristics of each.

Elaborate

3. Classify the bones you have learned about under the following general headings.
    a. Vertebral column
    b. Upper limbs
    c. Chest
    d. Shoulder girdle
    e. Pelvic girdle
    f. Lower limbs

Resources

Complete this digital doc: Joint actions
Searchlight ID: doc-14707

Complete this digital doc: Joint movement
Searchlight ID: doc-14732

Try out this interactivity: The skeletal system
Searchlight ID: int-5491

4.4 The muscular system

4.4.1 Functions of muscles

We have over 600 muscles in our body, each with a special job to do.

ENGAGE

In this lesson we will investigate different types of muscles. We will focus specifically on skeletal muscles which are used to create movement by pulling on the bones they attach to. We will also look at why some people are better suited to long distance events and others to power, speed and strength activities.

In small groups, list as many muscles in the human body as you can. Demonstrate a stretch for each of the identified muscles.

Why are some people better suited to power and strength activities?



4.4.2 Functions of the muscular system

The muscular system has three main functions.

- *To create movement*. This is accomplished when skeletal muscles pull on bones. Movement is also created through the development of muscular strength, flexibility, endurance, speed and power.
- *To maintain good posture.* Muscle tone allows us to keep an erect posture, by keeping our shoulders back, our head up and our back straight.
- *To maintain bodily functions*. For example, the heart muscle pumps blood, the muscles of the stomach wall and intestines digest food, and the diaphragm and chest muscles initiate breathing.

The nervous system controls the action of all the muscles, while the cardiovascular system supplies the muscles with all the necessary nutrients.

4.4.3 Types of muscle

There are three different types of muscle in our bodies: skeletal, smooth and cardiac.

Skeletal muscle is often called striated muscle, because of its striped appearance when viewed under a microscope. These muscles are responsible for all our voluntary movements, and are the muscles we can exercise and train to improve flexibility, strength and endurance. Skeletal muscles are also responsible for the development and maintenance of good posture. They are called skeletal muscles because they pull on the bones of the skeleton to create movement.

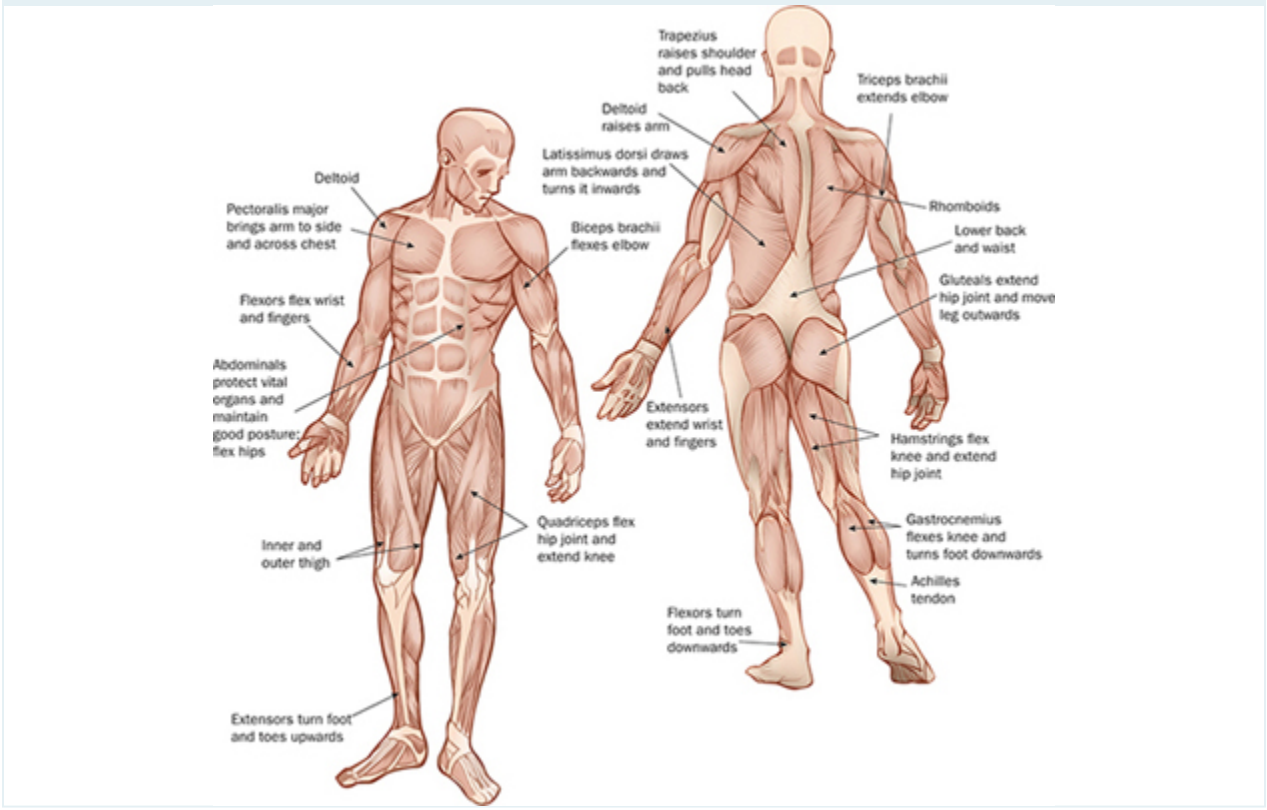
Smooth muscles are found in the digestive system, the walls of other vital organs such as the bladder, in blood vessels and in the diaphragm. We have no control over these muscles, and for this reason, they are called involuntary muscles.

Cardiac muscle is the muscle of the heart. It has a striped appearance similar to skeletal muscle, but its action is involuntary, like that of smooth muscle.

4.4.4 Skeletal muscles

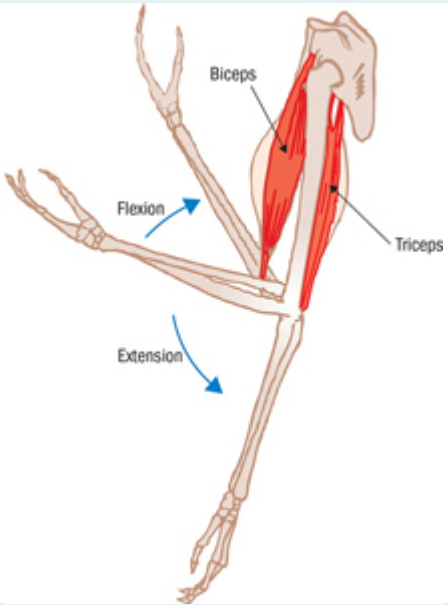
All the muscles shown in the figure below are used to create movement by pulling on the bones they attach to. Muscles can only pull, they can never push, and always work in pairs. For example, the biceps and triceps always work together, as do the hamstrings and quadriceps. When one of the muscles contracts to create movement, the other muscle in the pair relaxes to allow easier movement. This is called **reciprocal inhibition**. The muscle doing the work is called the **agonist**. The muscle relaxing is called the **antagonist**. A skilful performer has highly trained muscles which have reciprocal inhibition working at its peak for smooth flowing muscle contraction.

Skeletal muscles — from the front and the back of the body



The figure below is an example of how muscles work in pairs. The biceps muscle has two sets of tendons — one set attaches to the shoulder while the other attaches to the forearm. As the biceps shortens or contracts, flexion occurs. When the triceps at the back of the humerus contracts it extends the elbow joint (extension).

The biceps muscle at work. The two ends of muscle are attached to different bones by tendons. When the muscle contracts, one of the bones must move.



DID YOU KNOW?

There are about 650 muscles in the human body and about 60 muscles in the face alone. Smiling is easier than frowning. It takes 20 muscles to smile and over 40 to frown.

4.4.5 Structure of skeletal muscles

A muscle is made up of hundreds of single muscle fibres, bound together to form muscle bundles which are, in turn, bound together to form the whole muscle. A muscle fibre is one single muscle cell and can range in length from 1 mm to 40 mm.

Types of muscle fibre

There are two types of muscle fibre: fast (white) and slow (red).

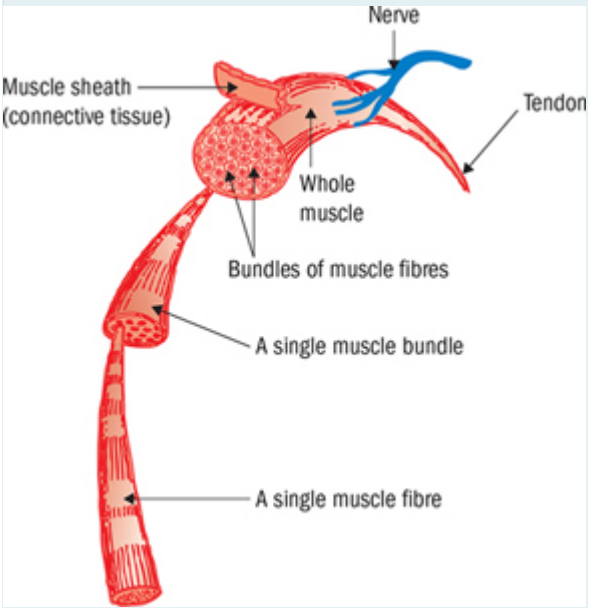
Fast twitch muscle fibres (white) are used for power, speed and strength activities such as sprinting, jumping and throwing. These muscle fibres contract rapidly with a lot of speed and force.

Slow twitch muscle fibres (red) are used for longer duration activities of lower effort or force, such as swimming, running or cycling continuously for five minutes or more. Red muscle fibres contract more slowly, but can continue to contract for long periods of time. The muscles which control our posture are generally made up of a larger percentage of slow twitch fibres.

Some people are born with a higher percentage of slow twitch fibres than fast twitch. These people are potentially better suited to longer distance or duration events, such as cross-country running and distance swimming. Top class sprinters may have up to 70 per cent fast twitch fibres, while top class marathon runners may have up to 80 per cent slow twitch fibres.

Most people have an even distribution of fibre type. However, through training specific fibres, we can increase their capabilities.

A skeletal muscle in detail



Indigenous Australian professional basketball player Patty Mills, who currently plays for the San Antonio Spurs in the NBA, would possess a large percentage of fast twitch muscle fibres.



Michael Shelley, 2014 Commonwealth Games marathon gold medal winner, would possess a large percentage of slow twitch muscle fibres.



4.4.6 Types of muscle contraction

There are two types of muscle contraction.

- **Isotonic** — contractions in which the length of the muscle changes while applying a force
- **Isometric** — contractions where the muscle applies a force, but does not change its length

Isotonic contraction

When looking at muscles at work, we tend to think they can apply a force only if they are shortening. This type of muscle action is called an isotonic concentric contraction; for example, the biceps shortening as the body pulls itself up while performing a chin up, as shown in figure (b) below.

Muscles can also apply a force when they are returning to their normal shape or resting length. We tend to think of this as the muscle lengthening. This type of muscle action is called an isotonic eccentric contraction; for example, the biceps lengthen with control as the body lowers itself from performing a chin up, as shown in figure (a) below. If the body did not use muscle force in a controlled lengthening of the biceps, it would fall with gravity and damage the shoulder joint and the person would probably involuntarily release their grip and fall to the floor.

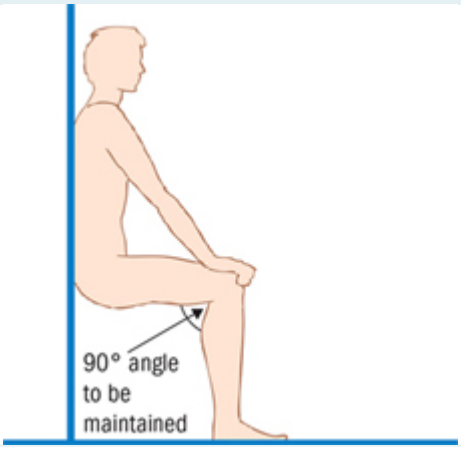
a. As the person pulls up to perform a chin-up, the biceps shorten while producing force. This is a concentric contraction. b. As the person slowly straightens the arms to lower the body back down to the starting position, the biceps lengthen under tension. This is an eccentric contraction.



Isometric contraction

In this type of muscle action, the muscle applies a force without changing length; for example, when performing a half squat with the back resting against a wall, the quadriceps muscle group is working very hard to prevent the body from falling or sliding to the floor.

In this wall-sit, the length of the muscle does not change, but the muscle works hard to prevent the body sliding down to the floor.



DID YOU KNOW?

The longest muscle in the body is the sartorius, from the outside of the hip, down and across to the inside of the knee. The biggest muscle in the body is the gluteus maximus, in the buttock.

Exercise and skeletal muscles

All skeletal muscles can have their strength, endurance and flexibility improved by exercising them on a regular basis.

One of the most noticeable effects of exercising skeletal muscles is an increase in their size, as shown in the figure below. The term used to describe a muscle increasing in size is **hypertrophy**.

When a muscle hypertrophies, each single muscle fibre increases in thickness, along with an increased blood supply and store of food for energy.

Note the size, shape and definition of the muscles on each of these body builders. The muscles are noticeable because of the hypertrophy caused by training with weights over a long period of time. A low percentage of body fat also accentuates muscle definition.



If a muscle is not exercised regularly, it will become smaller in size. For example, if we break an arm or a leg, the muscles will be smaller when the plaster is taken off, and therefore the arm or leg will look thinner. When a muscle gets smaller it is called **atrophy**.

Improved muscle function helps to develop and maintain good posture and self-confidence. Everyone can improve muscle function, posture, physique and self-confidence through regular exercise and training. Examples of training methods are provided in chapter 5.

ACTIVITIES

1 Label

Use the **Muscular systems** interactivity in your Resources section to label a diagram of the muscles.

2 Muscle contractions

Perform the following exercises in pairs and then complete the tables using the **Muscle contractions** worksheet in your Resources section.

1. Wall-sit (hold for two minutes maximum)
2. Push-ups (on a chair), maximum number in 30 seconds
3. Bent-knee sit-ups, maximum number in 60 seconds

	My results	Partner's results
Wall-sit	Held for _____ s.	Held for _____ s.
Push-ups	_____ in 30 s.	_____ in 30 s.
Bent-knee sit-ups	_____ in 60 s.	_____ in 60 s.

	Type of muscle contraction	Main muscle used	Main joint action
Wall-sit			
Push-ups			
Bent-knee sit-ups			

3 Circumference and strength

Use the **Hand grip strength** worksheet in your Resources section to complete the lab activity on the relationship between forearm size and hand grip strength.

4 Complete the following statements

1. The term ‘hypertrophy’ is used to describe a muscle when it _____.

2. Atrophy describes what happens to a muscle when _____.
3. Fast twitch muscle fibres are best suited to _____.
4. Slow twitch muscle fibres are best suited to _____.

5 Active muscles

Use the **Muscles in action** worksheet in your Resources section to complete the table of muscles used for specific actions.

6 Twitching muscles

Use the **Muscle twitch** worksheet in your Resources section to explore the percentage of fast and slow twitch muscles used by various activities.

CHECK & CHALLENGE

Explain

1. Name the three types of muscle and give an example of each.

Evaluate

2. In the table below, describe the action performed by each of the muscles and an exercise or activity where this muscle is working.

Muscle	Action	Exercise
Biceps	Flexion, extension	Bicep curl
Triceps		
Hamstrings		
Quadriceps		
Pectorals		
Trapezius		

Elaborate

3. Muscles always work in pairs. List as many pairs of muscles that work together as you can.
4. Identify five examples in sport where isometric contractions are used. Justify your choices.

on Resources

Try out this interactivity: Muscular systems
Searchlight ID: int-5492

Complete this digital doc: Muscle contractions
Searchlight ID: doc-14708

Complete this digital doc: Hand grip strength
Searchlight ID: doc-14706

Complete this digital doc: Muscles in action
Searchlight ID: doc-14704

Complete this digital doc: Muscle twitch
Searchlight ID: doc-14709

Explore more with these weblinks: Bones, muscles and joints

Explore more with these weblinks: Muscular system games

Explore more with these weblinks: Poke a muscle

Explore more with these weblinks: Muscle interactivity

4.5 The cardiovascular system

4.5.1 A system made up of the heart, blood vessels and blood

The cardiovascular system is responsible for the delivery of nutrients and for the removal of waste products from the body's cells. All other systems depend on its efficient function.

ENGAGE

The cardiovascular system is a complex system made up of the heart, blood vessels and blood. Its main role is to circulate blood around the body so that oxygen and nutrients are delivered to the muscles and waste products are removed. The cardiovascular system plays an extremely important role during exercise, as the more efficiently the cardiovascular system works, the greater the amount of oxygen and nutrients that can be delivered to the working muscles. A resting heart rate is usually 60–80 beats per minute; however, as the level of activity increases, the heart needs to beat faster to deliver more oxygen and nutrients to the muscles.

Use the **Pulse check** worksheet in your Resources section to learn about the various methods for measuring your pulse.

on Resources

Complete this digital doc: Pulse check
Searchlight ID: doc-14710

4.5.2 Functions of the cardiovascular system

The cardiovascular system:

- circulates blood to all parts of the body
- transports water, oxygen and nutrients to cells
- transports wastes, including carbon dioxide, away from the cells
- helps maintain correct body temperature
- helps fight disease, through white blood cells and antibodies in the blood.

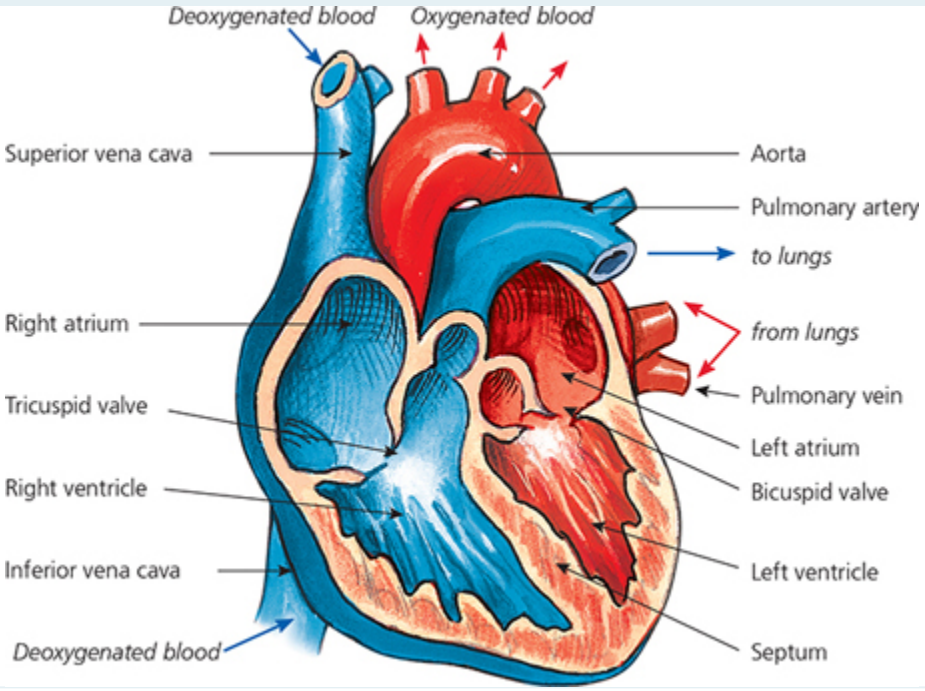
4.5.3 Elements of the cardiovascular system

The cardiovascular system comprises three elements: the heart, the blood vessels and the blood.

The heart

The **heart** is a muscular pump designed to pump blood throughout the cardiovascular system.

Blue denotes the flow of deoxygenated blood through the heart. Red is the oxygenated blood returning from the lungs to be pumped from the left ventricle to the rest of the body.



The heart has four chambers — two atria and two **ventricles**. The atria are the upper chambers, which receive blood; the ventricles are the lower chambers, which pump blood.

The **septum** divides the heart into two pumps. The left pump is the left atrium and left ventricle, and the right pump is the right atrium and right ventricle. The blood in these two pumps does not mix, because the left pump has oxygen-rich blood for the body, while the right pump has carbon dioxide-rich blood, which needs to be transported to the lungs for removal of the carbon dioxide.

Valves are located between the atria and the ventricles. They are also found at the entrance to the arteries from the heart. The valves will allow blood to travel in only one direction, stopping blood in the ventricles from flowing back into the atria.

Some other important features of the heart are outlined below.

- The heart is located in the centre of the chest between the two lungs and is protected by the ribs.
- The adult heart is about the size of a large fist.
- At rest, the average adult heart pumps at about 70 beats per minute (bpm).
- At maximum work, your heart rate can be more than 200 beats per minute.
- At maximum work, the heart may circulate up to 35 litres of blood in a minute.

To find out how many times your heart beats, follow the **Life beats** weblink in your Resources section.

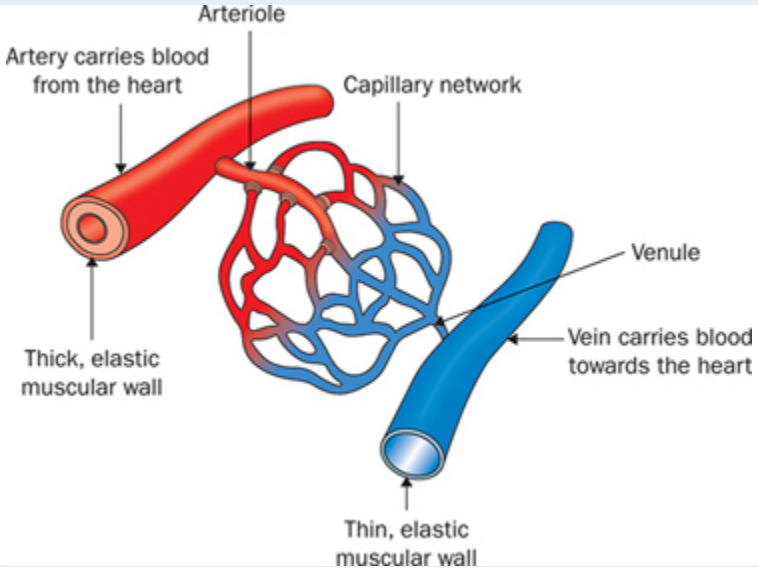
Blood vessels

The network of blood vessels which carry blood to all parts of our body is also referred to as the **vascular system**.

There are three types of blood vessels, as outlined below:

- **arteries**
- **veins**
- **capillaries**.

Characteristics of the different blood vessels, showing how they are connected

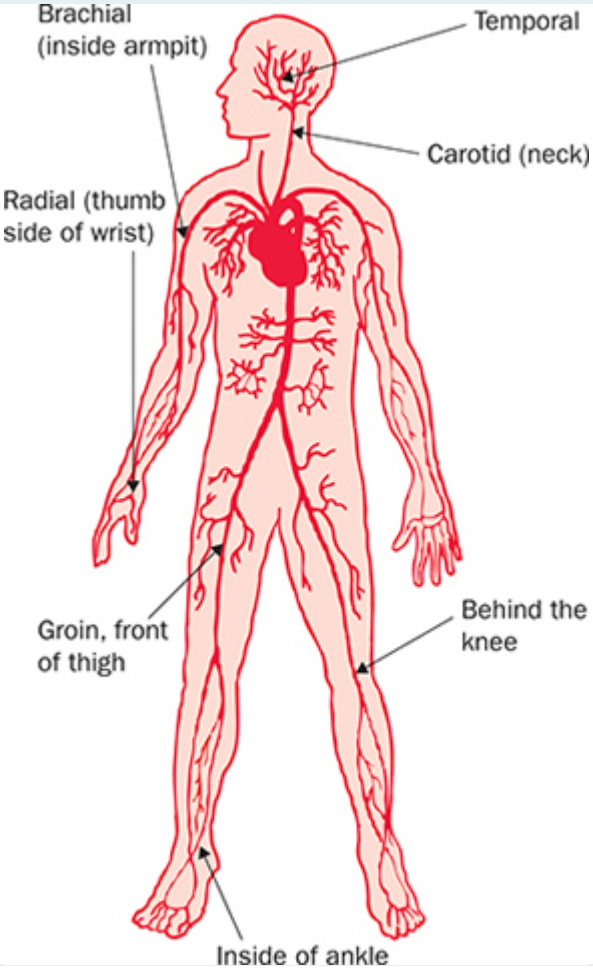


Arteries

Arteries always carry oxygen-rich blood away from the heart to the body, except for the pulmonary artery, which carries oxygen-depleted blood away from the heart to the lungs.

The **aorta** is the largest artery in the body. The left ventricle of the heart forcefully pushes the blood into the aorta and on to the rest of the body. The volume of blood pumped into the arteries with each beat of the heart is quite large. Because the artery walls are elastic, they are able to expand with each heartbeat to accommodate this volume. We are able to measure heart rate by feeling the pulse of each beat as blood is pumped through the arteries. Arteries which pass close to the surface of the skin are the sites at which we can take a pulse count. The two most common are the pulse in the neck (carotid pulse) and the pulse in the wrist (**radial pulse**).

Pulse sites occur where an artery is close to the surface of the skin and may be compressed against a muscle or bone.



The figure below shows the location of the major pulse sites in the body. These are often referred to as pressure points, because pressure may be applied to the arteries at these points to reduce the flow of blood from an artery which may have been cut in an accident. Bleeding from an artery may be recognised in two ways.

- The blood spurts out with each heartbeat.
- The blood is a bright red colour because it is rich in oxygen.

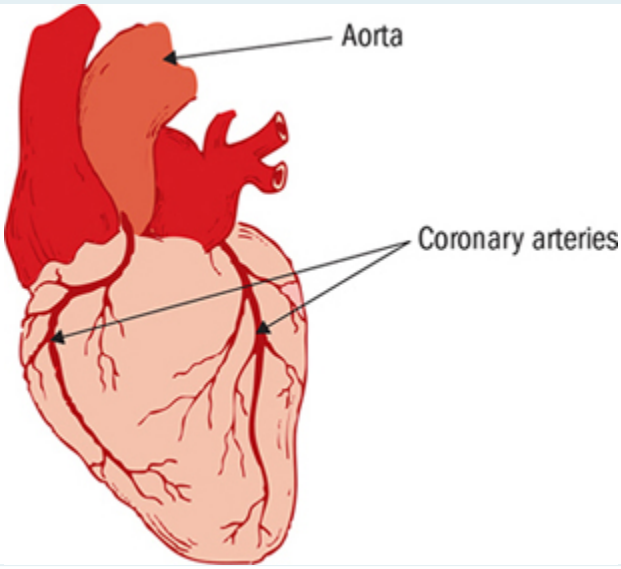
Factors that affect resting heart rate/pulse counts include:

- *gender* — usually males have lower resting heart rates than females
- *temperature* — as air temperature increases, heart rate increases
- *eating* — heart rate is raised after meals
- *laughing* — heart rate increases
- *smoking* — heart rate increases
- *body position* — heart rate when standing is higher than when sitting or lying.

Coronary arteries

The heart, like any other muscle, needs a supply of blood which provides the nutrients for the production of energy for work. There are two **coronary arteries** (shown in the figure below). Both come from the aorta, and they branch out across the outer surface of the heart muscle to feed all four chamber walls with nutrients. One of the most common causes of heart attack occurs when one or both of the coronary arteries become blocked by fatty deposits. This reduces the blood supply to the heart muscle and causes severe pain in the chest, and possibly death of part of the heart muscle.

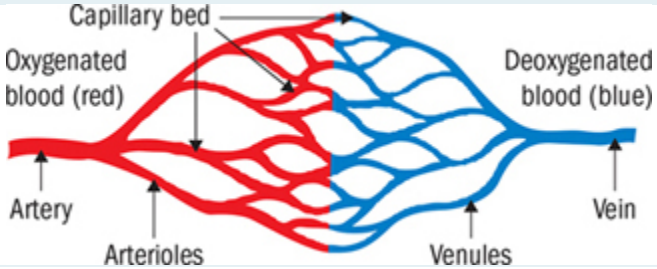
The two coronary arteries supply oxygen and nutrients to the cardiac muscle.



Capillaries

Capillaries are the smallest blood vessels and are the site of exchange of nutrients and wastes between the blood and the body cells (see the figure below). Oxygen comes into muscles and waste products go out of the muscles through the capillaries. They have very thin walls and allow easy exchange of nutrients and wastes.

It is through the capillaries that oxygen, carbon dioxide and nutrients are exchanged between the blood and the cells.



When exercise first begins, the capillaries dilate (become larger in diameter), thus allowing increased blood flow to the muscles. A long-term exercise program may increase the number of capillaries supplying blood to muscles, including the heart, allowing an increased supply of oxygen and other nutrients to the muscles, and more rapid removal of wastes. The capillaries eventually carry these wastes into the veins.

Veins

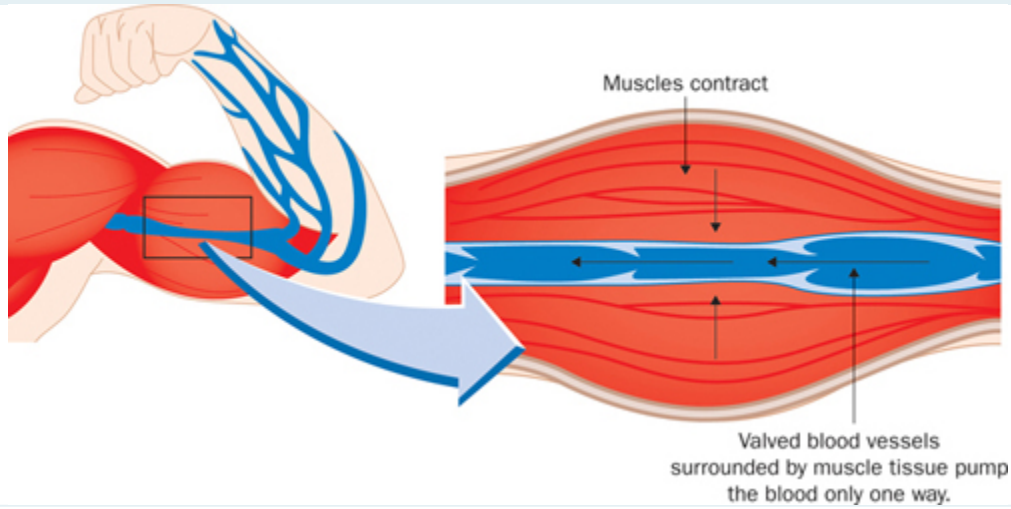
By the time the blood reaches the veins, it is no longer surging or pulsing under the influence of the heartbeat. The flow is steady and consistent. The walls of veins are quite thin and are not elastic like those of the arteries.

Veins carry blood with low oxygen content towards the heart (except for the pulmonary vein, which carries oxygen-rich blood), as the muscles and cells have extracted oxygen for the production of energy.

Veins have one-way valves which prevent the blood from flowing backwards away from the heart (see the figure below). The return of blood to the heart in the veins depends a great deal on the contraction of skeletal muscles.

Veins running alongside muscles are squashed or squeezed when the muscles contract. Blood in the vein is forced towards the heart because of the one-way valves.

This large vein is situated between muscles. As the muscles contract, the vein is squeezed, forcing blood towards the heart. This is called the **muscle pump effect**.



After exercising, it is important to perform a cool-down routine for a few minutes. This keeps the muscles, especially those of the legs, contracting and relaxing and therefore gently pushing the blood in the veins of the legs back into the core of the body and into the heart. This allows quick removal of wastes such as carbon dioxide and speeds up recovery from exercise. Follow the **Body basics blood** weblink in your Resources section to learn more.

Blood

Blood is the only tissue of the body that is a liquid. Blood cells make up 45 per cent of the blood volume, while plasma makes up the other 55 per cent. There are three types of blood cell: red blood cells, white blood cells and platelets.

Red blood cells:

- make up 99 per cent of all blood cells
- carry oxygen and carbon dioxide to and from the cells and muscles
- contain haemoglobin, the substance which carries oxygen
- are produced in the bone marrow (millions are produced each minute)
- are removed by the liver and spleen at a rate of millions per minute when worn out
- have a life span of about four months.

White blood cells:

- exist in the body in a ratio of one to every 700 red blood cells
- come in a variety of shapes and sizes
- are generally larger than red blood cells
- can pass through capillary walls into the cells of the body to fight disease-causing organisms by absorbing and digesting them
- have a life span of only a few days.

Platelets:

- are the cells which cause blood to clot when a blood vessel is damaged
- are smaller than red blood cells
- are produced in the bone marrow.

Plasma is a clear, yellowish fluid in which the blood cells are suspended. Plasma continually passes through the capillary walls and into the cells. Plasma bathes the cells with fluid, provides them with proteins, salts, glucose, fats, antibodies and some oxygen, and removes waste products.

Regular exercise causes the amount of blood in our bodies to increase, and this also means an increase in the amount of **haemoglobin**. Haemoglobin is the substance in red blood cells to which the oxygen attaches. It gives the blood its bright red appearance in the arteries. If we have increased amounts of haemoglobin, then we can carry more oxygen to our muscles, which in turn means we can do more work. Haemoglobin contains a large amount of iron. A lack of iron in the diet lowers the amount of haemoglobin in the blood and reduces the amount of oxygen the blood can transport. This condition is called anaemia.

Resources

Explore more with these weblinks: Life beats
Explore more with these weblinks: Body basics blood

4.5.4 Circulation of blood

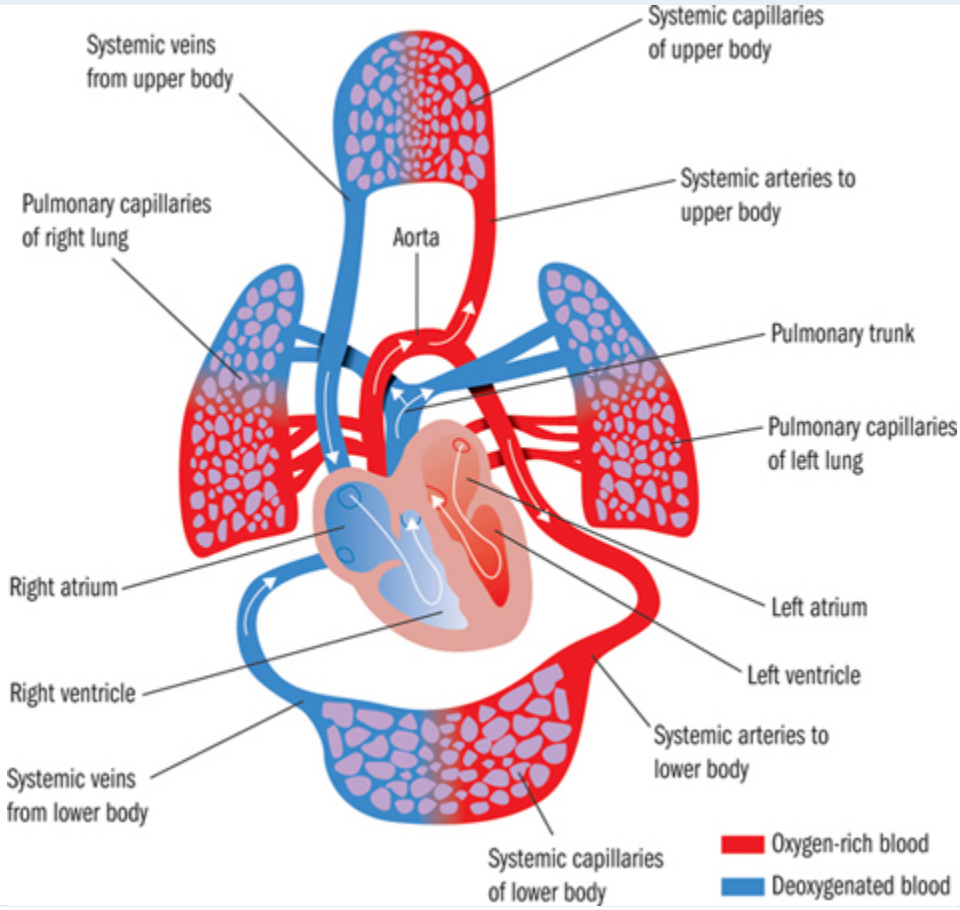
Circulation of blood throughout the cardiovascular system is carried out through:

- **systemic circulation**, in which blood from the heart is circulated into the arteries, around the body and back to the heart
- **pulmonary circulation**, in which blood from the heart is circulated to the lungs and back to the heart again.

The following sequence shows how blood is circulated through the body.

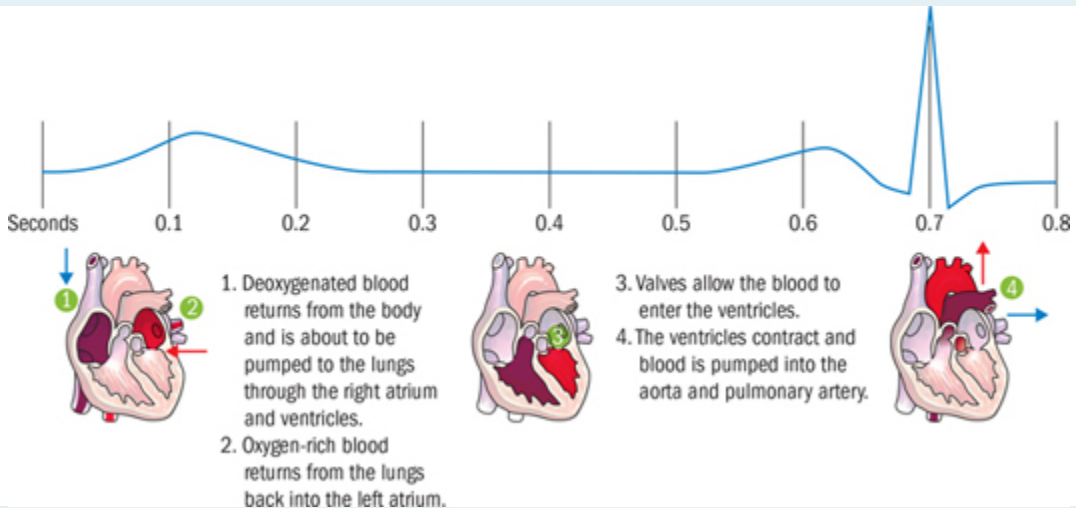
1. Right atrium receives blood from the body that is low in oxygen and high in carbon dioxide.
2. Right ventricle receives blood from the right atrium and pumps this blood to the lungs.
3. Blood gives up carbon dioxide (CO_2) and takes up oxygen (O_2) while in the lungs.
4. Oxygenated blood is returned to the left atrium.
5. Blood enters the left ventricle and is pumped through the aorta into the arteries.
6. Blood flows to all extremities of the body through smaller and smaller arteries called arterioles.
7. Blood enters capillaries where oxygen and nutrients are given up to the cells, and carbon dioxide and other wastes are removed from the cells.
8. Capillaries carry blood to the veins.
9. Veins return blood to the right atrium.

The circulation of blood — pulmonary and systemic



Test your knowledge of the heart using **The structure of the heart** interactivity in your Resources section. To learn more about the heart, follow the **Body basics heart** weblink in your Resources section. You can also view an animation of blood flow through the body using the **Animated heart** weblink in your Resources section.

The heart has two muscular pumps that circulate blood around the body. Each heartbeat pumps about half a cup of blood in eight-tenths of a second. This is what happens in 0.8 seconds.



on Resources

Explore more with these weblinks: Body basics heart

Explore more with these weblinks: Animated heart

Try out this interactivity: The structure of the heart

Searchlight ID: int-5493

4.5.5 Removal of body heat

Blood carries heat produced by the cells, especially the muscle cells, to the surface of the skin. Exercise causes the blood vessels to dilate and those close to the skin surface are able to radiate the heat outwards. On a hot day, it is easy to see the veins in our forearms. Perspiration on the skin, cooled by wind and air flowing over the skin surface, also helps to remove the heat from the vessels close to the body surface. As well as blood in the veins giving off heat, the capillaries near the surface of the skin dilate and radiate a lot of heat as the blood passes through them. As the capillaries dilate, they give the skin surface a red, flushed colour. Removal of body heat is a very important function of the cardiovascular system and is dependent on a good supply of water. For this reason, it is important to drink fluids regularly when exercising, especially on a hot day.

Also, the air we breathe out carries heat from our bodies and helps us to cool down and maintain our body core temperature at 37°C.

4.5.6 Blood pressure

Doctors use **blood pressure** as a measure, or indicator, of good physical health. Blood pressure gives an indication of:

- how hard the heart has to work to push the blood through the arteries, capillaries and veins
- the health of our arteries and capillaries.

Blood pressure has two measurements: an upper reading called the **systolic blood pressure** and a lower measure called the **diastolic blood pressure**.

Systolic blood pressure is a measure of how much pressure is developed when the heart pumps the oxygen-rich blood into the aorta and out through the arteries to the cells and muscles. Diastolic blood pressure is a measure of the pressure of the blood in the arteries as the heart relaxes and fills.

Systolic blood pressure is affected by many factors and, as a general rule, should not be greater than about 140 mmHg (or millimetres of mercury) while at rest. A guideline for predicting what your systolic blood pressure should be is 100 plus your age up to a recommended maximum of 140 to 150. However, with regular exercise and a balanced diet, it is likely that older people can maintain a systolic blood pressure of around 120 mmHg.

Factors affecting blood pressure

Many factors affect blood pressure in the short term:

- *Cigarette smoking* — increases blood pressure because the capillaries constrict or reduce in size when nicotine is present, thus increasing the resistance to blood flow. This effect lasts for about 20 minutes after each cigarette.
- *Exercise* — increases blood pressure, a natural response, along with an increase in heart rate
- *Fright, stress or anxiety* — increases blood pressure
- *Body position* — affects blood pressure due to the pull of gravity. Standing increases blood pressure, and lying down decreases blood pressure.

Many factors affect blood pressure in the long term:

- *Diet* — a high fat or high salt diet may lead to a permanent increase in blood pressure above safe levels. This occurs when fatty deposits narrow the artery walls, and eventually leads to a loss of elasticity of the walls of the artery.
- *Stress* — stress may cause **high blood pressure** due to an imbalance in hormone levels.
- *Exercise* — regular exercise can lead to a decrease in blood pressure when at rest, if blood pressure has been abnormally high.

4.5.7 The cardiovascular system and exercise

To investigate how exercise affects the cardiovascular system, we need to look at both the immediate and long-term effects.

The immediate (acute) effects of exercise are those that take place as soon as exercise begins, for example increased heart rate and increased blood flow. Long-term chronic effects of exercise are those that take place after months or even years of regular exercise and training, for example decreased **resting heart rate** and increased blood supply to muscles.

Immediate (acute) effects of exercise

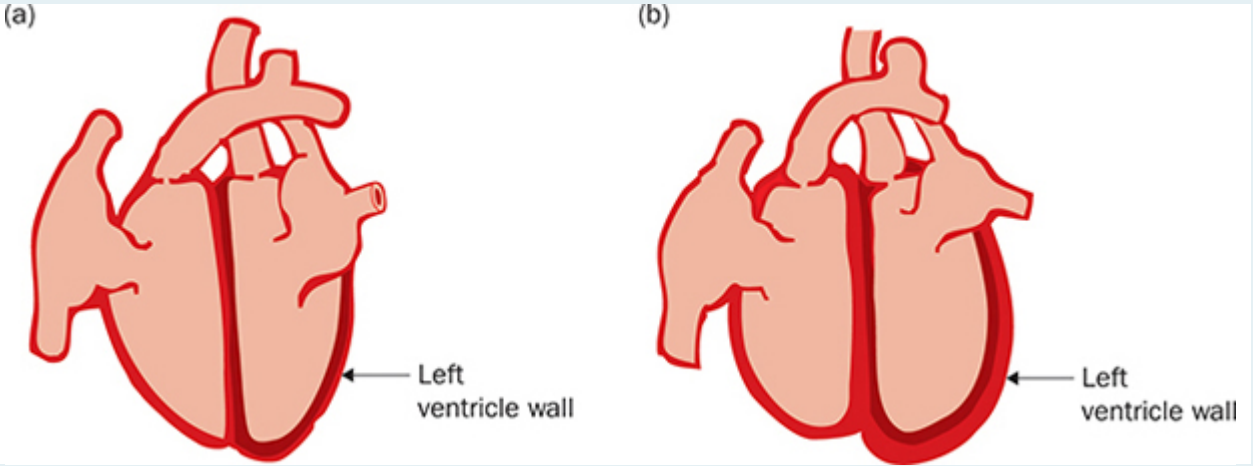
- *Increased heart rate*. As you begin to exercise, your muscles need more oxygen. This oxygen is used to produce energy, which is needed to make the muscles contract. Oxygen is carried to the muscles by the blood. To provide the extra oxygen, the blood must be circulated more quickly; this is possible only if the heart beats more rapidly. Therefore, increased activity leads to increased heart rate.
- *Increased cardiac output*. **Cardiac output** is the amount of blood circulated by the heart in one minute. At rest, this averages five litres for adults. At maximum work, it rises to 20 litres for unfit adults and as high as 35 litres for very fit adults.
  Cardiac output = heart rate × **stroke volume**

  Therefore, if heart rate increases, so must cardiac output.
- *Increased blood pressure*. When the blood travels more quickly through the cardiovascular system, the pressure it applies on the artery walls will also increase.
  Calculate your **Maximum heart rate** using the worksheet in your Resources section.

Long-term (chronic) effects of exercise

- *Hypertrophy of the heart*. Any exercise, such as running, swimming or cycling, that is done on a regular basis, will, over a period of weeks and months, lead to changes in the efficiency of the heart. Like any other muscle, the heart will become larger and stronger if it is exercised (see the figure below). The left ventricle pumps blood into the aorta and then onwards into the rest of the body. It is the left ventricle which is most affected by exercise, as its chamber increases in size and its walls thicken. Endurance training increases the size or volume of the left ventricle, whereas anaerobic training leads to greater thickness of the left ventricle wall.

a. An untrained heart. Note the thinner walls and smaller volume, especially of the left ventricle, when compared to the trained heart in (b). b. A trained heart. Note the thicker walls of the ventricles (especially the left ventricle) and the greater volume.



- *Stroke volume at rest increases as fitness increases*. Stroke volume is the term used to describe the amount of blood the left ventricle of the heart can push into the arteries each time it beats. Normal stroke volume for an adult is about 70 millilitres per beat; however, a very fit adult may have a stroke volume of up to 170 millilitres per beat. The amount of blood pumped with each beat depends on the size and strength of the heart. Regular continuous exercise for five minutes or more, such as running or swimming, will increase the size and efficiency of the heart — especially the left ventricle. This also increases the stroke volume of the heart.
- *Resting heart rate decreases*. A fit person has a lower resting heart rate than an unfit person. This means less wear and tear on the heart over a long period of time. But why does resting heart rate decrease with fitness?
  The average adult resting heart rate is somewhere between 60 and 80 beats per minute (bpm). The average adult cardiac output at rest is about five litres of blood per minute. This amount of blood carries enough oxygen to maintain the cells and muscles of any person at rest, regardless of their fitness level, so all adults need only five litres of blood to circulate each minute at rest.

    Cardiac output (CO) = stroke volume (SV) × heart rate (HR) in beats per minute

    Average CO = 5 litres (5000 mL) of blood per minute

    Average HR = 70 bpm

  Therefore:

$$\text{Average SV} = \frac{5000 \text{ mL}}{70}$$
$$= 72 \text{ mL of blood per beat.}$$

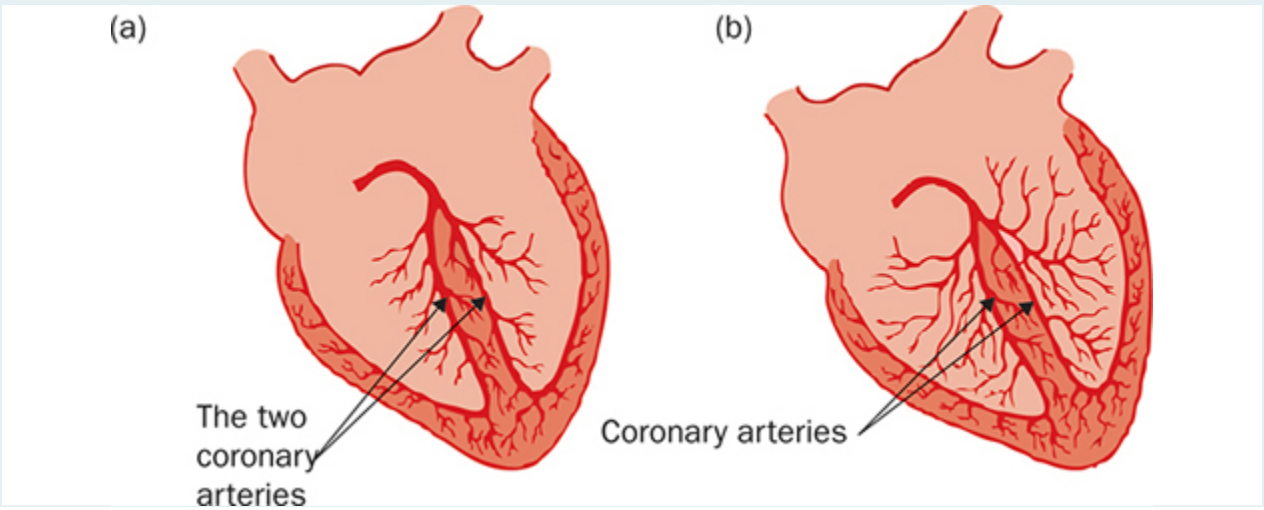
If a trained athlete had a stroke volume of 100 mL instead of the average 70 mL and, like any other person at rest, they need only 5000 mL of blood to circulate, what would be their resting heart rate?

$$\begin{aligned} \text{CO} &= \text{SV} \times \text{heart rate} \\ 5000 &= 100 \times \text{heart rate} \\ \text{Heart rate} &= \frac{5000}{100} \\ &= 50 \text{ beats per minute.} \end{aligned}$$

Therefore, the resting heart rate for the trained athlete would be 50 beats per minute.

- *Increased volume of blood and increased amount of haemoglobin*. Long-term training may lead to an increase in total blood volume by up to 25 per cent. In an average adult male, blood volume may increase from 5.25 to 6.6 litres. This will, in turn, lead to an increase in haemoglobin content by up to 24 per cent. The oxygen-carrying ability of the blood will be improved greatly as a result.
- *Increased number of capillaries supplying muscles*. During exercise, the muscles require extra oxygen and other nutrients. Over a long period of time, the capillaries which supply the muscles with these nutrients increase in number, so that the muscle is serviced more efficiently. In trained athletes, the average number of capillaries to each muscle fibre is 5.9, whereas, for untrained athletes, the average number is only 4.4.
- *Increased supply of blood to the heart muscle (coronary circulation)*. Like any other muscle, the heart needs a good supply of blood and oxygen. The figure below shows how exercise increases the coronary blood supply. This increased capillarisation, or blood supply, allows the heart to beat more strongly and efficiently during heavy exercise but, more importantly, it decreases the risk of heart attack in later life and, if heart attack does occur, the increased coronary circulation decreases the severity of the attack.

a. Capillarisation (blood supply) to the heart prior to a training program b. Capillarisation is much greater after a long-term training program.



- *Reduced risk of cardiovascular disease*. **Cardiovascular disease** can be divided into two main categories: cardiac (or heart) disease, which involves blockages in the coronary arteries and causes heart attacks, and vascular disease, which refers to problems with blood vessels. These problems include:
    - high blood pressure, which places stress on the heart
    - stroke, where the blood supply to the brain is restricted, causing brain damage and possibly death
    - **arteriosclerosis**, which is hardening of the artery walls. This may cause high blood pressure, stroke and heart attack.

Factors which may lead to cardiovascular disease are called risk factors. The important risk factors to note are the ones you can control. These include:

- blood pressure
- fat intake in your diet
- cholesterol in the blood
- salt intake
- excess weight and obesity
- stress related to work or study
- cigarette smoking
- exercise levels, especially cardiorespiratory exercise.

The risk of **coronary heart disease (CHD)** in people who do not exercise is twice that of those who are active. Not only are physically active people less likely to suffer from heart disease, but they are also more likely to survive a heart attack and less likely to suffer from further attacks.

Regular cardiorespiratory-type exercise, such as walking, jogging, swimming and cycling for 30 minutes a day, has been shown to:

- reduce blood cholesterol levels
- reduce body weight and therefore the risk of obesity
- reduce work-related stress levels
- reduce and protect against high blood pressure.

By reducing and/or controlling these risk factors, the chance of suffering cardiovascular disease is also significantly reduced.

To learn more about the cardiorespiratory system, follow the **Circulatory system games** weblink in your Resources section.

on Resources

Explore more with these weblinks: Circulatory system games

Complete this digital doc: Maximum heart rate
Searchlight ID: doc-14711

Complete this digital doc: Heart workout
Searchlight ID: doc-14712

DID YOU KNOW?

- The heart beats around 3 billion times in an average person's life.
- The capillaries in the lungs would extend 1600 kilometres if placed end to end.
- It takes about 1 minute for a red blood cell to circle the whole body.

Exercise is vital for a healthy cardiovascular system. Medical research has proven that regular cardio exercise reduces blood cholesterol levels and the chance of heart disease.



ACTIVITIES

1 Mapping the heart

Use **The structure of the heart** interactivity in your Resources section to label a diagram of the heart.

2 Heart rates

1. In pairs, take each other's resting heart rate and use this heart rate to calculate your stroke volume, assuming your cardiac output is 5000 mL. (Remember, cardiac output = heart rate × stroke volume.)
2. Discuss your results with your partner and explain why different people in the class have different resting heart rates and different stroke volumes.

3 Racing hearts

On a continuum like the one below, place 10 sports or activities by predicting how fast that activity would make your heart beat.

Vigorous activity such as running increases your heart rate significantly.



CHECK & CHALLENGE

Explain

1. List the components of blood and give their main functions.
2. Explain the difference between arteries and veins.
3. What are the short-term and long-term factors that affect blood pressure?

Evaluate

4. Use the **Heart workout** worksheet in your Resources section to explore the effects of exercise on heart rate.

Elaborate

5. Investigate how a diet high in fat can affect the cardiovascular system.
6. Discuss how the chronic effects of exercise on the cardiovascular system improve athletic performance.

4.6 The respiratory system

4.6.1 Our lungs in action

The respiratory system allows our body to breathe, bringing oxygen to the blood and removing carbon dioxide.

ENGAGE

On average, a resting person needs to take about 14 breaths per minute to oxygenate the bloodstream and remove carbon dioxide. When that person exercises or performs more strenuous movements, they need to breathe faster and deeper to deliver more oxygen and remove more carbon dioxide. In this way, the respiratory system works in close relation with the cardiovascular system.

In this section, we will explore the functions of the respiratory system, how we breathe, the effects of exercise on the respiratory system and factors that affect the respiratory system, such as cigarettes and asthma.

Use the **Exercise and breathing rate** worksheet in your Resources section to explore the relationship between your breathing rate and exercise.

VO_2 max tests measure how efficiently the body uses oxygen.



on Resources

Complete this digital doc: Exercise and breathing rate
Searchlight ID: doc-14714

4.6.2 Functions of the respiratory system

The main functions of the respiratory system are to:

- bring air from the atmosphere into the lungs
- transfer oxygen into the blood
- remove carbon dioxide from the blood
- expel heat and water vapour in the air breathed out
- allow the vocal cords to create speech as air is breathed out.

4.6.3 Structure of the respiratory system

The respiratory system has three sections:

- the conducting system — the air passages
- the lungs
- the diaphragm.

DID YOU KNOW?

We lose half a litre of water a day through breathing. This is the water vapour we see when we breathe onto glass.

The conducting system

The major elements of the conducting system are listed below.

- *Nasal cavity* — warms and filters air
- *Pharynx* — the throat, which allows food and air to pass. The air is channelled into the larynx.
- *Larynx* — the 'voice box'. Air passes through the larynx on its way to the trachea. The vocal cords are inside the larynx; these are essential for voice production.
- *Trachea* — the airway through which air passes on its way to the bronchi
- *Bronchi* — the trachea branches into two bronchi, one for each lung.
- *Bronchioles* — the bronchi divide into two smaller bronchioles, which divide into even smaller bronchioles and so on until the terminal bronchioles are reached.
- *Terminal bronchioles* — the terminal bronchioles branch yet again to form respiratory bronchioles, which also branch to form alveoli or air sacs.
- ***Alveoli*** — microscopic air sacs at the end of the respiratory bronchioles. There are millions of alveoli and each one is surrounded by capillaries. This is where oxygen comes into the blood and carbon dioxide comes out.

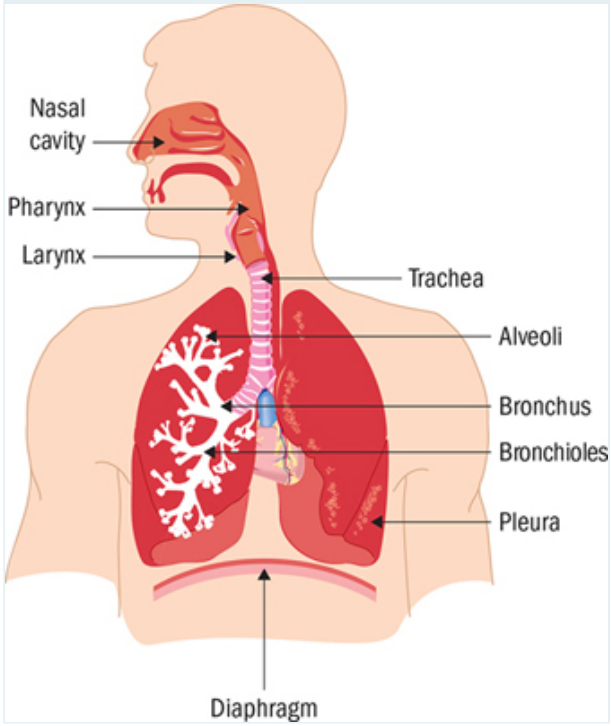
The lungs

The lungs are the major organs of the respiratory system and are located in the chest cavity behind the ribs. They consist of three main parts, as shown in the figure below:

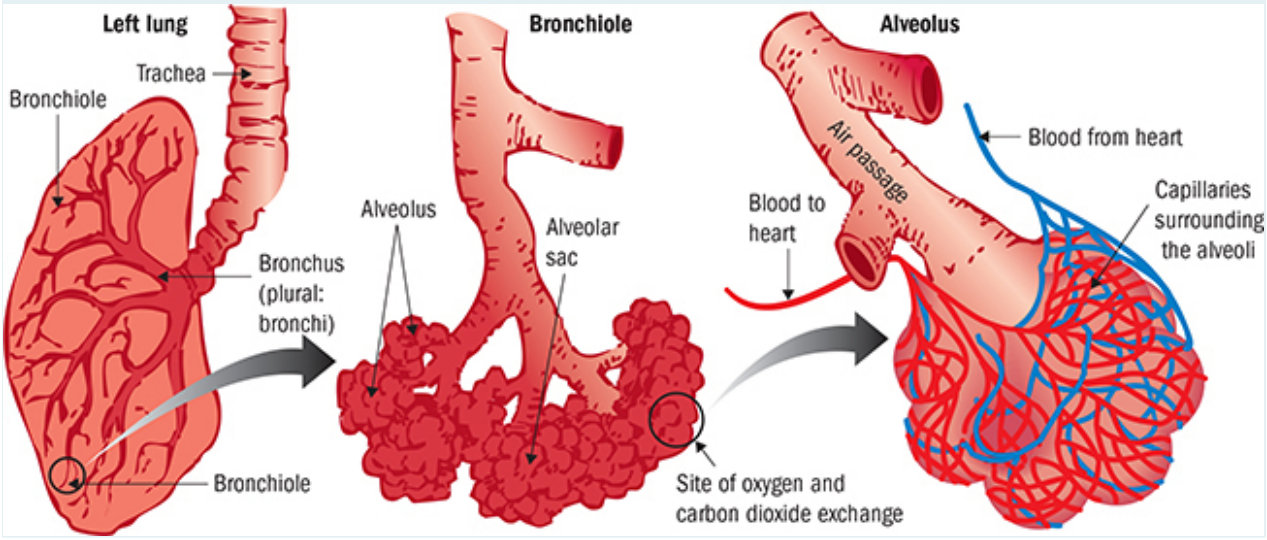
- the parts of the conducting system by which outside air reaches the alveoli; that is, the bronchi and bronchioles
- the alveoli
- the pleura.

The pleura is a membrane that covers the lungs. The pleura also attaches to the inside of the chest cavity and the top of the diaphragm. It is a smooth, moist membrane that reduces friction as the lungs expand and contract during the breathing process. The lungs have a spongy look and feel because of the millions of tiny air sacs and bronchioles.

The respiratory system



Microscopic structure of the lung



DID YOU KNOW?

The surface area of the lungs is roughly the same size as a tennis court.

The diaphragm

The diaphragm is an involuntary (smooth) muscle, which expands and contracts to control breathing while we are at rest and sleeping. As the diaphragm moves up and down, the chest cavity decreases and increases in size. This causes breathing. As the chest cavity increases in size, we breathe in. As the chest cavity decreases in size, we breathe out.

To learn more about the respiratory system, follow the weblinks in your Resources section.

on Resources

- **Explore more with these weblinks:** Breathe in
- **Explore more with these weblinks:** Lungs in action
- **Explore more with these weblinks:** Oxygen in the bloodstream
- **Explore more with these weblinks:** The respiratory system
- **Explore more with these weblinks:** Inspiration and expiration

4.6.4 The mechanics of breathing

Inspiration — breathing in

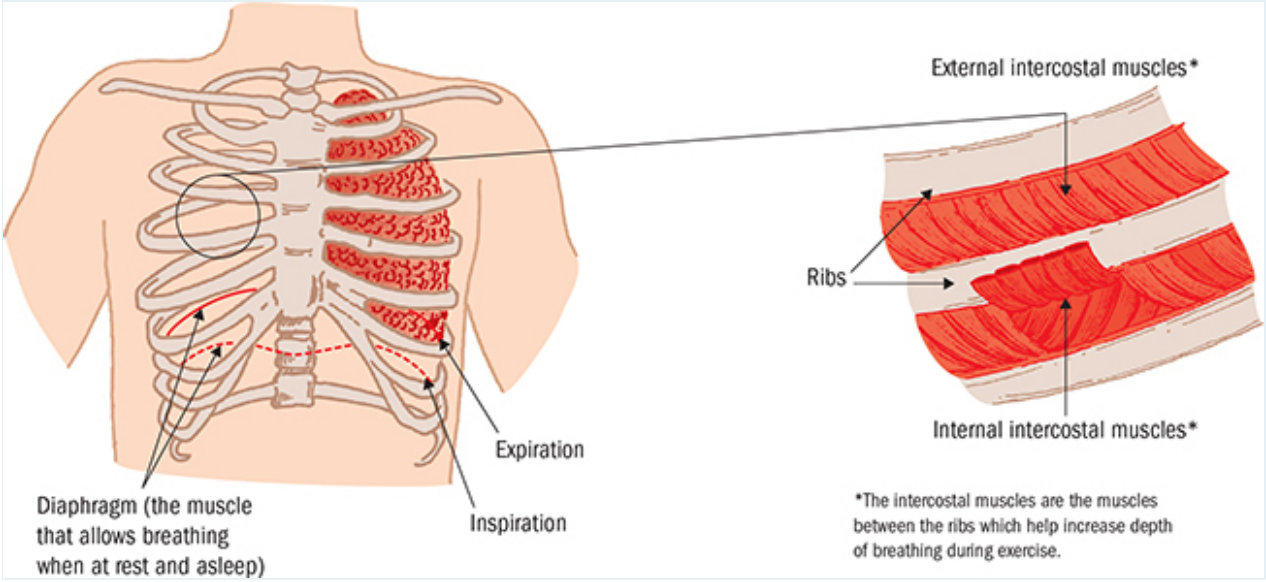
Inspiration is initiated by the diaphragm. When the diaphragm contracts, it moves downwards, enlarging the chest cavity. Deeper inspiration occurs when intercostal muscles move the ribs up and out, further expanding the chest cavity. Air always moves from a high pressure area to a lower one. As the chest cavity expands, the pressure inside it decreases and so the air under higher pressure outside the lungs is sucked in.

A normal ‘breathe-in’ during rest for an adult is about half a litre. This is called tidal volume. During heavy exercise, inspiration may increase to as much as four litres of air with each breath.

Expiration — breathing out

Expiration occurs when the diaphragm relaxes and the chest cavity returns to its smaller ‘at rest’ state. This is further enhanced by the intercostal muscles which allow the ribs to return to their normal ‘at rest’ position, as shown below.

The rib cage and the muscles of breathing



Exchange of gases in the lungs

During inspiration, air enters the lungs and travels into the alveoli. The alveoli are surrounded by capillaries. Both have very thin walls that allow the oxygen to diffuse from the higher pressure area in the alveoli to the lower pressure area in the capillaries. Once in the capillaries, the oxygen attaches to the haemoglobin in the red blood cells.

During expiration, the carbon dioxide in the capillaries is under higher pressure than the air in the alveoli. The carbon dioxide diffuses into the alveoli and is expelled as we breathe out.

4.6.5 Other features of the respiratory system

Vital capacity

Vital capacity is an important measure of our respiratory fitness and lung function. It is found by measuring the maximum amount of air you can breathe *out* after breathing *in* a maximum amount of air. Table 4.2 shows the vital capacity readings for children in Australian schools.

Most schools have access to a **dry spirometer**, an instrument into which you blow to measure your vital capacity. Generally, the larger the person, the higher the volume of the vital capacity. Large rib cages and chest cavities lead to large vital capacities. Because males generally have larger builds than females, they have, on average, larger vital capacities.

Sneezing clears the nasal cavity by expelling foreign particles.



TABLE 4.2: Vital capacity readings for 12- and 15-year-old boys and girls in Australian schools

	Vital capacity reading (litres)			
	Boys (age in years)		Girls (age in years)	
Ranking	12	15	12	15
Top 10%	3.65	5.5	3.6	4.25
Mid-range	3.0	4.5	2.9	3.6
Lowest range	2.15	3.15	2.05	2.6

Vital capacity can be increased, but only slightly, through exercise or training. However, by regularly exercising we are able to maintain vital capacity at its maximum level. At the same time, we keep our lungs supple and elastic, and help to remove any pollutants, such as tar, which may enter our lungs and become trapped in the tiny alveoli air sacs. Asthma and cigarette smoking are two factors that can greatly affect a person's vital capacity.

DID YOU KNOW?

The highest recorded ‘sneeze speed’ is 165 km/h.

VO_2 maximum

VO_2 maximum is also referred to as cardiorespiratory endurance, aerobic capacity or maximum oxygen uptake. VO_2 maximum is a measure of the maximum amount of oxygen that your body can use for each kilogram of body weight in one minute. More simply, it measures how much oxygen your muscles can use to produce work; the more oxygen you can use, the more work you can do. To produce energy for cardiorespiratory work, our muscles need a large supply of oxygen, and must be able to burn this oxygen efficiently.

VO_2 maximum is the best way of measuring the efficiency of your cardiovascular, respiratory and muscular systems under exercise conditions such as running, swimming or cycling. Tests used to measure VO_2 maximum are:

- 12-minute walk/run
- 7-minute cycle ergometer test
- treadmill tests
- 1.6-kilometre run
- 20-metre beep test.

The highest VO_2 maximum ever recorded is 94 mL/kg/min, that is, 94 mL of oxygen for each kilogram of body weight each minute — this was for an adult male cross-country skier. The highest recorded level for a female is 74 mL/kg/min.

The average VO_2 maximum for untrained males is 42–46 mL/kg/min; the average VO_2 maximum for untrained females is 30–39 mL/kg/min.

VO_2 maximum can be improved by up to 30 per cent if a regular cardiorespiratory training program is undertaken (see chapter 5 for example programs). This improvement is brought about when:

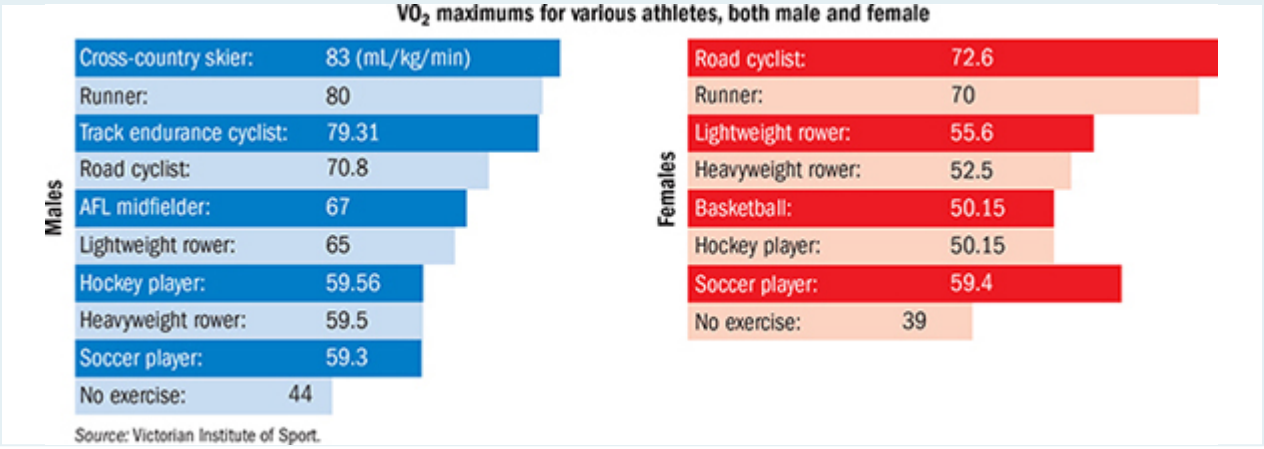
- the heart increases its ability to circulate blood
- the lungs increase their ability to ventilate air
- the muscles increase their ability to produce energy for work.

Table 4.3 details how each of the three systems — respiratory, cardiovascular and muscular — may help develop a good VO_2 maximum.

TABLE 4.3: Function of body systems for achieving good VO_2 maximum

System		Function in achieving good VO_2 maximum
Respiratory	• vital capacity	• Efficient lung ventilation — inspiration and expiration
	• alveoli	• Exchange of O_2 and CO_2 with blood in capillaries
Cardiovascular	• heart	• Powerful heartbeat • High stroke volume • High cardiac output (heart rate × stroke volume)
	• arteries	• Elasticity of walls • Clear of fatty deposits
	• capillaries	• Large network to heart and all the muscles • Easy and plentiful exchange of O_2 and CO_2 with muscles and lungs
	• veins	• Healthy one-way valves and muscle pump effect by skeletal muscles
	• blood	• Good supply of haemoglobin to transport O_2 and CO_2
Muscular	• skeletal muscle	• Good development and hypertrophy, with large supply of blood from capillaries
	• myoglobin	• Good supply to combine with oxygen to produce energy
	• glycogen	• Good supply to attract oxygen into the muscle
	• mitochondria	• Lots of these required as the site where O_2 and glycogen combine to produce energy

Measuring your fitness using VO_2 maximum levels as an indicator



DID YOU KNOW?

Breathing rates are generally faster in children and women than in men.

ACTIVITIES

1 Labelling systems

Use the **Respiratory labels** interactivity in your Resources section to label the various parts of the respiratory system.

2 Breathing techniques

Use the internet and other sources to research the Alexander technique for breathing and how it can improve an asthmatic's quality of life. Write a short report and then discuss your findings with a partner.

3 Dangers of smoking

1. Research the effects of smoking on the respiratory system.
2. Using Microsoft Publisher or other software, produce a pamphlet about smoking that could be used in an anti-smoking campaign such as Quit. Include facts about smoking, its negative impact on the respiratory system and ways to quit. Use the **Quit** weblink in your Resources section to help you with your research.

What kinds of images could be used to enhance an anti-smoking campaign?



CHECK & CHALLENGE

Explain

1. Describe the function of each of the following when breathing.
    a. Diaphragm
    b. Air pressure
    c. Expiration
    d. Inspiration
    e. Intercostal muscles
2. What is vital capacity and how can it be improved?

Evaluate

3. Use the **Vital capacity** worksheet in your Resources section to investigate vital capacity further.

Elaborate

4. On average, do males or females have higher VO_2 maximums? Why?
5. Which sportspeople have the highest VO_2 maximum? Why?

on Resources

Explore more with these weblinks: Quit
Try out this interactivity: Respiratory labels
Searchlight ID: int-5494
Complete this digital doc: Vital capacity
Searchlight ID: doc-14716

4.7 Review

4.7.1 What have I learned?

- The body systems play a key role in maintaining good health; the skeletal, muscular, cardiovascular and respiratory systems work together to produce physical activity.
- The skeletal system provides a framework for the body, allowing movement and protecting vital organs.
- The muscular system allows us to move, maintain our posture and maintain body functions such as blood circulation, digestion and breathing.
- Various types of bone, joint, connective tissue, muscle and muscle contraction play a role in creating movement.
- The cardiovascular system consists of the heart, the blood vessels and blood, and it allows blood, water, oxygen, nutrients and wastes to be transported around the body.
- There is a strong relationship between exercise and the cardiovascular system, particularly in regards to blood pressure and heart health.

- The respiratory system allows the body to breathe; it brings oxygen to the blood and removes carbon dioxide.
- Vital capacity is a measure of respiratory fitness and lung function, and is found by measuring the maximum amount of air a person can breathe out after breathing in a maximum amount of air.
- VO_2 maximum or aerobic capacity is a measure of the maximum amount of oxygen that a person's body can use for each kilogram of body weight in one minute.

CHECK

1. List three ways the skeletal system provides protection for major organs.
2. Identify the three types of muscles and explain their roles.
3. Describe the pathway of an oxygen molecule, from the moment it enters the nasal cavity to the moment it reaches the muscles to help produce muscle contraction.
4. Explain how the respiratory and cardiovascular systems are interrelated.
5. Complete each of the following questions with reference to a sport or activity of your choice.
    a. What are the major muscles used?
    b. Which muscle fibre type is most used?
    c. Which type of muscle contraction is most used?
6. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

How do the body systems work together to produce movement?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14717

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5392

Try out this interactivity: True/false quiz
Searchlight ID: int-5393

Try out this interactivity: Crossword
Searchlight ID: int-5394

Chapter 5: Physical activity, fitness and health

Contents

5.1 Overview

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5.3 Physical activity for health benefits

5.4 Assessing physical activity

5.5 Barriers to participation in physical activity

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5.8 Training methods

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5 Physical activity, fitness and health



5.1 Overview

5.1.1 The benefits of good health

Learning objectives

- Design, implement and evaluate personalised plans for improving or maintaining their own and others' physical activity and fitness levels (ACPMP102) (VCHPEM155)
- Examine the role physical activity, outdoor recreation and sport play in the lives of Australians and investigate how this has changed over time (ACPMP104) (VCHPEM157)

Being fit and healthy has many benefits, including less sickness, more energy and a happier state of mind. Good health means an improved quality of life across all areas of health, including physical fitness. There are many ways to assess our levels of physical activity to determine if we meet the national guidelines. Overcoming barriers to physical activity can be challenging, but with knowledge and support, we can develop simple training programs to enhance all areas of health and fitness.

According to the Australian Physical Activity and Sedentary Behaviour Guidelines, we should 'think of movement as an opportunity, not an inconvenience'.



ESSENTIAL QUESTION

Why is it important for all individuals to be involved in regular physical activity, and how can this contribute to health and wellbeing at different stages of their lives?

STARTER QUESTIONS

1. What type of physical activities do you do every week?
2. How many hours of television do you watch every week?
3. Do you know how to test your own and others' fitness levels?
4. What type of training activities could you do within the school grounds?

INQUIRY SEQUENCE

5.2 Health and fitness

5.3 Physical activity for health benefits

5.4 Assessing physical activity

5.5 Barriers to participation in physical activity

5.6 Physical activity for fitness and fitness profile

5.7 Training principles

5.8 Training methods

5.9 Project: training programs

5.10 Review

on Resources

Watch this eLesson: Physical activity, fitness and health
Searchlight ID: eles-2336

5.2 Health and fitness

5.2.1 The impact of health and fitness on your life

Health and fitness are the most valuable assets an individual can possess, and they have a large influence over the quality of one's life.

ENGAGE

Although advances in medical science have reduced the impact of illness and disease on our society, our modern way of life has created many new health problems and challenges. Mechanisation and technology have reduced manual labour, leading to an increasingly sedentary workforce. Lifestyle factors such as convenience and fast foods, increased drug use and environmental health hazards are responsible for a range of health problems that are costly to both the individual and the broader community.

Eating healthy foods, developing a positive self image, showing self-respect and maintaining a healthy body are some of the aspects of health and fitness.



In small groups, brainstorm words associated with physical health, mental health, social health, spiritual health, health-related fitness and performance-related fitness. Use the **Creating word art** weblink in your Resources section to create a word cloud that defines the terms ‘health’ and ‘fitness’. Share your group's definitions and word cloud with the class.

on Resources

Explore more with these weblinks: Creating word art

5.2.2 What is health and fitness?

Health is multifaceted. It is much more than just a physical state. For an individual, good health implies a quality of life, and must be viewed in terms of its physical, mental (emotional), social and spiritual aspects. Health is also dynamic in nature. It is constantly changing and varies from one person to another.

What is fitness?



The Australian Better Health Commission (BHC) defines health from both an individual and community perspective:

To the individual, good health means improved quality of life, less sickness and disability, a happier personal, family and social existence, and the opportunity to make choices in work and recreation. To the community, good health means a higher standard of living, greater participation in making and implementing community health policies, and reducing health care costs.

Physical health

Physical health is perhaps the area of health with which you are most familiar. It generally refers to the physiological functioning of the body, and is most closely linked to fitness. To ensure the efficient functioning of your body, you need to:

- eat regularly and follow a diet based on sound dietary guidelines
- maintain your recommended weight given your age, sex and height

- regularly participate in exercise and physical activity, and maintain a sufficient level of fitness
- manage your stress levels through exercise, recreation and rest
- practise good dental and body hygiene.

Mental health

Mental health or emotional health refers to the functioning of a person's mind, and includes such things as the expression of emotions and feelings, and the ability to cope with the pressures and stress of daily living. It also refers to the ability to make reasonable decisions and resolve problems. Your self-esteem is also closely related to your state of mental health.

Mental health is based on a number of related processes, including:

- developing a positive self-image
- developing effective communication and decision-making skills
- accepting responsibility for your own actions and behaviour
- recognising and accepting differences in opinions and values
- expressing and receiving feelings of love and friendship
- optimism and positive self-talk.

Many people find creative activities such as listening to music and writing are helpful outlets for their emotions.



Social health

Social health refers to the ability to develop and maintain positive relationships with others, including family, friends, peers and colleagues. Your level of social health can be optimised by:

- developing the personal skills of effective communication, decision making and conflict resolution
- developing relationships with a variety of people
- behaving in a socially acceptable manner
- demonstrating respect and empathy for others.

Friendship is important for wellbeing.



Spiritual health

Spiritual health encompasses our ideals, values, morals and ambitions. It links our physical, mental and social health.

In fact, all of the different areas of health are interrelated. For example, sufficient exercise, recreation and rest are not only factors in maintaining physical health but they are also important factors in ensuring mental health. Use the **Healthy living** interactivity in your Resources section to identify actions you can take to improve all aspects of your health.

on Resources

Try out this interactivity: Healthy living
Searchlight ID: int-5495

5.2.3 What is fitness?

Physical fitness may be defined as your ability to complete all that you need and desire to in a day without becoming exhausted. It also means having enough energy left to be able to deal with emergencies. Having adequate rest and relaxation is also related to a good physical fitness level. Adequate physical activity and good nutrition lead to increased physical, mental and social health.

There are two different types of physical fitness to which individuals may aspire.

Health-related fitness

Health-related fitness focuses on essential body functions that have a direct impact on your health. Developing a sufficient level of physical fitness will improve the way you look, feel and behave, enhancing your quality of life and chances of living longer. The National Physical Activity Guidelines, discussed in section 5.2, provide specific guidelines about activity levels for achieving health-related fitness. This aspect of fitness has a number of components, including:

- cardiorespiratory fitness (or aerobic power)
- muscular strength
- local muscular endurance (LME)
- flexibility
- body composition.

Skill-related fitness

Skill-related fitness relates to those additional aspects that promote skilled performance. This is particularly important for people who are seriously involved in competitive sports or wish to perform at an elite level. This standard of physical fitness enables them to perform optimally in their chosen activity. This type of fitness includes the components of:

- speed
- agility
- power
- balance
- coordination
- reaction time
- rhythm.

ACTIVITIES

1 Healthy and fit individuals

Working with a partner, use the **Creating art** weblink in your Resources section to develop a picture collage of individuals that you would consider to be healthy and fit. Alternatively, you may like to cut out images from magazines. When creating your collage, consider physical health, mental health, social health, spiritual health, health-related fitness and performance-related fitness.

2 Active workers

List six occupations that are active and explain how they help people remain physically fit while they work.

3 Venn diagram

Create a Venn diagram that explores how all the aspects of health are interrelated.

4 My physical health profile

Create a health profile for yourself and use it to set some goals.

1. Make a list of the regular exercise and physical activity you would do in a usual week.
2. Make a list of your diet in a usual week. Is your diet based on sound dietary guidelines?
3. Calculate your BMI using the following formula.

$$\text{BMI} = \frac{\text{weight in kg}}{(\text{height in m})^2}$$

Use the **Heart Foundation BMI** weblink in your Resources section to find out whether your BMI is within a healthy range.

Your waist measurement is closely related to your BMI. Checking your waist measurement is a simple predictor of how much fat is placed around your body. Use the **Heart Foundation waist** weblink in your Resources section to find out how to accurately measure your waist.

CHECK & CHALLENGE

Explain

1. In your own words, define physical health, mental health and health-related fitness.

Evaluate

2. How does being physically fit contribute to good physical, mental, spiritual and social health?

3. Evaluate the activities that have an impact on all areas of your health.
4. How can you build self-confidence through involvement in fitness activities? Give practical examples.

Elaborate

5. Why is having a positive self-image important for your mental health?
6. Describe how positive thinking can improve your social health.

on Resources

- **Explore more with these weblinks:** Creating art
- **Explore more with these weblinks:** Heart Foundation BMI
- **Explore more with these weblinks:** Heart Foundation waist

5.3 Physical activity for health benefits

5.3.1 Balance is key

To maintain good health, we must have a balanced and nutritious diet, satisfying social relationships and a regular exercise regime.

ENGAGE

Physical activity is an important part of maintaining good overall health. High levels of sedentary behaviour can be dangerous to your health, as it is linked to developing chronic disease and obesity.

The *Australian Health Survey: Physical Activity, 2011−12* found that:

- Toddlers and pre-schoolers (aged 2−4 years) spent an average of around six hours per day engaged in physical activity. They also spent almost 1.5 hours in the sedentary activities of watching television and DVDs or playing electronic games.
- On average, children and young people (aged 5−17 years) spent 91 minutes per day on physical activity and over 136 minutes per day on screen-based activity.
- As children and young people get older, their levels of physical activity decrease and watching television, DVDs or playing electronic games (screen-based activities) increase.
- Only 25 per cent of boys and 8 per cent of girls (aged 5−17 years) met the recommended number of steps (12 000) per day.

Use the **Australian Health Survey** weblink in your Resources section to read major findings of the 2011−12 Australian health survey. How does your lifestyle compare with these results?

A greater level of physical fitness benefits an individual in many different ways. What are the physical activity guidelines for maintaining good health? What health benefits will be obtained?

Compare the benefits of being fit and active with being unfit.



on Resources

Explore more with these weblinks: Australian Health Survey

5.3.2 Benefits of physical fitness

Good physical fitness benefits a person in many ways, including:

- decreased risk of cardiovascular disease
- improved posture and body conditioning
- reduced body fat
- improved self-concept, body image and self-esteem
- improved mental wellbeing through reduction of stress and anxiety.

Decreased risk of cardiovascular disease

Cardiovascular disease (or heart disease) is the leading cause of death in our society and is directly related to inactivity. If you are active and physically fit, you decrease your risk of dying of heart failure. The National Heart Foundation recommends regular physical activity as a way of reducing the risk of heart attack, as being overweight places unnecessary stress on the heart. Regular exercise also helps to reduce high blood pressure, cholesterol and emotional stress levels. Use the **Heart exercise** eLesson in your Resources section to find out more about the benefits of exercise for young people.

Improved self-concept, body image and self-esteem

Physical activity can help improve your self-concept, body image and self esteem. Being involved in physical activity with other club members, such as at a gym, in a team or in a recreational group, means you have a chance to build relationships with people who appreciate your abilities. This can help you feel secure and increase your confidence in yourself.

on Resources

Watch this eLesson: Heart exercise
Searchlight ID: eles-0220

Explore more with these weblinks: Physical activity and sedentary behaviour guidelines

5.3.3 Australia's Physical Activity and Sedentary Behaviour Guidelines

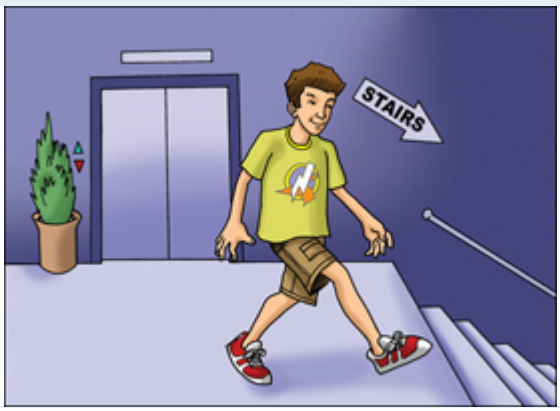
Australia's Physical Activity and Sedentary Behaviour Guidelines, updated in 2014, recommend that physical activity be undertaken on a daily basis and that this activity be accumulated throughout the day. This is a change of focus from previous guidelines, which recommended that activity levels focus on improving fitness rather than promoting and maintaining good health.

Use the **Physical activity and sedentary behaviour guidelines** weblink in your Resources section to explore these guidelines.

Walk with a friend.



Take the stairs, not the lift.



Try to include some vigorous activity every day.



DID YOU KNOW?

Results from the National Health Survey (NHS), which measured the height, and weight (BMS) of respondents aged 18 years or more, revealed that in 2014–15:

- 63.4 per cent of the Australian population (over 18 years) was either overweight or obese
- 35.5 per cent of the Australian population were classified as overweight (body mass index between 25.0 and 30.0 kg/m^2)
- 27.9 per cent of adults were classified as obese (body mass index of 30.0 kg/m^2 or greater)
- 27.4 per cent of children aged 5–17 years are overweight or obese.

Dimensions of Australia's Physical Activity and Sedentary Behaviour Guidelines

The Physical Activity Guidelines require physical activity to be undertaken based on four dimensions.

- *Frequency* — how many times each week do you undertake physical activity?
- *Intensity* — at what intensity is the activity being performed; for example, at what speed or heart rate (measured as a percentage of maximum heart rate) do you perform the activity?
- *Time* — for how long is the activity performed per session, day or week?
- *Type* — what form does the activity take? Is it sport-based (for example, netball, cycling, tennis or running) or more leisure-based (for example, gardening or walking the dog)? Physical activity can also be based on occupational requirements and household chores.

DID YOU KNOW?

The physical tiredness you feel after exercising isn't the same as everyday fatigue. Once your body adjusts to exercise, you'll have more energy than ever.

TABLE 5.1: Australia's Physical Activity Guidelines

Population group	Dimension			
	Frequency	Intensity	Duration	Type
Children (5–12 years) and adolescents (13–17 years)	Every day	Moderate to vigorous	60 minutes minimum, up to several hours, spread across the day	Wide range, including: • aerobic • weight-bearing (at least 3 days) • some vigorous intensity activity. *Note*: No more than two hours a day using electronic media for entertaining
Adults (18–64 years)	Most, if not all, days, 5 days minimum	Moderate	Accumulate 150 to 300 minutes of moderate intensity physical activity per week OR Accumulate 75 to 150 minutes of vigorous intensity physical activity per week OR An equivalent combination of both moderate and vigorous activities	A wide range of activities, including sports and leisure activities. Muscle strengthening activities at least 2 days a week.
Older adults (65 years and older)	Most, if not all, days, 5 days minimum	Moderate	30 minutes minimum, accumulated across the day. (For example, 3 × 10-minute sessions)	A wide range of activities that include fitness, strength, balance and flexibility

TABLE 5.2: Australia's Sedentary Behaviour Guidelines

Population group	Sedentary behaviour guidelines
Children (5–12 years)	• No more than two hours a day of electronic media for entertainment. • Don't sit for long periods without a break.
Young People (13–17 years)	• No more than two hours a day of electronic media for entertainment. • Don't sit for long periods without a break.
Adults (18–64 years)	• Minimise the amount of time spent in prolonged sitting. • Don't sit for long periods without a break.
Older Australians (65 years and older)	n/a

How can you do more for your fitness and wellbeing?



DID YOU KNOW?

Research has shown that watching TV for more than two hours a day when you are young is linked with being overweight, having poor fitness, smoking and having raised cholesterol in adulthood.

ACTIVITIES

1 Australia's Physical Activity and Sedentary Behaviour Guidelines

1. Use the **NPAG** weblink in your Resources section to access the Australia's Physical Activity and Sedentary Behaviour Guidelines website. Using information from this source, develop a table summarising the major information.
2. Replace some entries with blanks to test your classmates' knowledge of the Physical Activity and Sedentary Behaviour Guidelines.
3. Quiz a fellow student or the class using your summary table.

2 Do you meet the requirements?

In pairs, develop a survey sheet using the dimensions of Australia's Physical Activity and Sedentary Behaviour Guidelines. Survey the class and table the results. If many students do not meet the requirements, brainstorm practical lifestyle changes that address the gaps.

3 Promote it!

Create chants and slogans to promote more physical activity among young people. You can easily improve on the captions for the cartoons in this lesson.

4 How much TV?

1. Calculate how many hours of TV you watch on average each day.
2. Analyse your results. Do you watch more than the recommended limit?
3. If so, think of strategies to reduce this amount.

5 Body image

Explain how body image is interrelated with health and fitness. Use the **Body image** worksheet in your Resources section to help you write a report about having a healthy body image.

CHECK & CHALLENGE

Explain

1. Summarise Australia's Physical Activity and Sedentary Behaviour Guidelines.
2. Explain the health benefits of physical activity.

Evaluate

3. Assess the pros and cons of adolescents limiting their use of electronic media. Why is it an important topic to consider?
4. How could your school increase the level of physical activity of students during recess and lunchtime?

Elaborate

5. Identify strategies to encourage others to be more physically active.
6. How are health and physical activity interdependent?

on Resources

Explore more with these weblinks: NPAG

Complete this digital doc: Body image

Searchlight ID: doc-14718

5.4 Assessing physical activity

5.4.1 Taking control of our health

It is important to assess the amount and type of physical activity we participate in. This gives us greater control over the choices we make about our physical health. Several methods are used to assess physical activity that differ for age groups and populations.

ENGAGE

As discussed in section 5.2, when assessing physical activity levels we must consider the dimensions of frequency, intensity, duration and type. We use these four dimensions to determine whether the individual is meeting the Australian Physical Activity Guidelines. Some methods of assessment have been developed for use by a wide variety of people and others have been developed especially for children.

Working with a partner, measure and record your breathing rate per minute (count for 30 seconds and then double it) and heart rate per minute (count for 30 seconds and then double it) at the completion of each of the following activities.

- Sitting still for one minute
- Walking for one minute
- Skipping for one minute non-stop
- Bent knee sit-ups for one minute

A heart rate monitor measures exercise intensity; a pedometer measures the number of steps taken.



Consider the following:

- By how much did your breathing rate increase after skipping?
- What percentage of maximum heart rate did you achieve after each activity? (Max HR = 220 − your age)
- Rate each activity either as low intensity, moderate intensity or vigorous intensity.
- Draw a graph showing the relationship between heart rate and intensity of activity.

Use the **Self-report** worksheet in your Resources section to determine your activity levels.

on Resources

Complete this digital doc: Self-report
Searchlight ID: doc-14719

5.4.2 Assessing intensity

Several methods are used to assess the intensity of physical activity undertaken.

Talk test

This method determines the extent to which a person has enough breath during the activity to be able to speak comfortably. This method can be used to gauge low intensity, **moderate intensity** and **vigorous intensity** levels.

- *Low intensity level* — a person should be able to sing while doing the activity.
- *Moderate intensity level* — a person should be able to carry on a conversation comfortably while doing the activity.
- *Vigorous intensity level* — a person should be too out of breath to carry on a conversation while doing the activity.

Target heart rate

This method determines whether a person's heart rate is within the target zone during physical activity.

- *Moderate intensity level* — a person's **target heart rate** should be 50–70 per cent of their **maximum heart rate (MHR)**.
- *Vigorous intensity level* — a person's target heart rate should be 70–85 per cent of their maximum heart rate.

Note: Maximum heart rate, or MHR, can be approximated by subtracting your age from 220, so a 15-year-old's MHR would be 220 − 15 = 205.

Perceived exertion (Borg rating scale)

This refers to how hard you feel your body is working. It is based on the performer describing physical sensations felt during physical activity, such as an increase in heart rate, breathing rate, sweating and muscle fatigue. The rating scale is 6–20, where 6 is no exertion at all and 20 is maximal exertion.

5.4.3 Subjective methods of assessing physical activity

Subjective methods of assessing physical activity often depend on our own perceptions of physical activity. They are predominantly used for measurement in populations.

Self-report

This includes a variety of assessment methods, such as physical-activity diaries, questionnaires (conducted by either an interviewer or the individual) and reports provided by others (for example, parents reporting on activity levels of children).

Diaries or logs provide a detailed record of individual physical activities undertaken in a given day, more or less as the activities are completed, or soon after.

Recall

This method usually consists of short, simple questionnaires of approximately 5–15 items that take up to 15 minutes to complete. They seek to investigate physical activity patterns in the recent past (for example, the last week or month). The main aims of this method are to:

- provide basic data that can be used to assess physical activity patterns in large populations
- allow public health agencies to provide an overview of physical activity patterns across large groups within the community.

Everyday activities can have moderate intensity levels and improve fitness.



5.4.4 Objective methods of assessing physical activity

Objective methods of assessing physical activity often rely on solid data or observations. These are predominantly used for measurement in individuals.

Direct observation

An experienced observer is used to collect data that measures the individual's type of activity, intensity levels, time of activity and environmental conditions.

Heart-rate telemetry

The subject wears a device that provides data on their heart rate response to physical activity. Heart-rate telemetry is a valid method to assess physical activity, as a person's heart rate provides a direct indicator of the physiological response to physical activity.

Pedometry

The subject wears a **pedometer** that records the number of steps taken and estimates the distance walked if their stride length is known. Pedometry can also be used to estimate physical activity energy expenditure by estimating the energy cost associated with walking.

DID YOU KNOW?

Washing the car, vacuuming the house and walking the dog are all activities that have a moderate intensity level.

ACTIVITIES

1 Daily steps

1. Using a set of class pedometers or your digital device, have six subjects wear a pedometer to determine the number of steps they take in a day. If using class pedometers, ensure they are labelled for each subject and sealed to discourage tampering.
2. As a class, record the results in a table.
3. Discuss the advantages and disadvantages of using pedometers as a tool to assess physical activity.

2 Comparing activity levels

1. Interview a working adult and use the **Self-report** worksheet in your Resources section to complete the self-report for your subject. Compare his or her activity time to your own.
2. Interview a grandparent and complete the same report for him or her. Compare it to both your own and the working adult's.
3. How does activity time change as people grow older?

3 Activity diary

1. Keep an activity diary for a day. Record all the physical activity in which you participate (even small things like walking between classes).
2. Swap diaries with another student in the class. Suggest practical changes to improve your partner's physical activity levels.

4 Subjective ranking

Categorise the people listed below as:

- unfit
- moderately fit
- fit
- very fit.

You will need to think about what fitness means and estimate the fitness gained from each person's daily activities and commitments. Definite conclusions may be difficult to reach as ‘fitness’ can be achieved in many different ways. Use the Australian Physical Activity and Sedentary Behaviour Guidelines to help your evaluation.

a. James, a business executive, who plays competitive squash twice weekly
b. Martha, aged 64, who swims daily for one hour and cycles every morning
c. Su-Li, a secretary, who attends three aerobics classes each week
d. Cadel Evans, a world-class distance cyclist
e. Ben, a postie, who works on a bicycle
f. Wei, a Year 12 student, who plays social sport at lunchtimes and golf once a week
g. Robert, aged 15, who plays for both his school and local football teams
h. Mrs Suzie Watson, a PE teacher at a secondary college
i. Brett Lee, world-class cricketer
j. Myrna, busy mother of four, who does not schedule activity time
k. Chris Judd, AFL footballer
l. Sandra, competitive bodybuilder
m. Roger Federer, world-class tennis player
n. Arthur Smith, champion arm-wrestler and darts player

CHECK & CHALLENGE

Explain

1. Explain ways in which you could assess physical activity in the areas of frequency, intensity, duration and type.

Evaluate

2. Compare the advantages and disadvantages of using heart rate telemetry and the talk test for measuring intensity levels of physical activity.

Elaborate

3. Self-report is one way to assess your physical activity level. However, this method is not suitable for younger children and older adults. Why? What methods might be more suitable?

5.5 Barriers to participation in physical activity

5.5.1 Changing behavior can improve levels of activity

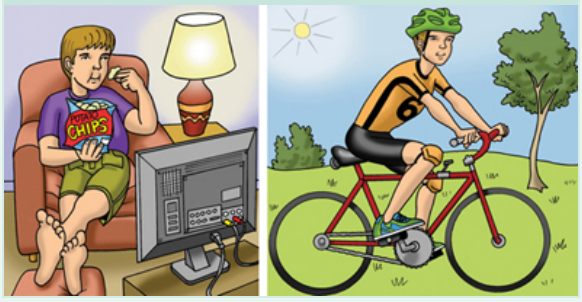
There are many reasons why people fail to participate in the recommended levels of physical activity. However, theoretical models can show how behavioural change may lead to increased activity levels.

ENGAGE

Have you noticed that some people find it easy to start regular physical activity and will stick with it, while others find it hard to even start, let alone continue participating once they have begun? In a small group, brainstorm a list of barriers an individual may encounter that limit physical activity levels.

Use the **Precontemplation checklist** worksheet in your Resources section to think about your involvement in physical activity and consider what barriers are holding *you* back.

Changing behaviours to think of movement as an opportunity, not an inconvenience, requires support with a long-term vision.



Physical activity takes many forms. It can be something as simple as walking or something as sophisticated as downhill skiing or skydiving. Failure to engage in recommended activity levels could be due to:

- income or the cost of the activity
- geographic location
- climate
- lack of fun and enjoyment in the activity
- lack of time
- injury
- lack of encouragement and support
- low self-efficacy
- poor coaching or equipment.

Too much work can be a barrier to physical activity.



Theoretical models help to explain how behavioural changes and factors may lead to increased activity levels. The models presented in this section explain how people may be assisted and encouraged to find opportunities for movement on a daily basis by changing their attitudes and behaviour.

Resources

Complete this digital doc: Precontemplation checklist
Searchlight ID: doc-14720

5.5.2 The stages of change model

The transtheoretical model (Prochaska and Marcus, 1994) describes the stages that people go through as they change their health behaviour, and provides a framework that classifies motivational readiness for behaviour change.

Most people move through a series of six stages of readiness as they change behaviour:

1. precontemplation
2. contemplation
3. preparation
4. action
5. maintenance
6. termination.

When adding physical activity into their life, losing weight or regaining their fitness, what helps someone in one stage may not work for someone in another stage. A more detailed analysis of the (transtheoretical) **stages of change model** is given in the figure below.

When considering the six stages of readiness, note that:

- each stage takes a period of time to acquaint yourself with new behaviours
- effort and commitment are required at all stages
- you will move through each stage in your own time
- you may not always move forward in a straight line; there will be times when you lapse and go back to an earlier stage. However, this is expected.

Stages that represent the path to adopt regular physical activity into your life



Source: Adapted from the National Centre for Chronic Disease Prevention and Health Promotion, USA, 2003.

Stage 1: Precontemplation — not ready for change

As the name suggests, you are not ready for change right now. You are not even thinking of introducing physical activity into your daily routine. You may even have tried in the past to do so, with little success. Now is the time to start considering the pros and cons of being more active.

Stage 2: Contemplation — thinking about change

This stage is reached when you start thinking about incorporating regular physical activity into your life.

DID YOU KNOW?

Research shows that even if they do the recommended 30 minutes of exercise a day, men who are bound to their desk all day are likely to end up overweight. A survey of 1579 Australian workers found men who sat at their desks for six or more hours a day were 90 per cent more likely to be overweight or obese than those who sat for less than 45 minutes a day.

Stage 3: Preparation — preparing for action

After weighing all the pros and cons and thinking about how changes can occur, people at this stage appear to be ready and committed to action. A plan is developed, ready for implementation.

Stage 4: Action — carrying out your plans

You have developed a plan of action and are now implementing it. At this stage, it is important to focus on your goals to keep you on the right track.

Stage 5: Maintenance — maintaining a good thing

Regular physical activity has become part of who you are. You have made a commitment to physical activity and are reaping the benefits.

Making exercise fun and social helps with motivation.



Accomplishing new activities can lead to an increase in self-esteem.



Stage 6: Termination — maintaining regular activity for more than five years

You have incorporated regular physical activity for over five years. It is now part of your life.

5.5.3 The social–ecological model

The social–ecological model is a framework that enables you to understand the numerous factors and behaviours that act as barriers to or enable participation in physical activity. This model focuses on four components that influence physical activity:

- individual
- social environment
- physical environment
- policy.



Individual component

The individual is at the centre of the model. This component includes personal factors that influence physical participation including:

- age
- gender
- level of education
- level of self-efficacy
- sports skills
- attitudes.

Social environment component

The social environment component is the next external force that acts on the individual. The social environment component refers to the influence of people around the individual. This component has a significant influence on physical activity behaviour and includes:

- family

- peers
- schools/workplaces
- cultural backgrounds
- socioeconomic status of community.

Physical environment component

The physical environment component focuses on the natural and human-made areas, and is likely to influence the amount and type of physical activity an individual does. The physical environment component includes:

- weather
- geography
- access to facilities
- design of the communities
- access to public transport.

Policy component

The policy component refers to legislation that can have the potential to affect physical activity. These are often policies at workplaces or schools or within a community that increase access to physical activity. Policy component includes:

- education/school policies
- workplace policies
- urban planning policies
- environmental policies
- health policies.

The social–ecological model is based on four core principles:

- Behaviours are influenced by a number of factors.
- Social and physical environments are complex and multidimensional.
- The model includes all of the multiple levels of human interactions with the various environments.
- The interrelationships between people and the environments are dynamic.

Therefore to change physical activity behaviour we need to target a number of components. Physical activity interventions are more likely to be successful when they target multiple components of the social–ecological model.

5.5.4 Self-efficacy

Self-efficacy helps to explain why some people can commit to regular physical exercise and why some people struggle to do so.

Self-efficacy can be described as a person's belief in their ability to be active across a range of challenging situations. It involves our behavioural skills as well as the psychological belief/confidence in our ability to be active. People with low self-efficacy lack confidence in their ability to be physically active in adverse conditions (for example, when it is raining, or they are feeling unwell). These feelings may be due to:

- previous failure to adhere to regular physical activity
- a perceived lack of ability to perform the physical activity
- observation of and comparison with other participants
- lack of social and verbal encouragement relating to task performance
- lack of physiological arousal or sense of involvement, for example, due to a perceived lack of ability
- the lack of necessary skills required to perform the activity.

Overcoming low self-efficacy

Strategies exist for overcoming low self-efficacy.

- Select activities that you feel confident in performing, so that you will be more prepared for adversity.
- Develop strategies/solutions to help overcome situational barriers. For example, what will you do if you become unwell or you have no-one to exercise with?
- Work with a trainer/coach to develop skills and receive encouragement.
- Inform friends and family of your physical activity plans and ask for their encouragement.
- Forget about the past. Take steps forward!

ACTIVITIES

1 Barriers to participation survey

In groups, develop a survey sheet to determine the barriers to participation for students at your school. Survey two different year levels, then graph and discuss the results.

2 Move about

Head researcher Professor Kerry Mummery, from Rockhampton's Central Queensland University, said adults needed to find new ways of dealing with obesity, one of society's biggest problems. Professor Mummery's tips for getting more exercise at work include the following.

- Plan your day to incorporate more physical activity, no matter how small. Walk to the train station or bus stop instead of driving. Try walking to the next train station.
- Make a habit of moving from your desk at intervals during the day. Walk over to the photocopier or printer instead of delegating the task. Get your own coffee or water bottle.
- When communicating with colleagues in the same building, get up and walk over to their desk instead of sending an email or calling them.
- Take the stairs rather than the lift.
- Walk outside to have your lunch rather than eating at your desk or even in the lunchroom.

Professor Mummery's five tips are for adults at work. Suggest how you could modify each tip to make it relevant to you in your day-to-day life.

CHECK & CHALLENGE

Explain

1. Explain how each of the following might affect participation in physical activity or choice of activities.
    a. Income
    b. Geographic location
    c. Low self-efficacy
2. Explain how the four components of the social–ecological model can influence physical activity.

Elaborate

3. Using the stages of change model, identify characteristics of individuals who might be at each stage.
4. Using the social–ecological model, suggest a student intervention strategy for each component, with the aim of improving physical activity in your school.

Evaluate

5. For each stage of change, provide strategies to assist an individual to progress to the next stage.

5.6 Physical activity for fitness and fitness profile

5.6.1 Measuring fitness capabilities

Physical fitness can be either health related or skill related. To determine a thorough fitness profile, we need to measure fitness capabilities across a number of areas.

ENGAGE

Physical fitness consists of a number of different areas or components, which can be divided into those that are health related and those that are skill related. These are listed in table 5.2 below.

TABLE 5.2: Components of physical fitness

Health-related components	Skill-related components
• Cardiorespiratory endurance • Muscular strength • Local muscular endurance • Flexibility • Body composition	• Speed or anaerobic power • Agility • Balance • Coordination • Reaction time • Muscular power

Use the **Larissa Miller, Andrew Bogut** and champion snooker player **Neil Robertson** weblinks in your Resources section to see these sportspeople in action. In small groups, discuss the main fitness components these athletes would display. List two fitness tests that could be used to measure each athlete's physical capabilities in their respective sports. Explain your reasons for selecting those fitness tests.

Australian gymnast Larissa Miller competes on bars during the preliminary round of the 2015 World Gymnastics Championships.



Champions in many sports, such as basketballer Andrew Bogut, have well-developed fitness components.



on Resources

Explore more with these weblinks: Larissa Miller
Explore more with these weblinks: Andrew Bogut
Explore more with these weblinks: Neil Robertson

5.6.2 Health-related fitness components

Fitness components are aspects of fitness that affect performance in any sport or recreational activity. To analyse what is required for basketball, gymnastics, snooker or any other physical activity, you need to recognise the fitness components most relevant to the activity. This is because fitness is specific to performers' needs; for example, the fitness required by an elite gymnast is different from the fitness needed to play professional basketball. Once you know the specific fitness demands of a particular activity, you can physically prepare for the activity. Use the **Components of fitness** interactivity in your Resources section to explore the fitness components of different sports.

Aerobic endurance is the capacity of the body to keep up continuous physical activity over an extended period of time at a low to medium intensity. This requires efficient functioning of the heart and lungs and can be increased through participation in activities such as jogging, cycling and swimming. Athletes who require a high level of aerobic endurance are hockey, soccer and football on-ball players, and distance athletes such as road cyclists, triathletes and rowers.

Muscular strength is the ability of the muscles to exert a single maximal force to overcome resistance. The resistance may be a body part, the weight of the whole body, or an item external to the body. The heavier the weight the muscle can lift and the more resistance it can overcome, the more strength it is said to have. Strength assists performance in many sporting and recreational activities. Competitive weightlifting is a contest of pure strength.

Aerobic endurance



Muscular strength



Local muscular endurance (LME) is the ability of a muscle or muscle group to sustain or repeat a force over a long period of time. LME for a specific movement may be increased by increasing the time the force is sustained. LME is required in many sports but is crucial in team games and long-duration events such as triathlons.

Flexibility is the range of movement about a joint. It varies from joint to joint within the body. Flexibility is greatest at birth and diminishes from then on, though to a lesser extent in active people.

All athletes should aim to have good flexibility, as it reduces the amount of muscle stiffness and soreness, and reduces the chance of injury. Gymnasts and dancers often show outstanding levels of flexibility.

Body composition refers to the ratio of fat to non-fat components in the body. Body fat consists of essential fat in and around organs such as the heart, and storage fat found in fat cells around the body. Non-fat components make up your lean body weight and include muscle, bones and organs.

Local muscular endurance



on Resources

Try out this interactivity: Components of fitness
Searchlight ID: int-5496

5.6.3 Skill-related fitness components

Speed can refer to whole-body speed (100-metre sprint), where the aim is to move from point A to point B as quickly as possible, or part-body speed (discus throw), where one or more parts of the body move as quickly as possible to complete a movement.

Balance is the ability to remain in a state of static or dynamic equilibrium; skiers, horse-riders, gymnasts and surfers need good balance.

Agility is the ability to start, stop and change body positions quickly without losing balance; trampolinists and dancers require agility skills. Games that involve dodging opponents also require agility, such as netball, basketball and hockey.

Coordination is the ability to link a series of actions into a flowing movement pattern with appropriate timing and accuracy. Hand–eye coordination is vital to racquet sports; football players need to coordinate the placement of the ball onto the kicking foot; basketballers need to coordinate the timing of the release of the ball while making a jump shot. All sports need coordination skills.

Reaction time is the time that it takes for an athlete to respond to the signal that movement is required; for example, a sprinter's reaction to the sound of the starting gun, or the time it takes for a soccer goalie to leap into action to save a goal.

Muscular power is the combination of strength and speed. A powerful movement is achieved as quickly as possible, while imparting as much strength as possible. Jumping and throwing activities rely on muscular power.

DID YOU KNOW?

The multi-stage fitness test is also known as ‘Beep Test’ and ‘Yo-Yo Test’, and was developed by L. A. Leger and J. Lambert in 1982.

5.6.4 Fitness profile

To determine your present state of physical **fitness** — that is, to create a fitness profile — you will have to measure some of your fitness capacities. This is done in the format of a laboratory exercise. Watch the eLessons in your Resources section to view lab tests for each fitness component.

Laboratory exercise measurements must be carried out accurately. Listen to all instructions carefully. The most effective way is to work in a pair or group of three people, depending on the exercise. Watch the exercise method closely and collect all the equipment you will need. The 'subject' is the person physically completing the exercise. The subject should concentrate on the physical task; the other group member(s) should conduct the test using the correct protocol and record results immediately. Plenty of encouragement will help the subject to do his or her best.

Remember, the purpose of completing these measurements is to compile a 'picture' of your fitness level. Laboratory exercises are not designed to provide competition between classmates.

Fitness tests

TABLE 5.3: Fitness tests

Fitness components	Tests
Aerobic endurance	• The 20-m shuttle run test • The 1.6-km run/walk
Muscular strength and power	• Standing long jump • Grip strength dynamometer • The basketball throw • Vertical jump
Local muscular endurance (LME)	• Push-ups on chair • Curl-ups
Flexibility	• Sit and reach
Skill-related fitness	• Hand wall toss (coordination) • 50-metre sprint (speed) • Illinois agility run (agility) • The stork stand (balance)

on Resources

Watch this eLesson: Lab tests for aerobic endurance
Searchlight ID: eles-0757

Watch this eLesson: Lab tests for muscular strength and power
Searchlight ID: eles-0758

Watch this eLesson: Lab tests for LME
Searchlight ID: eles-0759

Watch this eLesson: Lab tests for flexibility
Searchlight ID: eles-0760

Watch this eLesson: Lab tests for performance-related fitness
Searchlight ID: eles-0761

ACTIVITIES

1 Motivating goals

A fitness program will be more successful if you have goals and motivation. Brainstorm reasons why people would want to be more powerful or flexible, or have more strength, endurance and cardiorespiratory fitness.

2 Fitness profile

1. How fit do you think you are? Predict your level of cardiorespiratory fitness, muscular strength and power, local muscular endurance, flexibility and performance-related fitness.
2. Use the **Fitness profile** worksheet in your Resources section to undertake a number of fitness tests and create your fitness profile.
3. How accurate were your predictions? Use your fitness profile to set some realistic fitness goals.

CHECK & CHALLENGE

Explain

1. Define aerobic endurance, muscular strength, flexibility and local muscular endurance. Name a sporting event for each fitness component.
2. Explain why fitness tests need to be carried out accurately.

Evaluate

3. Using your fitness profile, list the activities you believe necessary to enhance your fitness components. Justify your choices.
4. The objective of the multi-stage fitness test is to monitor and estimate the athlete's maximum oxygen uptake (VO_2 max). Use the internet and other sources to find out what this means.

Elaborate

5. All athletes should maintain a good level of flexibility. Identify three reasons why flexibility is important for athletes.

on Resources

Complete this digital doc: Fitness profile
Searchlight ID: doc-14721

5.7 Training principles

5.7.1 Planning is important

When planning a training program, you need to understand and apply the primary principles of training to gain the greatest benefit from your program.

ENGAGE

Training principles are critical for gaining benefit from training. If the key principles of training — frequency, intensity, duration, specificity and progressive overload — are not applied correctly, the likelihood of achieving the desired training outcome is diminished.

In small groups, discuss the following points. Jot down any unfamiliar terms and investigate their meaning.

- If you tested a marathon runner for cardiorespiratory endurance, which would produce the better result: a swimming test or a treadmill (running) test? Why?
- How would you train a rower for maximum results in cardiovascular endurance?
- How do you overload a program when training for cardiorespiratory endurance?
- How would the type of training completed by rowers and swimmers (who require the ability to keep their arms moving continuously for long periods of time) differ from the type of training completed by throwers (who require power)?
- A gymnast requires sustained muscular endurance. How would her training activities differ from those of the others?

Elite endurance athlete Craig Mottram requires a high level of aerobic endurance.



5.7.2 Principles of training for sporting events and activities

The key principles of training are:

- frequency
- intensity
- duration (time)
- type
- specificity
- progressive overload.

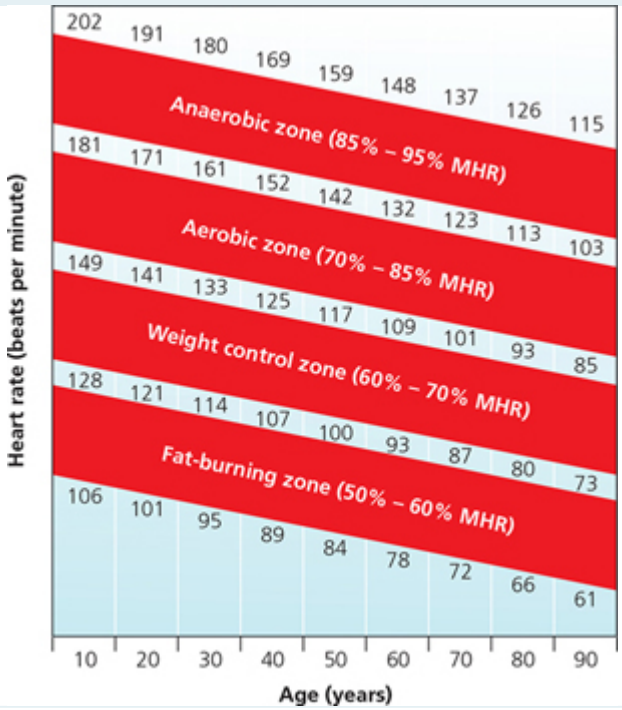
FITT — frequency, intensity, time and type

As discussed in section 5.2, **frequency** is how many sessions per week you complete. The normal training frequency for improving aerobic fitness is three to five sessions a week. The normal frequency for improving anaerobic fitness, including strength and power, is three to four sessions a week.

Intensity is the exertion level at which the training is performed. It is gauged as a percentage of your maximum heart rate (MHR).

- *Aerobic energy system (long duration energy system)* — 70 to 85 per cent MHR
- *Anaerobic glycolysis system (moderate duration energy system)* — 85 to 95 per cent MHR
- *Phosphate energy system (short duration energy system)* — 95 to 100 per cent MHR

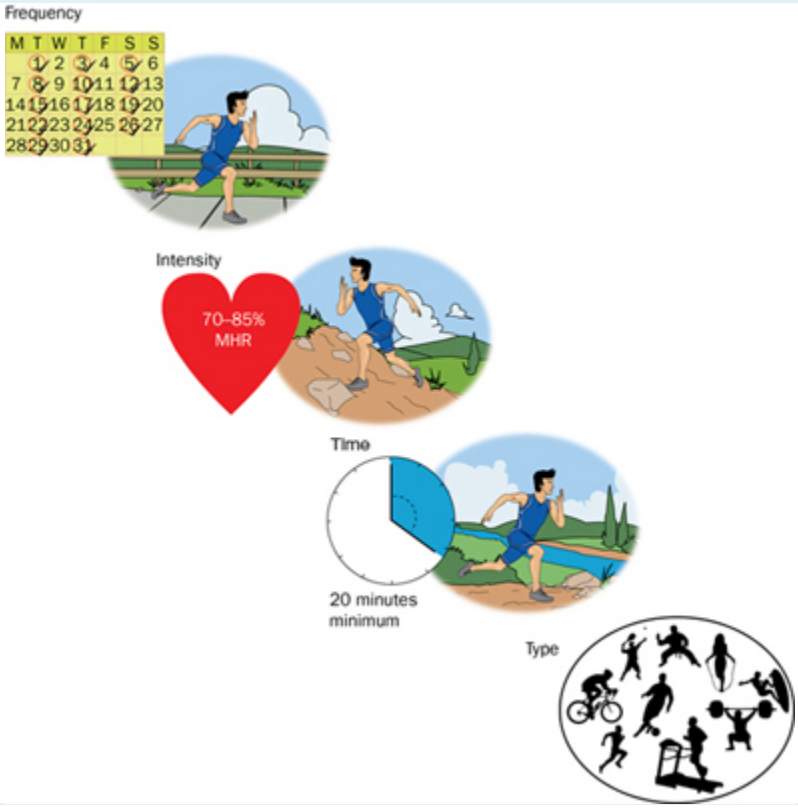
The various generic training zones according to age and heart rate



Time is the length (in time) of each training session. To increase cardiorespiratory endurance, you should complete a minimum of three sessions per week. Each session should consist of at least 20 minutes of work with the heart rate at 70 to 85 per cent MHR. This is a guideline.

Type refers to what kind of exercise you should do to help improve your performance. To improve endurance, for example, you need to include aerobic exercises such as running in your program. To improve muscular strength, you need to include weight training exercises to stress the neuromuscular system.

FIDT — frequency, intensity, time and type. Observe these four guidelines and you will be well on the way to becoming FIT!



DID YOU KNOW?

Exercise increases energy levels and increases serotonin in the brain, which leads to improved mental clarity. Research has discovered that the fittest students generally score the highest in exams.

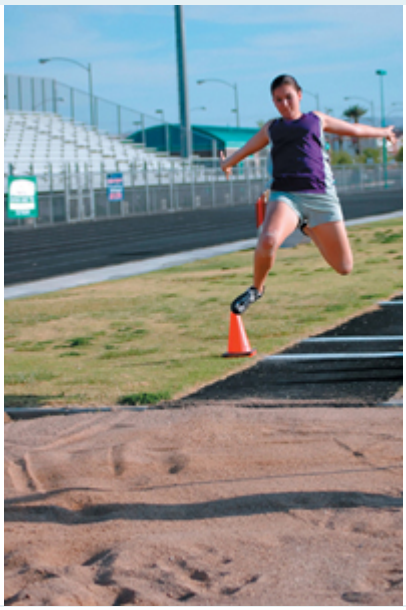
5.7.3 Specificity

When selecting activities for a training program specific to your sport (known as **specificity**), there are two things to consider for the best results.

First, the energy demand of the main training activities must be specific to the energy demand of the activity. For example, if you were training for netball, which consists mainly of short, full sprints to the ball or away from your opponent, the training program should emphasise anaerobic (or sprint) activities. In this way, the energy demand of the training program matches that of the netball game.

Second, you need to identify the muscle groups used in the skills required in your sport, and keep your training specific to these muscles. If the sport you are training for requires continuous contractions of the leg muscles, then the training routine should use the legs in actions that are as close as possible to the actual leg movements required during the competitive situation. The most vital type of training for marathon runners is continuous running. A long jumper, on the other hand, requires a single explosive contraction of the leg muscles simultaneously to achieve the longest possible jump. The long jumper's training would obviously require less continuous running. The training program would include activities that develop leg power. Leg power is increased by developing leg strength and the speed at which this increased strength can be applied. The long jumper's program may include weight training and jump practice.

Long jump requires a single explosive contraction of the leg muscles.



Rowers, swimmers, javelin and discus throwers, shot-putters and gymnasts all use their arms during competition. Therefore, arm work is vital in a specific training program. The group(s) of muscles to be used and the duration and intensity of training activities must both be specific to the needs of the sportsperson under performance conditions.

DID YOU KNOW?

The minimum duration for aerobic improvement is six weeks, although it is more likely to be twelve weeks. For anaerobic improvement, including strength and power, six to eight weeks of training produces noticeable improvement.

5.7.4 Progressive overload

The principle of **progressive overload** is that your level of fitness can improve only if you exercise at an intensity greater than your existing capacity. If muscle strength, endurance and size are to increase, the muscle must be worked at an ‘overload level’. The muscle must be lifting a greater weight than normally encountered, or completing more repetitions than usual, if strength and endurance are to progressively increase.

When starting a training program for strength, the muscle(s) being trained will quickly gain strength and be able to overcome the resistance of the starting weight more easily. Applying the progressive overload principle means that the weight lifted by the muscle(s) is continually increased as muscle strength continually increases. To increase the ability of a muscle to contract continuously, the number of repetitions of an exercise is continually increased from training session to training session. This is progressive overload when training for muscular endurance.

NRL player Nathan Merritt, training at the AIS. The weight lifted by the muscle must continually increase.



ACTIVITIES

1 Training for field games

1. As a class, play a game of hockey, netball and soccer.
2. Identify the muscle groups, skills and training programs that are used in each sport.
3. Discuss how the training for hockey, netball and soccer would differ from each other.

2 Target heart rate

Use the **Target heart rate calculator** weblink in your Resources section to calculate your target heart rate needed to develop your:

1. aerobic energy system
2. anaerobic glycolysis system
3. phosphate energy system
4. weight control zone
5. fat-burning zone.

You are then required to wear heart rate monitors and conduct various activities that keep your heart rate in the required zones, including a continuous exercise and a team sport. Discuss how maintaining these different target heart rates can have an effect on your health, wellbeing and fitness. Discuss how your heart rate differed between the continuous exercise and the team sport. Why do you think they were different?

3 Exercise heart rate

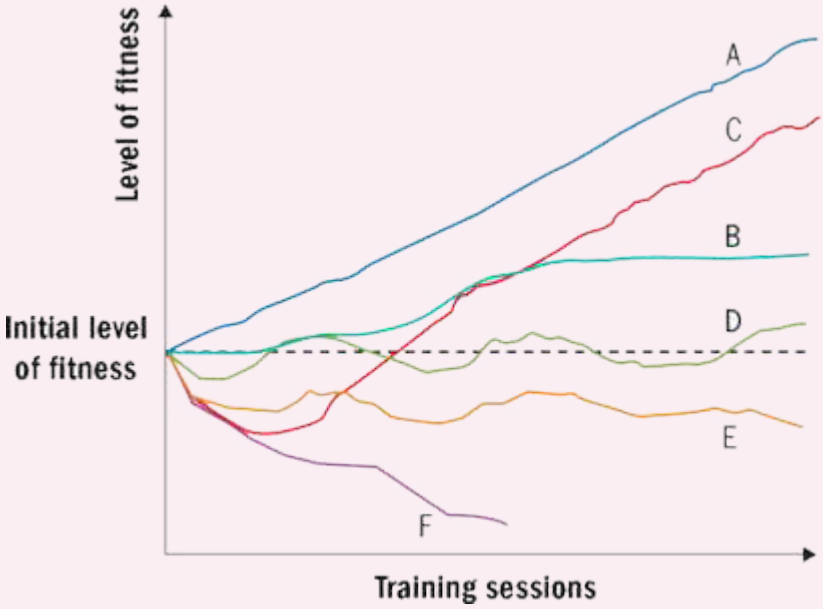
1. Jog, swim or cycle for five minutes.
2. Measure your heart rate at the end of the second, fourth and fifth minute. To do this efficiently, measure your heart rate for 10 seconds and then multiply by six. Alternatively, use a heart rate monitor for a more accurate reading.
3. Is your heart rate below, at or above the target heart rate? If it is below, you can work a little harder. However, do not raise your heart above 180 bpm for a prolonged period of time.
4. Why are some people more easily able to reach this target heart rate?

4 Graph analysis

Examine the graph below, which shows the fitness level of six subjects over a period of time.

1. Describe the progress of each subject during their training program.
2. Use the graph to consider the following points for each subject.
    a. Initial training load
    b. Adjustments made to training load
    c. Whether there was any change in training load
    d. Whether the training load was too easy or hard

3. Comment on the usefulness of the graph. Can the conclusions drawn in the previous question be backed up by the data presented?



CHECK & CHALLENGE

Explain

1. List and explain the five training principles.
2. What two components of fitness may be improved to increase leg power?
3. How would muscular endurance training for swimmers and rowers differ from power training for a shot-putter?

Evaluate

4. List and explain three ways of putting the principle of progressive overload into action when training for aerobic power.

on Resources

Explore more with these weblinks: Target heart rate calculator

5.8 Training methods

5.8.1 Developing a successful training program

Determining the training methods that will be incorporated into your training program is the next step to increasing your fitness. It is important to understand each method when designing an appropriate and successful training program.

ENGAGE

For training programs to be successful, they must be properly planned and correctly apply the training principles and methods, so that the athlete achieves maximum results.

Training methods describe different types of training undertaken to achieve the desired improvement in fitness. The methods include:

- resistance or weight training
- plyometric training
- circuit training
- interval training
- continuous training
- flexibility training.

Different methods of training will develop different fitness components.



Use the **Star training** eLesson in your Resources section to watch some clips showing different types of training. For each clip, determine what type of training the athlete is doing.

Resources

Watch this eLesson: Star training
Searchlight ID: eles-0762

5.8.2 Resistance (weight) training

Resistance training (or weight training) aims to build strength, power or local muscular endurance by exercising muscles against a resistance. The muscles contract to lift a dumbbell, barbell, the weight of the body or a body part.

The following table is a guide for weight training. In particular, consider how the **repetition maximum (RM)**, **repetitions** and **sets** differ for the development of muscular strength, power and endurance.

TABLE 5.4: Weight training guidelines for muscular strength, power and endurance

Variable	Muscular strength	Muscular power	Muscular endurance
Load	85–100% RM	30–70% RM	50–60% RM
Exercises	3–5	2–4	4–6
Repetitions	1–4	4–12	15–100
Sets	3–10	3–6	2–4
Rest and recovery	3–6 minutes	2–6 minutes	2 minutes
Speed of exercise	Slow to medium	Fast	Medium
Frequency	2–3 times a week	2–3 times a week	2–3 times a week

5.8.3 Plyometrics

Plyometrics can also be used to develop power, especially in the legs. Activities such as bounding, hopping and depth jumping can be used. Plyometric training should be carried out only under supervision, as the strength and technique required to perform the activities can cause injury if not performed correctly.

on Resources

Explore more with these weblinks: Developing power with plyometrics

5.8.4 Circuit training

Circuit training is another method of training that can be used to develop many components of fitness. Circuits can be designed to include many types of activities and equipment that may be specific to a particular sport or activity.

5.8.5 Interval training

Interval training can be used to improve aerobic or anaerobic fitness. It involves periods of work interspersed with periods of rest. Short interval training with long rests to replenish the ATP–CP system (also known as the phosphate system, see section 5.6) would be used to improve speed and to train the ATP–CP system. An example of this would be to perform eight 60-metre sprints in approximately eight seconds, with a 60-second recovery period. Note that this rest period would not allow full replenishment of the ATP–CP system, but partial replenishment is all that is required to complete the eight repetitions.

Table 5.5 can be used to assist planning for short interval training.

TABLE 5.5: Planning for short interval training

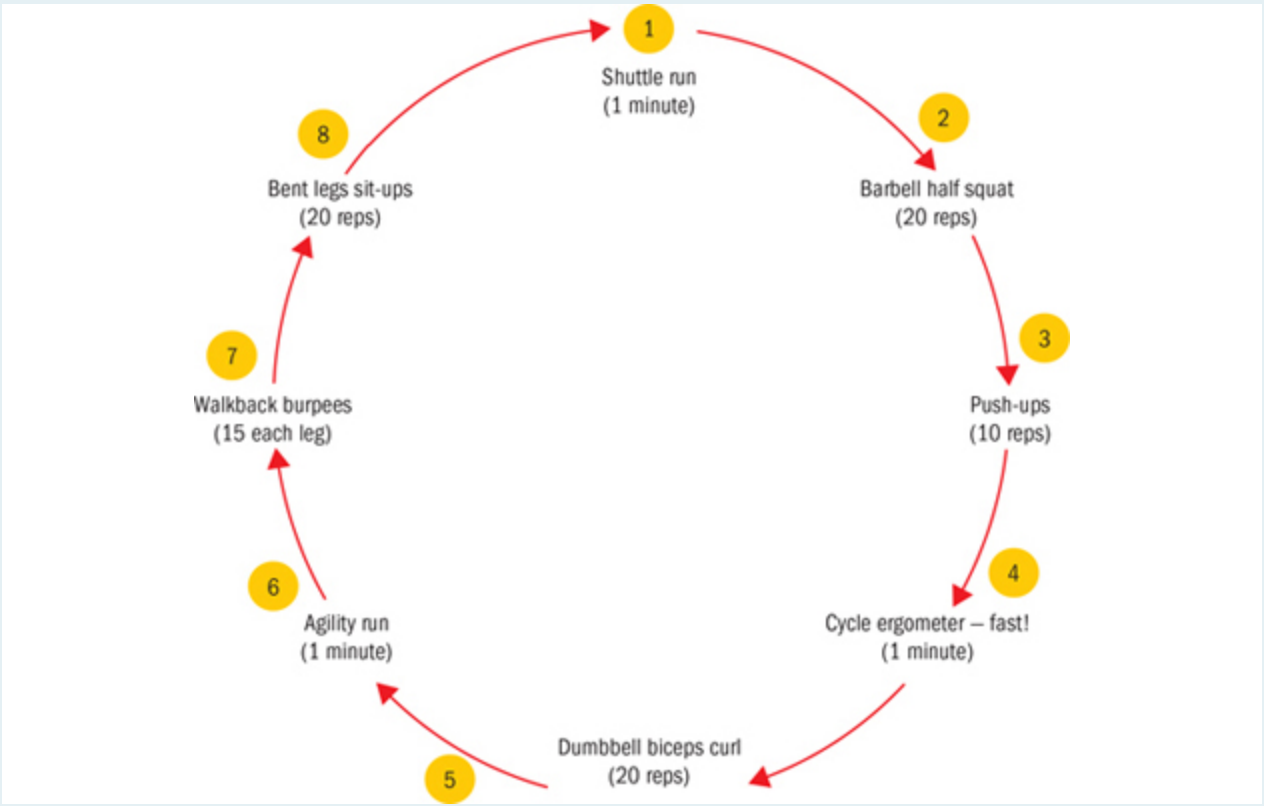
Duration of work period	Up to 10 seconds
Intensity of work	90–100% MHR
Duration of recovery period	1–2 minutes
Work/rest ratio	1 : 5 to 1 : 12
Repetitions	5–15 per set
Energy system used	ATP–CP system

For endurance activities, longer intervals can be carried out. Table 5.6 may assist when planning for longer interval sessions.

TABLE 5.6: Planning for longer interval sessions

Duration of work period	0.5–5 minutes
Intensity of work	80–85% MHR
Duration of recovery period	0.5–5 minutes
Work/rest ratio	1 : 1 to 1 : 2
Repetitions	5–20 per set
Energy system used	• Anaerobic glycolysis system • Aerobic energy system

An example of an endurance circuit for general fitness and muscle toning. Work through the circuit from 1 to 8, then repeat.



5.8.6 Continuous (aerobic) training

Aerobic training can be improved by carrying out continuous training. The main types of continuous training are:

- running and jogging
- cycling and swimming
- floor classes such as aerobics
- gym circuit classes.

Continuous training should be carried out for a minimum of 20 to 30 minutes at an intensity of 70 to 85 per cent of maximum heart rate, with a minimum of three training sessions per week.

on Resources

Explore more with these weblinks: Watch my circuit
Explore more with these weblinks: The best fitness apps

5.8.7 Flexibility training

Flexibility training is an essential component in all active sports and is about improving the range of motion at the desired joints that are important for maximum performance. There are four recognised methods of stretching. These are:

- passive stretching
- active stretching
- proprioceptive neuromuscular facilitation (PNF) stretching
- ballistic stretching.

Use the **Which stretch?** eLesson in your Resources section to watch clips of different stretches.

on Resources

Watch this eLesson: Which stretch?
Searchlight ID: eles-0769

5.8.8 Designing a training session

The most important part of the training program is the actual training sessions. All training sessions should include a:

- warm-up component
- conditioning component
- stretching and cool-down component.

Warm-up

Before beginning any training program, a warm-up must be completed, including flexibility exercises. Similarly, at the completion of training, a cool-down should be performed.

Warm-ups should be dynamic and include a series of movement drills or activities that build from low to moderate intensity. The activities should enable the athlete to move all body parts and joints through the range of movement performed during the game or performance. The warm-up should be specific to the physical activity that will follow. For example, AFL footballers place an emphasis on activities that take the groin and hamstring muscles through their full range of movement because of the fast, forceful kicking actions and sidestepping movements in a match. Gymnasts place emphasis on activities that take the lower back through its full range of movement, because many of the skills they will perform will hyperextend the spine.

Conditioning

The training session must include developing or maintaining the specific fitness components required for the particular sport or activity.

Stretching

Static stretching stretches the muscle to a comfortable limit and holds it there for a minimum of 15 to 20 seconds. At least three repetitions of each static stretch should be completed. There should be no bouncing in this method. Bouncing can take the extended joint beyond its safe limit and cause muscle soreness or tearing.

Cool-down

If you suddenly stop strenuous physical work, blood may pool in the extremities of your body, causing dizziness or faintness. This can be avoided by gradually decreasing the intensity of the physical work by doing a slow five minute jog, cycle, swim or walk and finishing the session with static stretching. Static stretching during the cool-down helps increase flexibility and may reduce muscle stiffness and soreness. Stretching should involve all major parts of the body and specifically address key areas for your sport/activity as well as you as an individual.

DID YOU KNOW?

There are three types of weight training:

- *isotonic weight training* — uses free weights such as barbells and dumbbells
- *isometric weight training* — involves holding the muscle in one position while it contracts against the resistance
- *isokinetic weight training* — undertaken by machines such as Cybex or Hydra-Gym, which adjust the load as the body part moves through the range of motion.

on Resources

Watch this eLesson: Warm-up and cool-down
Searchlight ID: int-5497

5.8.9 Myths associated with fitness and training

Many myths surround fitness and training. The new research appearing regularly about fitness and training means it is important to debunk the myths and use the correct information available to you.

- *No pain, no gain*. Research shows that there is no need for training to be painful. In fact, the statement should read 'no gain, if pain'. If pain is present when training, it is time to slow down. In some cases, if pain persists, obtain medical advice.
- *Exercise increases appetite*. This is often the reverse after exercising. After exercise, especially in warm conditions, you often want to drink water rather than eat. Exercise therefore can reduce the desire for food.
- *I can 'spot-reduce' if I exercise one area*. Often, people believe that they can take off weight in a particular area; for example, doing sit-ups will remove weight around the stomach area. Weight loss is obtained only through a balanced diet and exercise program. Spot reduction doesn't occur.
- *Women who train with weights become muscle bound*. Training with weights may increase strength. However, females are unlikely to 'bulk up' as much as men due to the absence of testosterone, which helps with muscle growth.
- *Exercise is costly, time consuming, arduous and is only for people who are fit*. Exercise can cost nothing, for example, walking. No special shoes or clothing are required. Using your own body weight instead of weights also reduces the cost of exercising. People who aren't fit need to exercise, as the fitness benefits can help with their everyday lives. If you vary the exercise you undertake, you lessen the possible arduous nature of exercise.

- *An active occupation is an acceptable indicator of fitness level*. It doesn't mean someone is fit, just because they are active in their job. We know that, to maintain aerobic fitness, exercise needs to be of a continuous nature for 20 to 30 minutes a day, at least three times a week. Very few occupations provide this. Being fit also means more than just aerobic fitness. Other health-related fitness concepts such as acceptable body fatness, muscular strength and good flexibility are also important.
- *It worked for them, it'll work for me*. We need to individualise programs because everyone has different needs and aspirations. Health screening and fitness testing must be used to assess strengths and weaknesses.
- *Weight loss without effort*. Many centres have tried to convince people that their machines will reduce weight without effort. Unfortunately, there is no magic way of reducing your weight other than by reducing your intake of kilojoules and, at the same time, increasing the amount of energy you use by exercising. This exercise must be above resting levels for the body to burn more energy than it takes in.
- *Females and physical activity*. Another myth is that females will damage their reproductive organs and weaken their bones if they exercise, and that all exercise should stop when menstruation occurs. No evidence has shown that reproductive organs are affected by exercise, and weight-bearing exercise actually strengthens bones. Exercising during menstruation can help reduce discomfort that may occur during menstruation.

Females should not avoid physical activity.



- *By not drinking I can lose weight*. Fluid replacement during and after exercise is extremely important. Dehydration can occur if the fluid balance isn't maintained. Even moderate fluid loss, probably unnoticed by many athletes, will impair performance levels, especially in hot conditions. During intense exercise in warm environments, an athlete can lose one or two litres of fluid per hour. The amount of fluid required can be determined by weighing yourself before exercise and then immediately after exercise. The amount lost during exercise needs to be replaced. For example, if you lose two kilograms in weight, two litres of fluid is required to maintain your fluid balance. Drinking small amounts during exercise is also important. Drinking regularly rather than when you become thirsty is recommended. You will probably find 150 to 200 millilitres is usually a comfortable amount. Water is a suitable drink for events of less than an hour; sport drinks and cordials may also be used.

ACTIVITIES

1 Myth busters

1. What myths about fitness training have you heard? As a class, brainstorm a list of myths you have heard and discuss how you could debunk it.
2. In groups of three, role play a conversation about a common myth. One person should play the gullible myth-believer, another person a charlatan benefiting from the myth and the third person a knowledgeable sports scientist who explains why the myth is erroneous.

2 Resistance training

Design and undertake a resistance training program for yourself, incorporating the relevant principles of training. Use the **Workout card** worksheet in your Resources section to monitor your progress. Justify your choice of activities by identifying the fitness components you are trying to improve.

3 Which muscle?

Use the **Which muscle?** interactivity in your Resources section to identify the muscles that are involved in each of the different types of exercises.

4 My circuit

1. Design a practical circuit training program for a sport or activity of your choice.
2. Trial your circuit.
3. At the end of the session, record your performance in the circuit and how you felt when you had finished. Use the **My circuit** worksheet in your Resources section to help you.
4. Justify your choice of physical activities.

5 Sprint training program

1. The sprint training program below has been designed for a cricket batter running between the wickets. Fill in the blanks with appropriate values.

Work time	Intensity	Reps	Sets	Rest period	Work to rest ratio	Frequency per week
5 seconds	95% MHR		3		1 : 5	3

2. Suggest how tweaking some of the values in the table would change the energy system being trained.

6 My family circuit

Create a fitness circuit for your family, using equipment found at your house, such as chairs, steps, garden beds and cans. Record a clip of your family completing the circuit. Show and discuss the family circuit clip within your class. Justify your choice of physical activities by identifying the component of fitness you are trying to improve.

CHECK & CHALLENGE

Explain

1. For each of the following training methods, give an example of how the principle of progressive overload could be applied.
    a. Circuit training program
    b. Interval training program
    c. Continuous training program
2. Explain three ways in which endurance training differs from strength training.
3. Give examples of the training methods used in both endurance training and strength training.

Elaborate

4. Why should plyometric training be carried out only under supervision?

on Resources

Complete this digital doc: Workout card
Searchlight ID: doc-14725

Complete this digital doc: My circuit
Searchlight ID: doc-14724

Try out this interactivity: Which muscle?
Searchlight ID: int-5498

5.9 Project: training programs

projectsplus

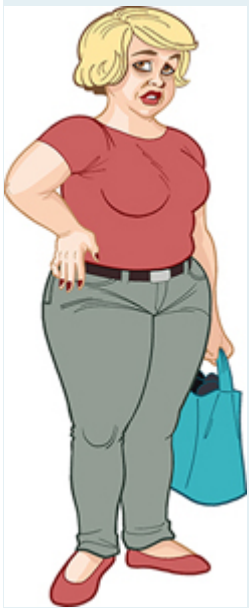
5.9.1 Scenario

You are a personal trainer and have been approached by a number of different clients. These individuals wish to have a program developed for their specific requirements. You need to encourage the individuals to follow the training program you will devise to enable the greatest improvement.

5.9.2 Your task

Develop a training program for each individual. The training programs must follow the training principles of frequency, intensity, duration, specificity and progressive overload. It is important that you develop a specific training program for each individual for maximum benefit.

- Individual A wants a program developed to improve her aerobic endurance.
- Individual B wants a program developed to improve his upper body strength.
- Individual C wants a program developed to improve his speed on the hockey field.

Individual A	Individual B	Individual C
		

5.9.3 Process

- Open the ProjectsPLUS application for this chapter in your Resources section. Watch the introductory video lesson, click the ‘Start Project’ button and then set up your project group. You can complete this project individually or invite other members of your class to form a group. Save your settings and the project will be launched.
- Navigate to your Research Forum. Topics have been pre-loaded for developing training programs. These topics include training principles (frequency, intensity, duration, specificity and progressive overload) and training methods (continuous training, resistance training, plyometrics training, circuit training, interval training and aerobic training).
- Research. Make notes of interesting facts and intriguing ideas that you discover. Enter your findings as articles under your topics in the Research Forum. You should each find at least three sources (other than the textbook and at least one offline source, such as a book, encyclopaedia or magazine) to help you research the development of a training program. You can view and comment on other group members' articles and rate the information they have entered. When your research is complete, print your Research Report to hand in to your teacher.
- Use the training program template to design different training programs for each individual.



SUGGESTED SOFTWARE

- ProjectsPLUS
- Microsoft Word
- Microsoft PowerPoint
- Adobe Photoshop
- Microsoft Publisher

MEDIA CENTRE



Your Media Centre contains:

- an interview with netball player Tegan Caldwell, in which she discusses her netball training
- a bank of images of people exercising
- an assessment rubric.

on Resources

Watch this eLesson:
Searchlight ID: pro-0065

Watch this eLesson: Abdominal exercises: An eLesson demonstrating sit-ups and floor cycling
Searchlight ID: eles-0779

Watch this eLesson: Biceps brachii exercises: An eLesson demonstrating arm curls
Searchlight ID: eles-0771

Watch this eLesson: Calf exercises: An eLesson demonstrating calf raises and stair running
Searchlight ID: eles-0783

Watch this eLesson: Deltoid exercises: An eLesson demonstrating dumbbell presses, lateral raises and lying front raises
Searchlight ID: eles-0773

Watch this eLesson: Gluteus maximus exercises: An eLesson demonstrating kneeling knee and leg lifts, as well as step-ups
Searchlight ID: eles-0780

Watch this eLesson: Hamstring exercises: An eLesson demonstrating leg curls
Searchlight ID: eles-0782

Watch this eLesson: Inner and outer thigh exercises: An eLesson demonstrating standing side leg lifts, and lying leg crosses and raises
Searchlight ID: eles-0778

Watch this eLesson: Latissimus dorsi exercises: An eLesson demonstrating dips and rowing
Searchlight ID: eles-0775

Watch this eLesson: Lower back and waist exercises: An eLesson demonstrating side bends with a lunge, seated trunk twists and seated toe-touches
Searchlight ID: eles-0777

Watch this eLesson: Pectoralis major exercises: An eLesson demonstrating bench presses, wide push-ups, dumbbell flies and bent arm pullovers
Searchlight ID: eles-0774

Watch this eLesson: Quadriceps exercises: An eLesson demonstrating leg extensions, quarter squats, vertical jumps and step-ups
Searchlight ID: eles-0781

Watch this eLesson: Rhomboid exercises: An eLesson demonstrating front-lying and bent-over rowing
Searchlight ID: eles-0776

Watch this eLesson: Trapezius exercises: An eLesson demonstrating the military press and shoulder shrug
Searchlight ID: eles-0772

Watch this eLesson: Triceps brachii exercises: An eLesson demonstrating dips, push-ups, french curls and tricep kickbacks
Searchlight ID: eles-0770

5.10 Review

5.10.1 What have I learned?

- Health and fitness are your most valuable personal assets, and they have a large influence on your quality of life.
- Physical fitness may be defined as the ability to complete all that you need and desire to complete in a day without becoming exhausted, and still have enough energy left to cope with emergencies.
- Australia's Physical Activity and Sedentary Behaviour Guidelines recognise the importance of physical activity for good health. Guidelines differ for children, adults and older adults.
- The ‘stages of change model’ best describes how people can be encouraged to change their attitude to participation in physical activity.
- Physical fitness includes both the health-related fitness components of aerobic power, muscular strength and power, local muscular endurance, flexibility and body composition, and the skill-related fitness components of speed, agility, balance, coordination and reaction time.
- Improved physical fitness levels are beneficial in many ways; most notably, they reduce the risk of developing cardiovascular disease, and promote a positive self-concept and self-esteem.
- There are a wide range of fitness tests available to assess each of the components of fitness, and to help you determine your current state of fitness or fitness profile and using the correct training principles and methods.
- Physical fitness can be improved through developing and applying an appropriate training program.
- In designing a training program, the key principles of specificity, progressive overload, frequency, intensity and time must be properly considered and incorporated.
- Appropriate warm-up and cool-down routines, and exercise techniques, are essential for a training program.
- There are many myths and fallacies related to fitness and training, including ideas about appetite, diet, changes to body shape and size, and the cost of exercise.

- The social–ecological model enables greater understanding of factors that act as barriers or enable participation in physical activity.

CHECK

1. Explain why your health and fitness are valuable.
2. List and explain the benefits of a regular physical activity program.
3. Outline the subjective and objective methods that can be used to assess physical activity.
4. Using the stages of change model, outline strategies to improve self-efficacy and move from the precontemplation stage through to the preparation stage.
5. List suitable fitness tests for health-related fitness components and skill-related fitness components.
6. To gain the greatest benefits from a fitness training program, we must correctly apply the key principles of training. Explain what this means.
7. How would you design a weight-training program that focuses on muscular endurance?
8. Using the social–ecological model, outline strategies that would reduce the barriers to physical activity.
9. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

Why is it important for all individuals to be involved in regular physical activity, and how can this contribute to health and wellbeing at different stages of their lives?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14726

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5395

Try out this interactivity: True/false quiz
Searchlight ID: int-5396

Try out this interactivity: Crossword
Searchlight ID: int-5397

Chapter 6: Safety, first aid and sports injury management

Contents

6.1 Overview

6.2 Prevention, safety and first aid

6.3 DRSABCD action plan

6.4 Common injuries and illnesses experienced in the great outdoors

6.5 Water safety

6.6 Sports injury management

6.7 Review

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6 Safety, first aid and sports injury management



6.1 Overview

6.1.1 Being prepared

Learning objectives

- Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health, safety and well- being may be at short or long term risk (ACPPS091)
- Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health, safety and wellbeing may be at risk (VCHPEP144)

Have you ever had to administer first aid to a friend or family member? Would you know what to do in an emergency? Do you know how to call for an ambulance? In this chapter you will learn how to keep calm and offer assistance in an emergency situation. You will also investigate some preventative measures to employ to reduce the risk of injury or illness for yourself, friends, family and team mates.

Elite sportspeople run a high risk of injury.



ESSENTIAL QUESTION

How would you respond in an emergency situation?

STARTER QUESTIONS

1. What would you do if your friend needed first aid?
2. What injuries or accidents have you experienced in your life?
3. What could you have done to avoid the injury?
4. Why do you think more men than women die by drowning?
5. Would you know what to do in an emergency situation?

INQUIRY SEQUENCE

6.2 Prevention, safety and first aid

6.3 DRSABCD action plan

6.4 Common injuries and illnesses experienced in the great outdoors

6.5 Water safety

6.6 Sports injury management

6.7 Review

Resources

Watch this eLesson: Safety, first aid and sports injury management
Searchlight ID: eles-2337

6.2 Prevention, safety and first aid

6.2.1 Knowing what to do

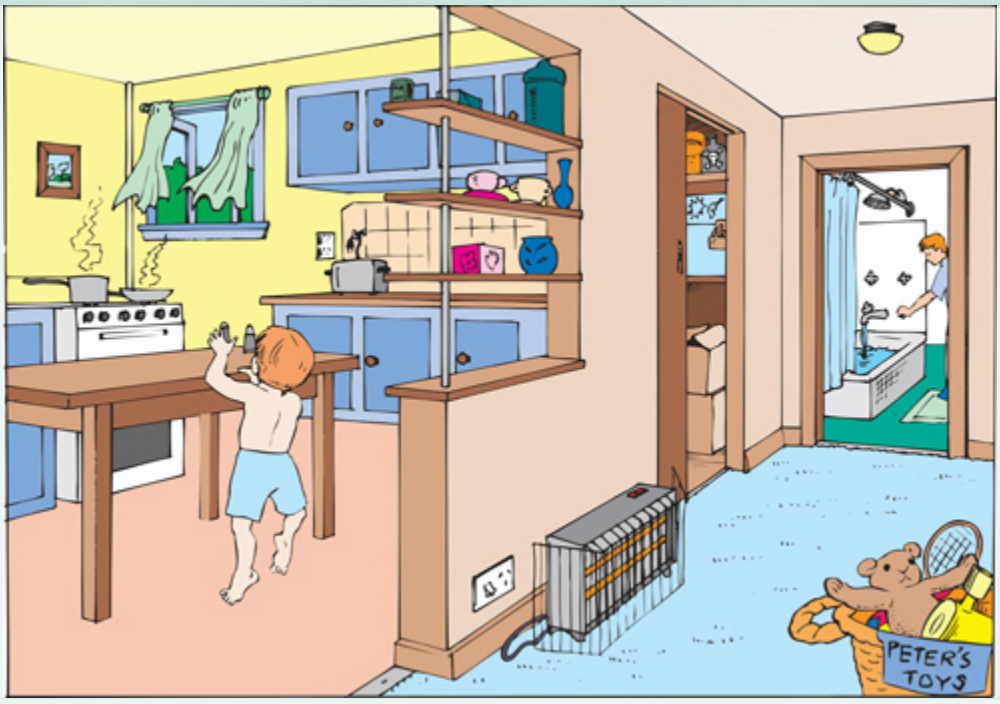
It is everybody's responsibility to have a sound knowledge of both safety procedures and first aid. This helps to prevent accidents and allows you to treat those injured if one occurs.

ENGAGE

Four out of every 10 accidents occur in the home. These accidents are mainly due to burns, scalds, poisoning, falls, cuts and electrocutions. Would you know what to do if you were confronted by such an emergency? Some accidents are life-threatening.

Using the **Predicting danger** worksheet in your Resources section and the figure below, see how many potential hazards you can identify. In small groups, discuss what first aid techniques might be necessary in the event of one of these accidents.

The home, where most accidents occur, can be made a safer environment.



Resources

Complete this digital doc: Predicting danger
Searchlight ID: doc-14727

6.2.2 What is first aid?

First aid is the initial or first help that is given to an injured or ill person. First aid is often confused with medical aid, which is treatment by a doctor or other qualified person, such as a nurse or ambulance officer.

First aid begins when a person arrives at the scene of an accident, and continues until the casualty recovers or medical aid arrives. The most obvious objective of first aid is to save the person's life. This objective can be simplified into the five Ps.

First aid can:

- preserve life
- protect the unconscious
- prevent injury or illness from becoming worse
- promote recovery
- procure medical aid.

Preserve life

If a life-threatening situation does exist, the first aider should have knowledge of procedures to keep the casualty alive.

Protect the unconscious

A casualty should be isolated from all further dangers and placed in a position where their injury or illness will not become worse.

Prevent injury or illness becoming worse

The casualty's injuries or illness should be attended to in order to prevent complications arising from his or her injury or illness (for example, broken bones should be immobilised and bleeding should be controlled).

Promote recovery

A first aider can speed recovery of the casualty by reassuring them, keeping them comfortable and arranging for emergency care (that is, ringing an ambulance). This point is very important. Even though first aid delivered by a skilled person can save lives, it cannot indefinitely keep the casualty alive if the injury or illness is serious.

Procure medical aid

In most cases, there will be a need for qualified medical assistance; therefore, this must be a major priority. If there are bystanders, they should be sent to seek urgent medical advice, and told to return with an estimated time of arrival. If you are alone, you must attend to the casualty first and then seek medical help as soon as possible. Whoever is sent to seek medical advice must be aware of the correct procedure for calling any emergency service or assistance. The message should be brief yet contain all essential information about the accident or incident. This information may seem obvious now, but under pressure or panic, many calls are useless because callers fail to give relevant information.

How to call for help in an emergency

When possible, the person with the best first aid knowledge should stay with the victim while someone else calls for emergency assistance.

How to call for help in an emergency — instructions from Lifesaving Victoria

1. Dial 000
   Triple zero (000) is Australia's primary telephone number to call for assistance (ambulance, police or the fire service) in life-threatening or time-critical emergency situations.
2. When the emergency operator answers, state clearly which service you need.



When seeking an emergency service, make sure you get the details right.

3. Stay calm and speak clearly. Be ready to give the following information and answer any questions.
    - Location of the emergency (including nearby landmarks, closest intersections etc.)
    - The telephone number from where the call is being made
    - What has happened
    - How many persons require assistance
    - Condition of the casualty
    - What assistance is being given
    - Any other information requested

    Never hang up before the emergency services operator hangs up.
4. Ask someone to stay in a prominent position to direct the emergency service vehicle to the correct location.



Using other emergency numbers

There are also two secondary emergency call service numbers — 112 and 106.

112 is available from all mobile phones.

If you have a hearing or speech impairment and your life or property is in danger, you can contact police, fire or ambulance on 106.



DID YOU KNOW?

There is no advantage to dialling 112 over 000. Calls to 112 do not go to the head of the queue for emergency services and it is not true that it is the only number that will work on a mobile phone.

Resources

Try out this interactivity: Five Ps of safety
Searchlight ID: int-5499

6.2.3 Prevention and safety

Before learning how to administer first aid, we must remember one very important point. *Most accidents are preventable*. The golden rule of first aid is to be safety conscious. Common sense safety rules can prevent many accidents. Your home is where most accidents occur; therefore, you can be responsible for keeping your living environment safe by identifying any changes that can be made to improve safety.

Safety in the home

- Store poisonous substances and medicines out of reach of children.
- Leave all chemicals, medicines and cleaners in original, labelled containers.
- Provide guards for fires and radiators.
- If safety glass has not been installed in lower windows, fit a shatter-resistant film.
- Do not leave toys around the house, as people can trip on them.
- Store firearms and explosives in safe areas, locked away from children.
- Turn handles on saucepans and other cooking containers away from the edges of the stove.
- Unplug electric cords when not in use.
- Do not leave cooking unattended.
- Turn down the thermostat on gas hot water systems.
- Install smoke alarms.
- Always run cold water into the bath before the hot.
- Turn the hot-water tap off tightly when children are in the bath.
- Do not leave cigarette lighters or matches within reach of children.

Safety in the backyard

- Have a childproof fence around swimming pools and spas — keep the gate locked.
- Store pool chemicals safely away.
- Lock away all sharp or dangerous tools when not in use.
- Have dangerous or flammable liquids clearly marked.
- Do not leave ladders standing against walls.

- Always supervise children around animals.
- Regularly undertake safety checks and maintain all play equipment.
- Avoid direct sun exposure when the UV index is above 3.
- Separate the driveway from the play area.

Safety in the car and boat

- Ensure the car is roadworthy.
- Don't drive too far without taking a break.
- Make sure all passengers have seatbelts correctly fitted, and that babies and small children are correctly secured in appropriate child restraints for their age/weight.
- Do not leave children (or pets) unattended in a car, even for a short time. Cars can reach dangerously high temperatures very quickly. For more information, follow the **Kids in cars** weblink in your Resources section.
- Get children out of the car on the kerbside.
- Do not leave loose items on the parcel shelf or the cargo area of a station wagon or hatchback.
- When on boats, carry approved life jackets for all on board.
- Inform someone responsible of where you are going and when you intend to return.
- Check the weather forecast.
- Have the charts for the area you intend to cruise in, regardless of your level of local knowledge.
- Carry sufficient fuel and water.
- Have aboard a torch and spare batteries.
- Carry a functional fire extinguisher and a distress flare.

Backyard pools can be dangerous environments for children.



This is certainly not an exhaustive list of safety rules. Can you think of any others? Remember, every person has a responsibility to be alert to possible dangers and to do all in their power to prevent accidents to their own family and to other people. For more information, follow the safety weblinks in your Resources section.

ACTIVITIES

1 You react

Examine the scene below and identify all the dangers shown and the causes of these dangers. Explain how you think a first aider should manage the scene.



2 No place like home

1. Draw a plan of your home, including your front and back yards. On your plan, identify all potentially hazardous or dangerous areas. Mark these areas with a red spot and then list what dangers may exist at each spot.
2. You have been appointed safety officer for your family. Explain how you would increase the safety standards around your home. List house rules that would make your home a safer environment.

3 Advertise

Design a pamphlet or poster aimed at adolescents that promotes an aspect of personal safety or the safety of those around them.

4 Emergency call

1. What information needs to be given to the 000 operator in an emergency?
2. Think of three locations outside of the home where you spend a lot of time. Use the following table to record how you would describe the location to the 000 operator in an emergency so that help could arrive quickly.

Location	Street address	Nearest major intersection	Local landmarks

CHECK & CHALLENGE

Explain

1. Explain the objective of first aid.
2. What are the five Ps?

Elaborate

3. Choose three general rules from each of the safety in the home, backyard, car and boat sections, and describe what injuries could occur if these rules are not adhered to.

Evaluate

4. Do you know the fire evacuation procedures at your school? Evaluate the safety procedures and awareness of your school. Survey your classmates to assess their awareness of what to do in case of a school emergency.

Resources

Explore more with these weblinks: Kids in cars
Explore more with these weblinks: Safety centre
Explore more with these weblinks: Safety posters

6.3 DRSABCD action plan

6.3.1 Saving a life

In an emergency situation, knowing how to follow the DRSABCD action plan and perform cardiopulmonary resuscitation (CPR) effectively will greatly improve the chances of saving a person's life until medical support arrives.

ENGAGE

To administer first aid successfully, we must have a plan of action that will work for all types of situations, from a serious car accident to a sprained ankle.

In an emergency situation, we have to have a set of priorities in our plan of action. This allows us to address the most life-threatening injuries first. For example, we must attend to a person's compromised breathing before we attend to broken bones, as a person does not usually die from a broken bone. The most widely used plan of action is the **DRSABCD action plan**. Each letter stands for an aspect of first aid and is listed in order of priority.

In small groups, use the weblinks in your Resources section and discuss movies you have seen in which characters have dealt with an emergency situation. What were some of the techniques used to revive the casualty? Did any actions appear unrealistic or negatively affect the health of the casualty?

on Resources

Explore more with these weblinks: DRSABCD
Explore more with these weblinks: Man saved

6.3.2 DRSABCD action plan

Danger

Check for and remove any danger to:

1. yourself first
2. then any bystanders
3. and finally, the casualty.

At this stage, put on gloves if possible.

Response

Check the casualty's level of consciousness. This can be done by loudly asking questions such as ‘Can you hear me?’ and ‘What's your name?’. If the casualty:

- responds, check for other injuries and control serious bleeding
- does not respond, proceed with SABCD.

Send for help

Dial 000 or 112.

Remember, dial 000 from a fixed line or 112 on a *digital mobile phone*.

If you have a hearing or speech impairment, you can contact police, fire or ambulance on 106 directly through a teletypewriter or text phone (TTY).

When the emergency operator answers, state clearly which service is required and give the information as specified in section 6.1.

Airway

Open the mouth and check for any foreign matter, removing it if needed. Then clear the **airway**. This can be done by gently supporting the jaw with one hand and tilting the chin forward.

When checking the airway, the **unconscious** casualty should be rolled onto their side (**recovery position**) only if foreign material is present in the mouth.

Breathing

- Look for **signs of life** — is the lower chest or abdomen rising and falling?
- Listen for the sound of air leaving the nose and mouth, such as wheezing or coughing.
- Feel on the side of the rib cage for the rise and the fall of the chest. You can also feel for air leaving the mouth and nose by placing your cheek close to the casualty's mouth and nose.

If the casualty is breathing but not responding, an ambulance must be called immediately (dial 000). Continue to monitor the breathing.

If the person is not breathing, an ambulance must be called (dial 000) and then CPR should be commenced immediately.

Compressions (CPR)

If the casualty is unconscious, shows no signs of life and is not breathing normally, **cardiopulmonary resuscitation (CPR)** must be commenced immediately. CPR is a combination of rescue breaths and chest compressions, and effectively keeps the patient alive by oxygenating the blood with the rescue breaths and providing artificial blood circulation with the chest compressions (the heart is squeezed between the sternum and the vertebrae) until more advanced life support arrives.

Defibrillation

Defibrillation can be performed by qualified rescue personnel such as paramedics if the casualty is still not breathing and is unconscious. Some first aid courses also now teach you how to use a defibrillator as part of CPR training, as many public places such as airports, railway stations, leisure facilities and shopping centres have **automated external defibrillators (AEDs)** available for use in case of emergency.

Unlike regular defibrillators, an AED is a portable electronic device about the size of a laptop computer that requires no training to use. An AED is attached to a victim who is thought to be in **cardiac arrest**, and it provides voice and visual prompts to lead rescuers through the steps of operation. The AED automatically diagnoses some potentially life-threatening heart problems and is able to treat some of them with defibrillation.

To be effective, an AED needs to be ready to use, well-signed and easy to find by the public when needed.

An AED for public use will often have clear signage and instructions.



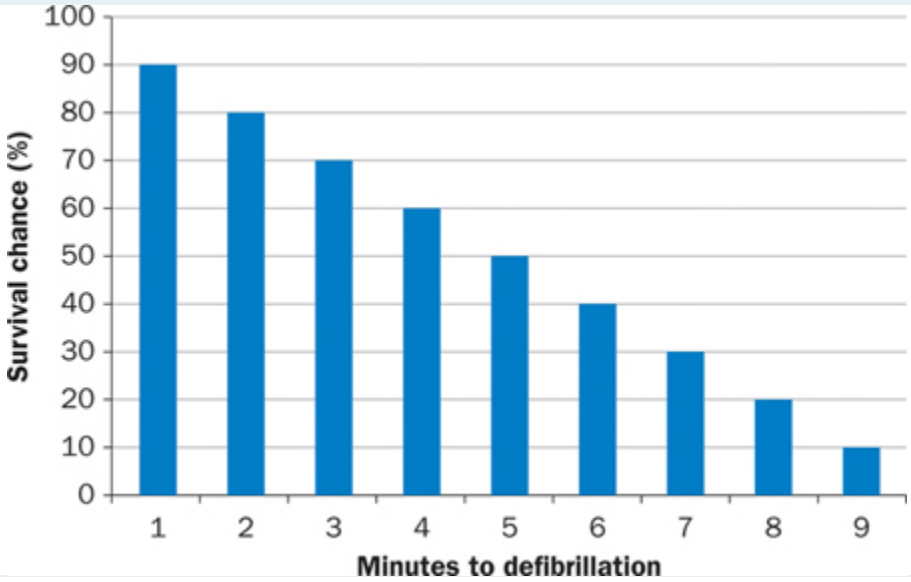
An AED set up and ready for use



DID YOU KNOW?

Early access to an automated external defibrillator saves lives. Statistics show up to 20 000 lives per year in Australia could be saved by the immediate availability of an AED for the person in cardiac arrest. For every minute that a person in cardiac arrest goes without being successfully treated by defibrillation, their chance of survival decreases by 10 per cent.

Chance of survival from cardiac arrest



6.3.3 Hypothetical accident

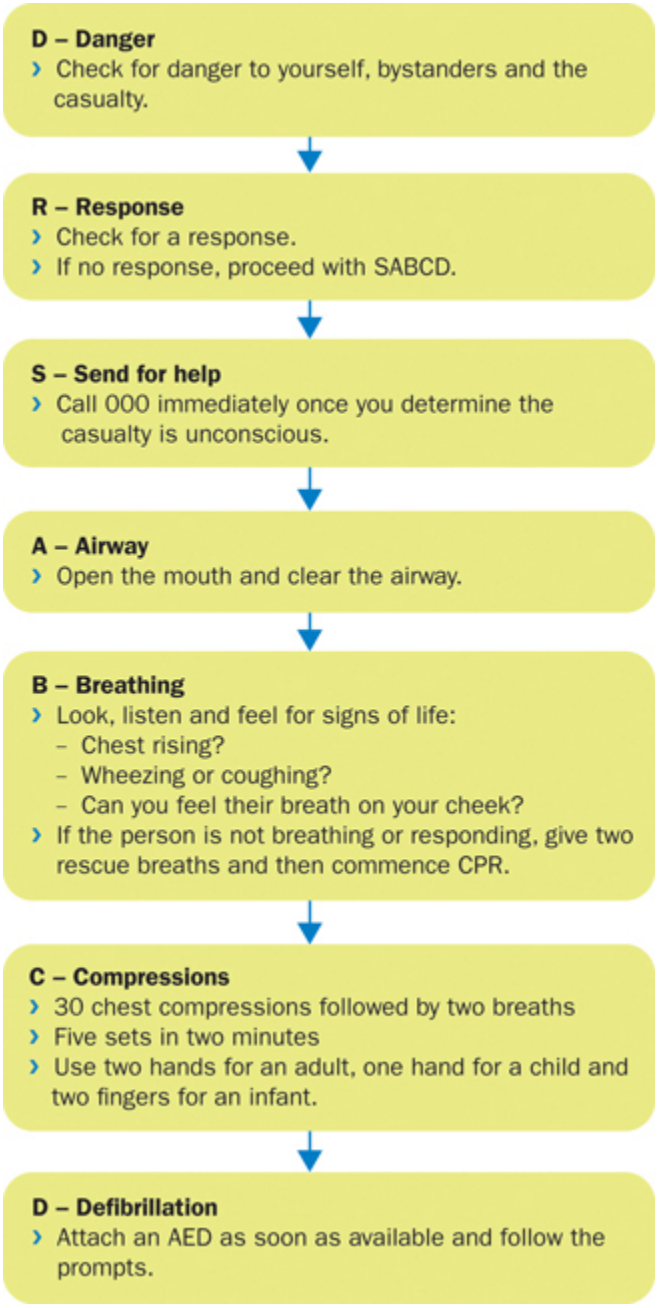
You are walking home from school when you hear a screech of tyres and a loud bang coming from around the corner. Your heart skips a beat and then starts thumping in your chest like a drum. You quickly rush around the corner and then are confronted by a horrific sight. A motorcyclist is lying still on the road, his motorbike mangled beside him. A car has veered across the road and mounted the kerb. The driver is getting out and appears dazed but uninjured.

What do you do?

What do you do?



Using this hypothetical accident as an example, we will go through the steps of the DRSABCD action plan.



Danger

First check for dangers to yourself, bystanders and the casualty. Dangers such as oncoming traffic, fuel spills, blood, broken glass, twisted metal and debris all pose a danger to everyone involved. Strategies for removing these dangers include having bystanders flag and divert traffic from a safe distance, and using a stick or other implement to shift sharp or hot objects. When the dangers can be eliminated and it is safe to proceed, do so. Move the casualty only if a danger *cannot* be removed, such as if the vehicle is on fire.

Response

Which casualty is likely to be more seriously injured? From initial observation, it is likely the motorcyclist. You should first establish whether the casualty is conscious or not. You should approach the motorcyclist and loudly say things like ‘Can you hear me?’, ‘Open your eyes’, ‘What's your name?’ and ‘Squeeze my hands’. If the casualty responds, check for bleeding and other injuries such as broken bones while a bystander calls for an ambulance. Unfortunately, in this case, the casualty has not responded. What do you do now?

Send for help

While you check for bleeding or other injuries, instruct a bystander to call 000 (you can do this step yourself if alone).

The bystander will need to stay calm, not shout, and speak slowly and clearly to give the following information.

- State *ambulance* when the person answering the 000 call asks ‘Do you want police, fire or ambulance?’
- Location of the emergency (including nearby landmarks, closest intersections etc.)
- The telephone number from where the call is being made
- What has happened — there has been a motor vehicle accident between a car and a motorbike, other bystanders are diverting traffic.
- How many persons require assistance — two casualties (give sex and estimated age also)
- Condition of the casualty — the car driver is conscious but dazed and appears uninjured. The motorcyclist is unresponsive.
- What assistance is being given — first aider going through DRSABCD and commencing CPR
- Any other information requested

Never hang up before the emergency services operator hangs up.

If a bystander has made the call while you are providing assistance to the casualty (or casualties), ask them to return and give you an estimated time of arrival of the emergency service. This is important so that you confirm the 000 call has been made and that you have some indication of the time remaining that you will need to provide first aid until more qualified medical assistance arrives to take over. Also ask someone to stay in a prominent position to direct the emergency service vehicle to the correct location.

Airway

As the casualty is unconscious, you must check that the airway (the passage that leads from the mouth, nose and throat to the windpipe) is clear. If the airway is blocked, oxygen cannot reach the lungs. If there is no oxygen for 3–4 minutes, the person will start to die. Some common causes of a blocked airway are:

- the tongue
- vomit
- broken teeth

- chewing gum.

If any of these objects is blocking the airway, you must place the casualty in a position that will enable you to remove the blockage. This is called the recovery position and is shown in the figure below.

1. Kneel beside the casualty.
2. Place the arm of the casualty that is furthest away from you straight out.
3. Place the casualty's nearest arm across their chest.
4. Bend the nearer knee up.
5. Roll the casualty away from you so they are lying on their side.
6. Place the casualty's knee at a right angle to the body for stability.

Rolling a casualty into the recovery position to remove foreign substances



In the recovery position, any object that is blocking the airway can be removed more easily. It is very difficult to remove objects from a person lying on their back. For example, the hypothetical motorcyclist may have vomited from the shock of his fall. If he is lying on his back, the contents would block his airway. You therefore place him in a recovery position to clear his airway.

Clearing the airway

1. With the casualty in the recovery position, tilt the head down slightly to allow for drainage of any fluids.
2. Open the mouth. With two fingers, remove any objects that may be loose in the mouth using a two finger scooping action.
3. If that doesn't remove all foreign matter, perform five sharp blows to the person's back (between the shoulder blades) in an upwards motion, if conscious; if unconscious, five sharp blows to the sternum.

Clearing the airway



Once the airway is clear, the casualty can be positioned on their back.

Opening the airway

1. Whether the person is on their back or in the recovery position, tilt the head right back with one hand on the forehead and, using a pistol grip, hold the chin and jaw line.
2. Lift the jaw forward and open the casualty's mouth slightly.

Breathing (look, listen and feel)

You have done a good job clearing the motorcyclist's airway; however, he still appears to not be breathing. You are not a doctor, so how do you check whether he is breathing? You look, listen and feel for any signs of breathing by:

- looking at the chest to see whether it is rising and falling
- listening for any sounds of breathing by placing your cheek alongside the casualty's mouth
- feeling with your hand on the ribs/diaphragm for the rise and fall of the chest, and feeling for breath on your cheek.

If the motorcyclist casualty was breathing, you would keep him in the recovery position and keep his head tilted slightly backward and face slightly downward. You would wait for an ambulance while monitoring vital signs and checking for other injuries.

However, the motorcyclist is not breathing, so you must not waste time.

Rescue breathing

There are two main methods of performing rescue breathing:

- mouth-to-mouth
- mouth-to-nose.

Both methods are equally effective, but the mouth-to-mouth method is more commonly used.

The mouth-to-nose method is usually used when there has been a trauma to the mouth or jaw or you are giving rescue breaths in deep water. The mouth-to-nose technique can be performed by using the same principles as followed for mouth-to-mouth, except you close the patient's mouth and breathe into their nose.

The motorcyclist is not breathing, so you must perform the following.

1. Position the casualty on his back on a firm, flat surface.
2. Kneel beside the casualty's chest.
3. Tilt the casualty's head back by placing the palm of one hand on the casualty's forehead.
4. Pinch the casualty's nostrils with your fingers or close off the nostrils with your cheek.
5. Place your mouth firmly over the casualty's mouth, making an airtight seal (see the figure at right).
6. Breathe into the casualty's mouth to give two rescue breaths, ensuring the chest gently rises with each breath.
7. Remove your mouth and look for the patient's chest to rise after each inflation, and listen for air escaping from the patient's mouth and nose by turning your head so that your ear is close to the patient's mouth. At the same time, observe the patient's stomach to make sure that it has not been distended with air (which would indicate you are breathing too hard, there could be an airway blockage or you do not have satisfactory head tilt).
8. If there are still no signs of life, begin chest compressions.

The mouth-to-mouth method. Sealing the nose with the fingers, give two rescue breaths.



Cardiopulmonary resuscitation (CPR) for adults (one operator)

1. Visualise the centre of the chest. Place the heel of one hand on the centre of the chest (between the nipples).
2. Place the heel of the other hand on top of the first and keep the fingers off the ribs. Interlace the fingers of both hands to assist holding the lower fingers off the chest wall.
3. Ensure that your arms are straight and your shoulders are above the patient's chest.
4. Bend forward at the hips so that you depress the breastbone rhythmically and vertically about one-third of the depth of the chest (roughly 4–5 cm), as shown below.
5. Release the pressure, then repeat.
6. Perform 30 compressions.
7. Pause after each set of 30 compressions to give two more rescue breaths, then repeat; you should be performing CPR at a rate of 30 compressions for every two breaths.
8. Aim to do this five times in two minutes (which is at a rate of 100 compressions per minute).
9. *Do not stop* — continue doing 30 compressions and then two breaths until one of the following happens:
    - The casualty recommences breathing under their own power.
    - Someone more qualified, such as a paramedic, arrives to take over.
    - You are physically unable to continue.
    - An AED is applied to the victim. Follow the prompts and recommence CPR if advised.

Push the breastbone down to about one-third of the depth of the chest.

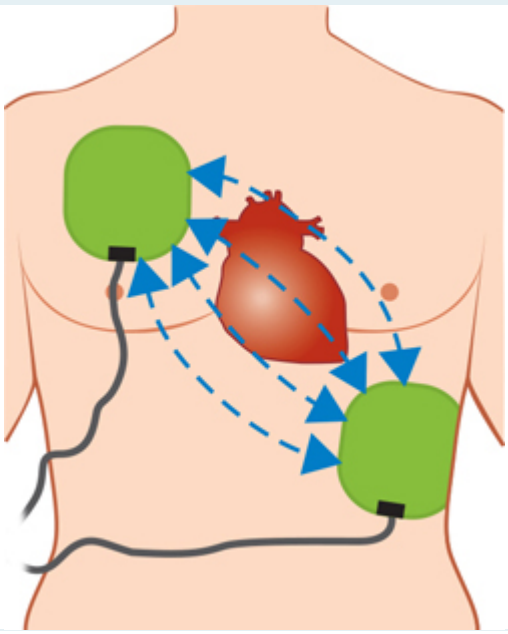


Defibrillation

After two minutes of CPR, a bystander approaches you with an AED. The motorcyclist is still not breathing, and so it's important for you to attach the AED as soon as possible; however, you must continue CPR until the AED is ready.

Attach the AED as shown in the figure below and then follow the prompts given by the device. Shortly afterwards, the heart re-establishes a regular rhythm and the motorcyclist resumes breathing. You continue to monitor vital signs of the casualty until the ambulance arrives.

Position and placement of an automated external defibrillator (AED) using adhesive pads



Resources

Try out this interactivity: DRSABCD
Searchlight ID: int-5500

6.3.4 Variations of CPR

There are several variations of CPR. It is essential you apply the correct method depending on the situation.

Two operators

- Each person should kneel on opposite sides of casualty's body.
- The more experienced person should control the head and perform the rescue breaths.
- Give 30 compressions and two rescue breaths, five times in two minutes (a rate of 100 compressions per minute).
- The first aider performing the compressions should call the numbers
  1 to 30 as he or she compresses the chest. This allows the other first aider to time the breaths with reduced interruption to the compressions.
- Change operators of chest compressions every two minutes to avoid fatigue, which leads to ineffective compressions.

CPR for small children

For children under 8 years but over 12 months old, use the following procedure.

- Apply a slight head tilt as required to open the airway, but not a full head tilt.
- Cover the child's nose and mouth if required with your mouth and breathe with less force — enough pressure to cause the chest to rise gently. This is because children's lungs are smaller.
- Locate the lower half of the breastbone.
- Apply compressions with the heel of one hand placed over the middle of the chest.
- Depress the breastbone about one-third of the depth of the chest (about 2.5 cm).
- Retain the same breath to compression ratio as for adults, that is, two breaths for every 30 compressions at a rate of 100 compressions per minute.

CPR for infants

For infants below the age of 12 months, use the following procedure.

- Do not apply head tilt for infants. The head remains in the neutral or horizontal position.
- Apply compressions with the tips of your index and middle fingers over the middle of the chest.
- Compress to one-third of the depth of chest (about 1.5 cm) using two fingers.
- Cover the child's nose and mouth with your mouth and breathe with a gentle puff — enough pressure to cause the chest to rise gently.
- Rates of ventilation and compression are the same as for small children.

DID YOU KNOW?

Even if perfect resuscitation techniques are performed immediately, the casualty will not always be able to be revived. Revival can sometimes depend on factors outside the first aider's control.

ACTIVITIES

1 Debate the compulsory

Conduct a class debate on whether all people should have compulsory CPR training.

2 Pretend first aid

Form pairs. Take turns being the first aider and the casualty. The first aider is to administer the appropriate first aid for each of the following situations. Refer to the DRSABCD action plan, but do not actually perform the rescue breaths or compressions on your partner, as this can be harmful when the person is healthy; just pretend to do so. Alternatively, use a resuscitation mannikin.

1. An unconscious, breathing casualty
2. A conscious casualty who has a blocked airway
3. An unconscious casualty with no breathing

Rehearse one of the above scenarios and make a video of yourself working through the steps of the DRSABCD action plan.

3 How would you react?

I was heading to the skate park after school along Bayview Street. Everything indicated that it was going to be a normal afternoon in my seaside suburb. I guess it would have been about 3.45 pm because I had been out of school only a little while but the skate park would be busy with the after-school crowd. I was listening to my iPod as I turned left down Beach Road and then walked across Queens Park to meet up with my mate Sam. I was startled out of my daydream by Sam calling out from the skate park 'Hey, watch this! I just nailed that move I've been practising for ages!' He landed the rail slide and looked at me with a huge grin. Unfortunately he was not watching where he was going and there was a loud thud as he collided with another skater. Sam was knocked off his skateboard, appeared to hit his head hard and lay motionless on the cement surface. The other skater appeared disorientated; he was clutching his left forearm and was bleeding from a gash above his eye as he tried to get up to find his skateboard. Another boy stood over Sam's body, furiously yelling and cursing about not watching where he was going. Other kids were on their skateboards, flying past dangerously close. Sam's younger brother, Liam, appeared at his side and was trying to rouse Sam. Liam was yelling at me, 'Call an ambulance, I don't think he's breathing, do something!'

Imagine you are in this situation.

1. What dangers exist for the victim, for yourself and Liam, and for other bystanders? Make a list and suggest what you could do to manage these dangers so it is safe for you to approach and provide assistance to your friend.
2. What would you do next? Sam is not responding to your voice and touch.
3. Explain what information you or Liam would have to give to the ambulance officer over the phone.
4. Explain what you could do to get an ambulance to the scene as quickly as possible.

5. If Liam made the 000 call, how would you provide further assistance to your injured, non-breathing best friend?

4 Accident scenario

Complete the **Accident scenario** worksheet in your Resources section for more practice in what to do in an emergency.

CHECK & CHALLENGE

Explain

When administering cardiopulmonary resuscitation (CPR), strict guidelines must be followed.

1. How many rescue breaths should be given when you first determine that the casualty is not breathing?
2. How many chest compressions must be given immediately following the rescue breaths?
3. What is the ratio of compressions to rescue breaths during administration of CPR?
4. When two people are available to administer CPR, how often should they swap roles? Why?
5. How long should you continue to perform CPR?
6. When performing CPR on infants, how should chest compressions be applied?

Evaluate

7. What is an AED and under what circumstances should a first aider use one on a casualty?
8. If the chest does not rise and fall when giving rescue breaths, what should you check?

Elaborate

9. Why is your own safety and that of the bystanders a higher priority than the safety of the casualty in an emergency situation?

on Resources

Explore more with these weblinks: CPR

Complete this digital doc: Accident scenario

Searchlight ID: doc-14729

6.4 Common injuries and illnesses experienced in the great outdoors

6.4.1 Recognising risks

When getting out and about in the great outdoors, it is important we can recognise problems that can arise, have the skills to manage illnesses related to overexposure and be able to treat common injuries that can occur.

ENGAGE

Most of us have experienced Australia's great outdoors on camping trips, hikes or boat trips. When preparing for some of these trips, many of us have probably underestimated the effect the elements would have on us. For example, the phrase ‘We'll be moving around, so we won't get cold!’ is a justification for not taking extra clothes. How sorry we were when we shivered through the day.

Exposure to the wind, rain and cold without adequate body protection can cause physical and mental fatigue, and have significant impact on our health, even in healthy young people. When heat loss is greater than heat gain, severe problems arise. However, most exposure to the elements (sun, wind, rain, snow, water) can, with adequate preparation and forethought, be minimised.

Use the **Missing minister** weblink in your Resources section to read an article about a person who became lost while hiking on Mt Feathertop. In small groups, discuss the precautions or strategies that this person might have taken to avoid severe hypothermia while lost overnight outdoors in freezing conditions.

A first aid kit is essential when bushwalking.



on Resources

Explore more with these weblinks: Missing minister

6.4.2 Overexposure

Precautions

- Pack appropriate clothes for the conditions that you will be experiencing. If you do not know what weather conditions you will experience, find out all you can from various sources, such as teachers, camp leaders or the internet, before you go.
- Make sure you keep yourself dry by having good quality waterproof clothing.
- Wear inner clothing made from natural fibres (some artificial fibres may be appropriate).
- Wear a hat:
  - in the sun, to protect from sunburn
  - in the cold, to protect from heat loss from the head.
- Travel in groups.
- Take equipment to start a fire.
- Ensure you eat a balanced diet.
- Take sufficient food and water with you.
- Check the weather forecast before you leave.
- Take a change of clothes in case you get wet.
- Take shelter in extreme weather.
- Take a ground sheet.

Can you think of other precautions?

Symptoms

The symptoms of overexposure are:

- feeling cold and shivering
- uncoordinated movements
- blurred vision, dizziness, nausea
- a person lagging behind
- excessive tiredness
- slow mental and physical response
- cramps.

Remember, death by overexposure is not an accident.

After being rescued from a sailing accident, this sailor, Tony Bullimore, was wrapped in a space blanket.



Management

- Take the casualty and yourself out of the wind, rain and cold, and away from wet ground.
- Remove any wet clothing and put the casualty in dry clothes. Wrap the person in a blanket (shown in the figure above) or sleeping bag.
- If conscious, give warm drinks.
- Place a companion in the sleeping bag with the casualty. This will warm the casualty slowly through the warmth given off by the other person's body.
- *Do not* warm the casualty in front of a fire, as this will re-warm them too quickly and force blood to the extremities.

6.4.3 Hypothermia

Hypothermia is a more dangerous consequence of overexposure to the cold. After several hours of exposure, hypothermia develops as the body's internal organs and tissues start to cool down. This condition can lead to death. It is important to remember that heat loss from the head can account for up to one-third of the body's total heat loss if not covered — it is critical to wear a beanie or other form of head protection in the cold.

Symptoms

The symptoms of hypothermia are listed below.

- Casualty is cold to touch
- Slow and shallow breathing
- Unconsciousness
- Slow pulse
- Babies become quiet and refuse food.

Management

Hypothermia can be treated with the following steps.

- Remove casualty to a warm, dry place.
- Place the casualty between blankets so that the temperature can rise gradually.
- If conscious, give them a warm drink.
- A companion stripped to underclothes and sharing the sleeping bag will help to warm the casualty.
- Seek medical aid.

Do not attempt to speed up the warming process by:

- placing casualty in a hot bath
- massaging
- giving alcohol
- applying hot water bottles
- applying direct heat.

6.4.4 Frostbite

Frostbite is the local freezing of a particular body tissue. The body parts that are prone to frostbite are usually those that are exposed to the cold for a long time (for example, nose, ears, face, fingers and toes). As the body cools, the blood vessels in the particular body tissue constrict. This usually cuts off circulation to the area. In extreme cases, a person can lose the body part that has frostbite.

Frostbite can cause severe damage to the extremities.



Symptoms

The symptoms of frostbite are:

- numbness and tingling in exposed areas
- white, waxy skin
- skin is firm and cold to touch
- possible blistering and discolouration of skin.

There may be little or no pain associated with frostbite.

Management

- Place the casualty in a warm, dry place.
- Re-warm the area by body heat.
- *Never* rub or massage the frostbitten area.
- *Never* re-warm with direct heat.
- Cover any blisters with dry, sterile dressing.
- Seek medical aid.

6.4.5 Sun injuries

Sunburn and skin cancer

The Cancer Council of Victoria recommends that Australians use sun protection when the ultraviolet (UV) index is forecast to reach 3 and above. At this level UV radiation is strong enough to damage skin and eyes and increase your risk of skin cancer. UV can't be seen or felt and can be damaging even on cool or cloudy days.

Australia has one of the highest rates of skin cancer in the world. The reasons for this are our climate, how close we are to the equator and the time we spend outdoors. To reduce your risk of developing skin cancer, it's important to be sun smart.

DID YOU KNOW?

It is estimated that more than 75 per cent of all skin cancers could be prevented by practising sun protection in childhood and adolescence.

In Australia, sunburn can occur in as little as 15 minutes on a fine January day.

Communities can provide shaded outdoor areas to protect against sun damage.



During the daily sun protection times, the Cancer Council recommends using a combination of the five sun protection measures to protect against sun damage.



DID YOU KNOW?

In 2014, 1107 Australians died from melanoma and 416 died from other skin cancers.

In Australia, UV damage is the cause of 95 per cent of melanomas and 99 per cent of other skin cancers. Your skin is like a memory bank. It remembers all the sunburns, all the tans and all the time you spend unprotected in the sun. Over time this damage adds up, increasing your risk of skin cancer. The good news is that the use of sun protection will reduce your risk and help to prevent skin cancer at any age.

1. Slip on sun-protective clothing that covers as much skin as possible.
2. Slop on SPF 30(or higher)+, broad spectrum, water resistant sunscreen. Put it on 20 minutes before you go outdoors and reapply every two hours. Sunscreen should never be used to extend the time you spend in the sun.
3. Slap on a hat that protects your face, head, neck and ears.
4. Seek shade.
5. Slide on some sunglasses. Ensure they meet Australian standards for EPF (eye protection factor).

When is sun protection needed?

Sun protection is recommended whenever the UV reaches 3 or higher. The Bureau of Meteorology provides a forecast of when this will occur each day, known as 'sun protection times'.

You can check the daily sun protection time using:

- the SunSmart app
- online resources (follow the weblinks in your Resources section)
- the weather section of newspapers.

Use the **ARPANSA** weblink in your Resources section to get live, real-time UV levels for Australian capital cities.

DID YOU KNOW?

Australia has one of the highest rates of skin cancer in the world. Two out of three Australians will be diagnosed with skin cancer by the age of 70.

Dehydration and heat exhaustion

Heat injuries occur in hot and humid climates, where people lose excessive amounts of fluid through sweating. Heat injuries are often associated with hard physical exercise. The fluid in your body regulates your body temperature. When your body becomes hot, it produces sweat to cool itself down. If this fluid is not replaced, the body will continue to heat up. Therefore, the importance of taking in plenty of fluids before, during and after exercise cannot be stressed enough.

Children are likely to suffer from **heat exhaustion** more quickly than adults due to their smaller body size.

Dehydration and heat exhaustion can be prevented by:

- drinking before exercise (even if you are not thirsty)
- drinking small amounts constantly during exercise — thirst is a late indicator of dehydration
- avoiding exercise during the hottest part of the day
- wearing loose-fitting clothes.

The signs of dehydration and heat exhaustion are:

- feeling hot, exhausted and weak
- headache, which may persist for hours
- thirst
- fatigue
- nausea
- giddiness and fainting
- lack of coordination
- rapid breathing and pulse
- muscle cramps
- sweating.

Dehydration can be managed by following the steps outlined below.

- Remove the casualty to a cool place with fresh air.
- Lay the casualty down.
- Loosen any tight clothing.
- Sponge the casualty with a damp cloth or towel.
- Give plenty of fluids (cool water, add sugar or glucose at half a teaspoon per litre).
- If the casualty does not recover and starts to vomit, seek medical aid.

Novak Djokovic, the Australian Open defending champion in 2008, retired against Andy Roddick in the quarter-finals in 2009 because of heat exhaustion.



Heatstroke

Heatstroke is a more serious form of heat exhaustion and can be very dangerous. It is a complete breakdown of the body's heat regulating mechanism and is an acute form of hyperthermia. At this stage, the body stops sweating and, as a result, the body's temperature continues to rise. There are cases where a person may become unconscious. This condition is especially dangerous to infants and the elderly. Likely victims of heatstroke are infants left in closed cars, athletes running long distances in hot weather, elderly people and unfit outdoor workers not used to the heat.

A person suffering from heatstroke has:

- a strong, pounding pulse
- a headache

- nausea, dizziness, irritability
- visual disturbance and an altered mental state.

Management of heatstroke involves the following steps.

- Undress the casualty. Douse with cold water or rub ice over the body.
- Apply a cold pack or ice to the neck, groin and armpits. Cover the casualty with a wet sheet and fan the body to increase air circulation.
- Seek medical aid. The body's fluid and salt levels will be low, so the casualty will need medical attention to increase the fluid levels.
- Check the body temperature every five minutes.
- When the casualty is cool to touch and temperature is lowered to 38 degrees, stop cooling procedures.
- When the casualty is fully conscious, give fluids such as water or lemonade, to which glucose and half a teaspoon of salt per litre have been added.

Use the **Drink up** weblink in your Resources section to read an article about heatstroke and then complete the **Drink up** worksheet in your Resources section.

on Resources

Explore more with these weblinks: Sun protection mistakes
Explore more with these weblinks: SunSmart app
Explore more with these weblinks: Bureau of Meteorology
Explore more with these weblinks: ARPANSA
Explore more with these weblinks: Drink up
Complete this digital doc: Drink up
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6.4.6 Bleeding

Adults have approximately six litres of blood in their body, children have about 2.5 litres and babies about 750 mL. Severe bleeding must be controlled, as losing a large quantity of blood, such as more than one litre in an adult, can result in serious damage or even death.

Management of external bleeding

To reduce the risk of **disease transmission** when controlling bleeding, you must form an effective barrier (for example, by using latex gloves) between your skin and the victim's blood. Immediately after providing care, wash your hands thoroughly with soap and water. Do not eat, drink or touch your mouth, nose or eyes until you have washed your hands. This subject is discussed further later in this chapter.

Bleeding may be controlled by using pressure and elevation as follows.

1. Lay the casualty down.
2. Apply direct pressure to the site of the bleeding. Pressure can be applied by:
    - using your hand
    - tying a piece of clothing around the wound
    - making a pad and using a bandage to hold it in place.
      By pressing firmly on the wound, the blood vessels beneath the skin are flattened and the blood flow is reduced. This gives time for blood clots to start forming, sealing off damaged blood vessels.
3. Apply pressure for five to ten minutes.
4. Raise the injured area to reduce blood flow.

Once bleeding has been controlled, commence an orderly assessment of the casualty, checking for injuries, burns or fractures as you investigate the casualty's body. Look for anything out of the ordinary, such as tenderness, swelling, blood and deformity. Examine each area in the following order.

1. Head and neck
2. Shoulders and chest
3. Abdomen and hips
4. Arms, elbows, shoulders, wrists and hands
5. Legs, hips, knees, ankles and feet
6. Back

Once you have completed your plan of action, wait for medical help to arrive and take responsibility. You should remain at the scene so that you can provide any information relevant to the accident.

6.4.7 Asthma

Asthma causes breathing difficulty because of sudden or progressive narrowing of the airways caused by spasms in the muscles of the bronchial walls (tubes in the lungs responsible for transporting oxygen), swelling and inflammation of the lining of the airways, and excessive production of mucus.

Major factors that can bring on asthma attacks are exposure to house dust, pollens, animal fur and moulds, respiratory infections and exercise. Additional causes of asthma are cold air, anxiety or emotional stress, and cigarette smoke.

Many children experience attacks during exercise; however, increased physical fitness can reduce the chance of having an attack, as a high level of physical fitness can strengthen the breathing muscles and this, in turn, can improve breathing. Such a balance can be difficult to manage — the sufferer needs to improve their level of fitness through exercise, but exercise may bring on an attack. Fortunately, with an asthma management plan, people with asthma can readily participate in sporting activities; in fact, many elite athletes have asthma.

DID YOU KNOW?

The prevalence of asthma in Australia is high by international standards. About 10 per cent of the population currently has asthma. In 2014, there were 419 deaths due to asthma, an average of more than one person dying due to asthma every day.

Premedication with an inhaled ‘reliever’ medication a few minutes before exercise can prevent exercise-induced symptoms. ‘Reliever’ medications such as Bricanyl, Respolin, Ventolin and Asmol are called bronchodilators. They relieve symptoms, but usually for only a short time. The main medication for keeping asthma as steady as possible is the inhaled ‘preventer’. Preventer medications, such as Becotide, Pulmicort or Intal, will work only if you use them regularly and should not be used to treat an asthma attack.

Warm-up exercises are helpful to reduce bronchial constriction that occurs during exercise. The best types of fitness activities are swimming, walking and cycling.

If you suffer from exercise-induced asthma, you can work out a suitable asthma management plan with your doctor and enjoy the benefits of regular exercise. With your doctor, you need to work out a plan that enables you to recognise when your asthma is getting worse, know how to treat it quickly, and know how and where to get the right medical assistance. Follow the **Asthma management** and **Asthma care for schools** weblinks in your Resources section for more information.

Management of an asthma attack

1. Sit the patient down and remain calm to reassure him or her. Do not leave the patient alone.
2. Without delay, shake the blue reliever puffer (names include Ventolin, Airomir, Asmol or Epaq) and give four separate puffs through a spacer (spacer technique — one puff, then take four breaths from spacer, repeat until four puffs have been given).
3. Wait four minutes. If there is no improvement, give another four separate puffs, as per step 2.
4. Wait four minutes. If there is no improvement, call an ambulance (dial 000) immediately and state that ‘a patient is having an asthma attack’.
5. Continuously repeat steps 2 and 3 while waiting for the ambulance to arrive. If at any time the patient's condition suddenly worsens, call the ambulance again.
6. If breathing stops, commence CPR immediately, as described in section 6.2.

on Resources

Explore more with these weblinks: Asthma management
Explore more with these weblinks: Asthma care for schools

6.4.8 Anaphylaxis

Anaphylaxis is the most severe form of allergic reaction and often involves more than one body system (for example, respiratory, gastrointestinal, cardiovascular). A severe allergic reaction can occur within 20 minutes of exposure to the trigger and can rapidly become life-threatening. It must be treated as a medical emergency, requiring immediate treatment and urgent medical attention.

Up to 2 per cent of the general population and up to 5 per cent of children are at risk. The most common causes of anaphylaxis in young children are eggs, peanuts, tree nuts, cows' milk, bee or other insect stings, and some medications.

Signs and symptoms

The signs and symptoms of anaphylaxis may occur almost immediately after exposure or within the first 20 minutes after exposure. Rapid onset and development of potentially life-threatening symptoms are characteristic markers of anaphylaxis.

Allergic symptoms may initially appear mild or moderate but can progress rapidly. The most dangerous allergic reactions involve the respiratory system (breathing) and cardiovascular system (heart and blood pressure).

Symptoms of mild to moderate allergic reactions include:

- tingling of the mouth
- swelling of the face, lips, eyes
- hives, welts or body redness
- vomiting or abdominal pain.

Symptoms of severe allergic reaction, or anaphylaxis, include:

- difficulty and/or noisy breathing
- swelling or tightness in the throat
- wheeze or persistent cough
- paleness and floppiness in young children

- swelling of the tongue
- difficulty talking or hoarse voice
- loss of consciousness and/or collapse.

Management

Anaphylaxis is a preventable and treatable event. Knowing the triggers is the first step in prevention. You need to be educated on how to avoid food allergens and/or other triggers.

However, because accidental exposure can happen, you need to be able to recognise symptoms and be prepared to administer adrenaline according to the individual's anaphylaxis action plan.

In Australia, anaphylaxis is treated by delivering adrenaline via an EpiPen. An EpiPen is an intramuscular injection of adrenaline for the emergency treatment of anaphylactic reactions.

Epinephrine injectors can be life-saving in the event of anaphylaxis.



Research shows that fatalities more often occur away from home and are associated with either not using or a delay in the use of adrenaline. Use the **Epipen action plan** and **Food allergies** weblinks in your Resources section to find out more.

ACTIVITIES

1 Witness

In small groups, discuss dangers or accidents you have witnessed as a bystander. Outline:

1. the nature of the danger
2. how the situation was addressed
3. how bystanders helped or hindered the elimination of the danger.

2 True or false

Answer ‘true’ or ‘false’ to the following statements. Research any statements about which you are unsure. Rewrite those statements that you found to be false so that they are true.

1. The human body, without oxygen, will start to die after two minutes.
2. Adults have about 6 litres of blood in their body, children about 5 litres and infants about 750 mL.
3. We lose one-third of our body heat through our heads.
4. A person suffering from hypothermia should be placed near a fire.
5. A person who is immersed in cold water should start swimming because this will decrease heat loss.

3 Adventure story

You are part of an expedition that has set out to conquer a steep mountain. Your party has run into problems due to adverse weather conditions. Write a short story explaining how you saved a member of your party who developed hypothermia. Include how you assessed the situation, what action you took to treat the condition and how you could avoid this situation happening again.

4 How would you deal?

Look at each of the illustrations below. Write a short report on each injury and how you would deal with the casualty.

How would you treat the casualty?





CHECK & CHALLENGE

Explain

1. List the five steps recommended to protect against sun damage when the UV index is 3 or above.
2. Describe four preventative measures an athlete should take to avoid dehydration.
3. Summarise the six key steps for managing an asthma attack.

Elaborate

4. Which parts of the body are most susceptible to frostbite? Why?

Evaluate

5. If anaphylaxis is a preventable and treatable condition, why does it still cause fatalities? What could be done to reduce the number of these?

on Resources

Explore more with these weblinks: Epipen action plan
Explore more with these weblinks: Food allergies

6.5 Water safety

6.5.1 Watching out for dangers

Aquatic recreation is one of the fastest growing forms of recreation. Unfortunately, water activities carry a serious risk of drowning. Being aware of all possible dangers and obeying safety rules when playing in or by the water could help to prevent the high number of deaths by drowning that occur in Australia every year.

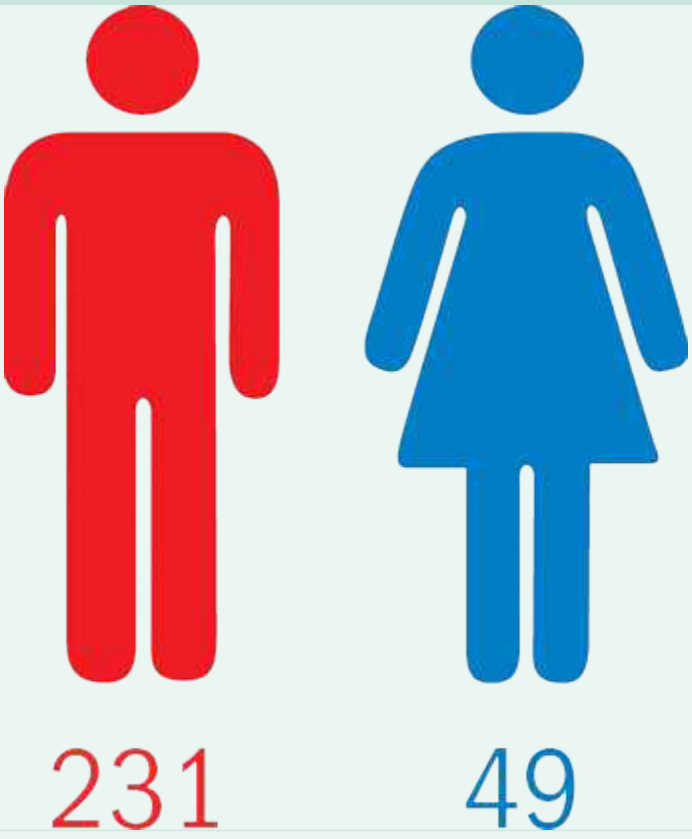
ENGAGE

Many Australians love and participate in aquatic activities, whether they are recreational, training or therapeutic. Although there are immense benefits from participating in aquatic activity, the number of drowning incidents must constantly be addressed.

From July 2015 to June 2016, 280 people drowned in Australian waterways. The 2016 National Drowning Report revealed males are typically at greater risk, being more than four times more likely to drown than females. People aged 25–34 represented the greatest proportion of drowning incidents. Of the 280 people to drown in Australia, 83 per cent were males and 17 per cent were females.

Alcohol is a major contributing factor, contributing to one-third of male drowning deaths each year. What other factors do you think could contribute to the high incidence of drownings in males aged 25–34, and the Australian population as a whole?

In Australian waterways, 280 people drowned between July 2015 and June 2016.



Water sports are very popular in Australia.



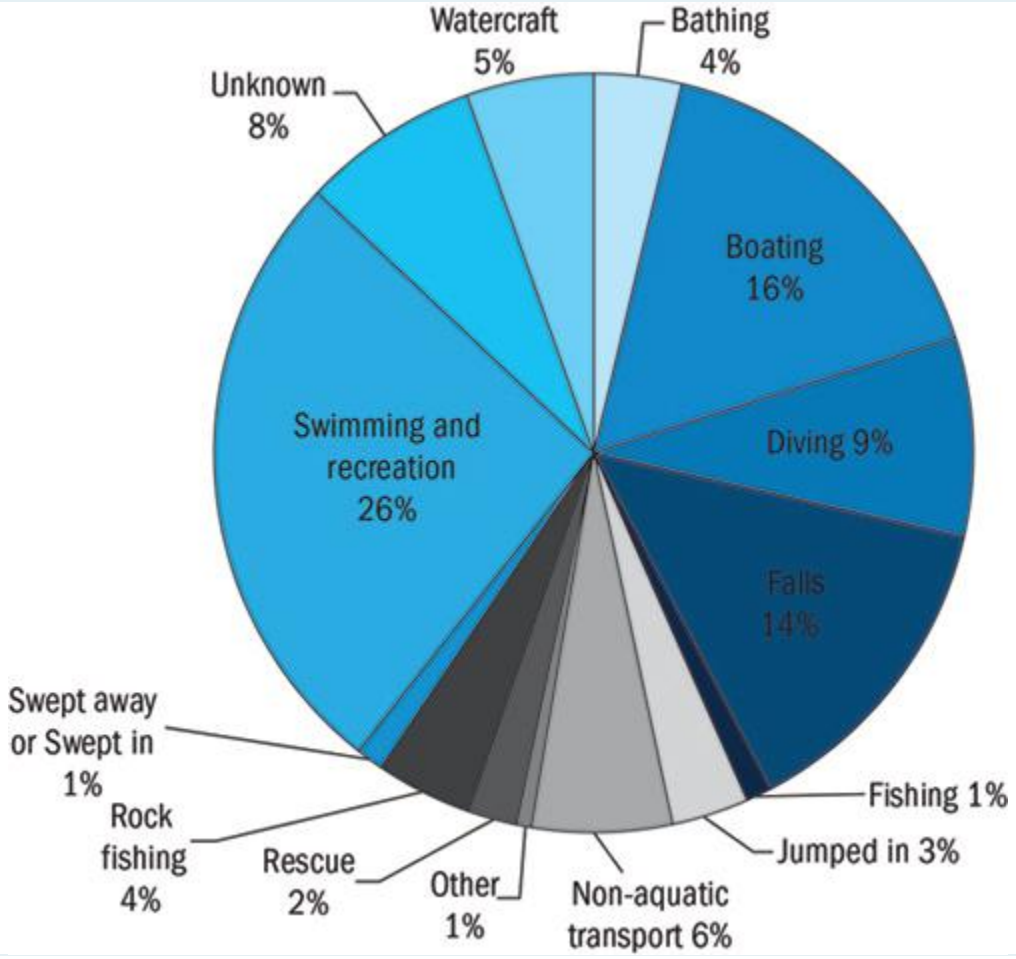
6.5.2 Cost of drowning

Accidental **drowning** and non-fatal drowning incidents place a tremendous burden on Australian society. In human terms, this translates to a loss of life, lost quality of life, pain and suffering. There are also the direct financial costs to society associated with treatment and ongoing care, along with lost productivity due to death or incapacity. For every drowning death, another three people are hospitalised due to drowning.

Life Saving Victoria has warned that near-drownings, which often result in brain damage, remain high, with an average of 89 incidents in the state each year. Recent findings highlight the continued need to ensure the promotion of water safety is a year-round concern and parents are aware of all potential dangers surrounding children and the water.

Swimming, and recreation pursits, watercraft and falls are all activity types that have typically represented the greatest proportion of drowning deaths. As the following figure shows, many people who drown do not intend to enter the water.

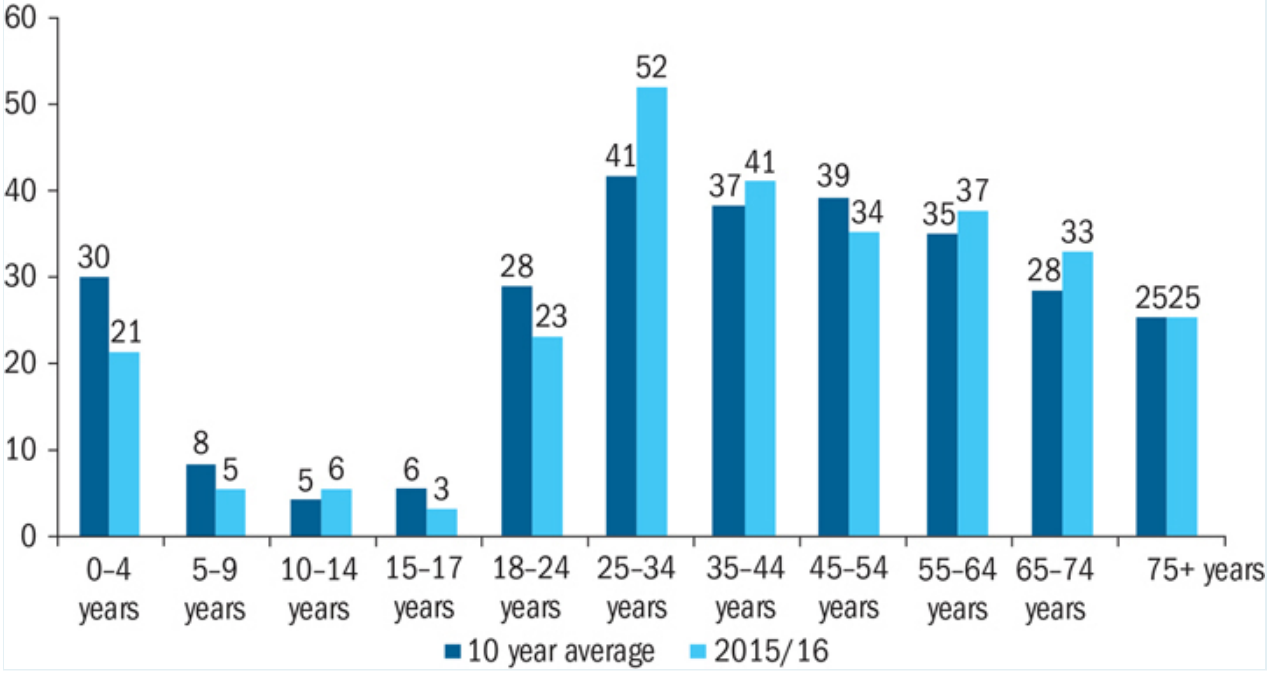
Australian drowning deaths by activity immediately prior to drowning 2015–16



DID YOU KNOW?

There has been a 48 per cent decrease in the drowning rate in Victoria since the start of the Play it Safe by the Water campaign in 1998.

Drowning deaths by age in Australia, 2015–16



DID YOU KNOW?

Many drownings could have been prevented if people had known how to manage emergencies in the water. We must be aware of all possible dangers and safety rules to minimise and eliminate dangerous situations.

6.5.3 Dangers in the waterways

Rivers

- Currents can be faster than they seem.
- Submerged obstacles (for example, tree branches, rocks, discarded rubbish) are dangerous when diving and swimming.
- Crumbling banks can cause a person to accidentally fall into the water.
- Uneven and unsafe river beds can cause difficulty for those wading and swimming.
- A strong current can sweep unprepared people into dangerous situations.

DID YOU KNOW?

In 2014–15, the majority of drowning deaths in Australia occurred in inland waterways.

Lakes

- Where a river enters a lake, there can be unexpectedly strong currents.
- Cold water can cause distress and shock if a person accidentally enters a lake.
- As with rivers, submerged obstacles are dangerous when diving and swimming.

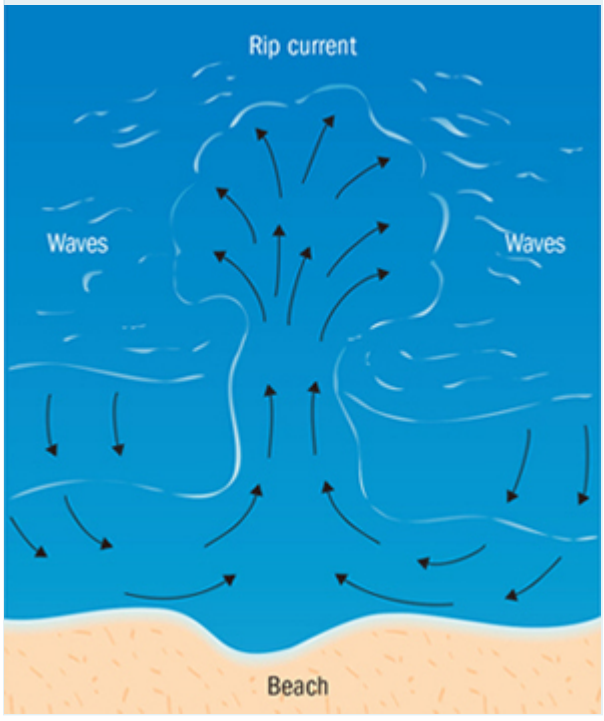
Sea

- Waves can cause difficulty for weak swimmers and non-swimmers.
- Inshore holes can cause unsuspecting bathers to fall or go out of their depth.
- Rips are fast-flowing currents that move out to sea (see the figure below). They can be identified by discoloured water, foam on the surface extending beyond the breaking waves, a ripple appearance when the water around is generally calm, and larger waves breaking on either side or further out. Rips can carry a swimmer far out to sea quickly.

If you are caught in a rip when at a beach patrolled by lifesavers, obey the three Rs:

- *Relax*. Stay calm and float with the current; swim across it, not against it.
- *Raise.* Raise one arm above your head to signal for help.
- *Rescue.* Float and wait for assistance.

A rip current



Raising your hand while swimming indicates you require rescuing.



Resources

Explore more with these weblinks: Rip avoidance

6.5.4 Water safety rules

The Royal Life Saving Society — Australia has developed some commonsense rules for water users. If these rules are followed, the chance of dangerous situations occurring is greatly reduced.

Rivers and lakes

- Be careful not to stand on an overhanging bank.
- Before entering the water, check for the strength of the current.
- Check the depth of the water. Are there any snags, rocks, sandbanks or weeds?
- Enter cold water slowly.
- Beware of boats using the waterway.
- Do not try to stand up in quicksand or deep mud.
- If caught in weeds, avoid sudden movement. Swim very gently with a long, slow breaststroke or sidestroke, with minimum leg movement.

At the beach

- Read and obey notices giving advice to beachgoers.
- Swim only between the red and yellow flags. This part of the beach is safer to swim at and is patrolled by lifeguards. Download the Beachsafe App, available from the Appstore. This app contains information on over 12 000 Australian beach conditions.
- Never swim alone.
- Swimmers using surf beaches should have a sound knowledge of waves, currents and rips.
- Keep watch on a reference point on the beach to avoid drifting too far away from the safe swimming area.
- Swim across the current to safety, as swimming directly against a current can be exhausting.
- If unable to escape from a rip, float and signal for help by raising one arm above your head.
- When swimming long distances, swim parallel to, not away from, the shore.
- Do not swim after dark. No-one can see you if you get into trouble.
- If cramping occurs, adopt a floating position and signal for help. Stretch the cramped muscle.
- When using a surfboard, always use a leg rope, obey signage and be careful of other people in the water.

Know your safety rules and swimming abilities.



Public pools

- Read and obey notices to swimmers.

- Obey pool attendants.
- Check depth markings on the side of the pool.
- Stay clear of deep water unless you are a strong swimmer.
- Do not push others into the water.
- Do not dunk others under the water.
- Do not jump into an area where people are swimming.
- Do not hyperventilate prior to submerging then try to swim as many laps under water as you can. Healthy adults or adolescents who hyperventilate before initiating prolonged underwater swimming activities can risk shallow water blackout. For further information, follow the **Shallow water blackout** weblink in your Resources section.

Fishing

- Always wear suitable clothing and footwear.
- Always fish in the company of other people.
- Avoid standing on sloping, slippery rocks.
- Check for changes in the weather and tides.
- Never turn away from the sea. If a large wave is evident, move safely away.
- If boat fishing, do not overload the boat with people or fishing gear.
- Do not stand in the boat when landing a fish.
- Always wear a life jacket.

Boating

- Never go out in a boat alone.
- Do not overload the boat.
- Check weather conditions before you leave.
- Always leave word of where you are going and when you expect to be back.
- Everyone should wear a life jacket. Wearing a life jacket may have potentially prevented 50 per cent of drowing deaths among recreational boaters.
- When entering or leaving a small boat, keep your weight low and centred.
- Look out for warning signs of bad weather, such as clouds building up, wind rising quickly or waves becoming bigger.
- If bad weather threatens, immediately make for shore.

on Resources

- **Explore more with these weblinks:** Royal Life Saving
- **Explore more with these weblinks:** Pool safety
- **Explore more with these weblinks:** Shallow water blackout

6.5.5 Rescue techniques

Many drownings occur at inland places such as rivers, dams and home swimming pools — places that usually do not have lifeguards patrolling them. Therefore, it is up to bystanders to render assistance to people who are in trouble. We must be aware of basic rescue principles to effectively deal with water emergencies. Use the following steps in an emergency situation.

1. Recognise an emergency situation.
2. Accept responsibility.
3. Assess the situation.
4. Implement a plan of action.
5. Provide emergency care.

DID YOU KNOW?

In 2012−13, 20 per cent of drowning deaths occurred as a result of watercraft accidents. Eighty-eight per cent of the drowning victims were male.

Recognise an emergency situation

This means that a person must recognise that there is something suspicious or dangerous occurring, for example, an overturned boat, a surfboard drifting away, a swimmer not making any headway swimming back to shore or a person splashing violently in the water. Without recognition, a water rescue cannot be enabled.

Accept responsibility

A bystander must take the responsibility of helping the person in danger. At a crowded emergency scene, individuals may assume that someone else will save the person in trouble. This is usually because people are unsure of what to do. Efficient communication is required between bystanders to find out whether the person in danger is being helped.

Assess the situation

The rescuer must correctly assess the situation and decide on appropriate action. Factors to consider are:

- the number of people involved
- the condition of the drowning person (for example, weak swimmer, non-swimmer or injured swimmer)
- available help (for example, rescue aids or other people)
- distance from safety
- strength of wind and currents
- depth of water
- possible entry points.

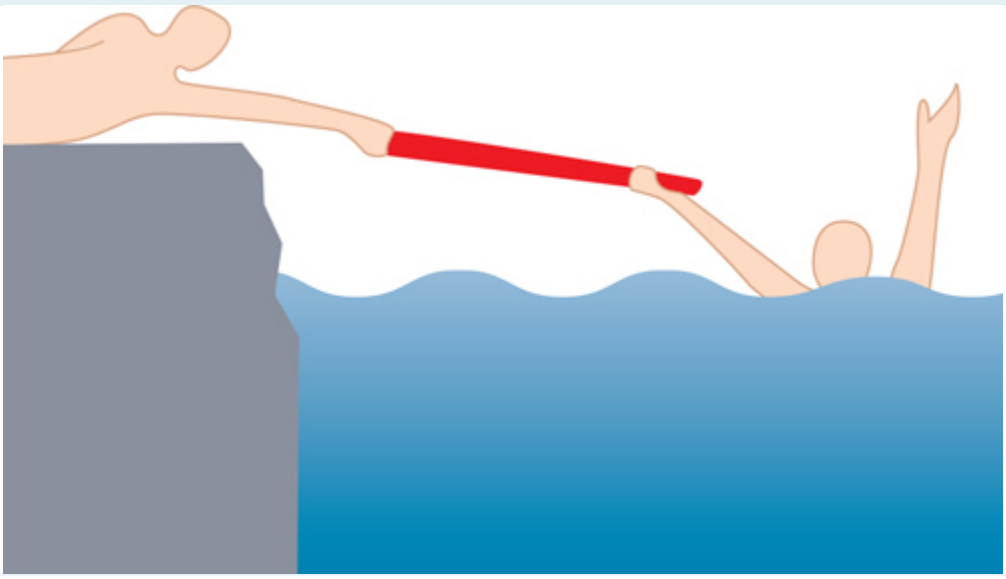
Implement a plan of action

The golden rule of lifesaving is self-preservation. The plan of action should first ensure that the rescuer is safe at all times. If the rescuer experiences difficulty, there are now two potential deaths, not one. A rescue that is performed without getting wet is the safest. The following sequence outlines the order in which rescue methods should be considered.

Reach

This method involves the rescuer lying down and reaching for the victim, using a stick, towel, piece of clothing or similar object to increase their reach.

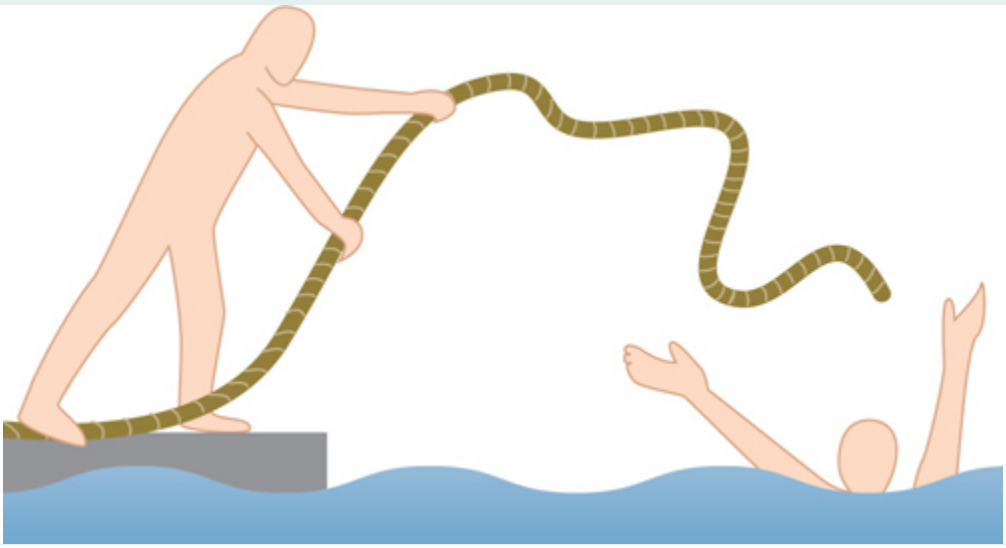
The reach method is the safest.



Throw

The rescuer stays on land and throws an object if the victim is too far away to reach. The object should ideally be used to pull the victim to safety (for example, a rope) or be able to be used as a flotation device (for example, a kickboard or plastic container).

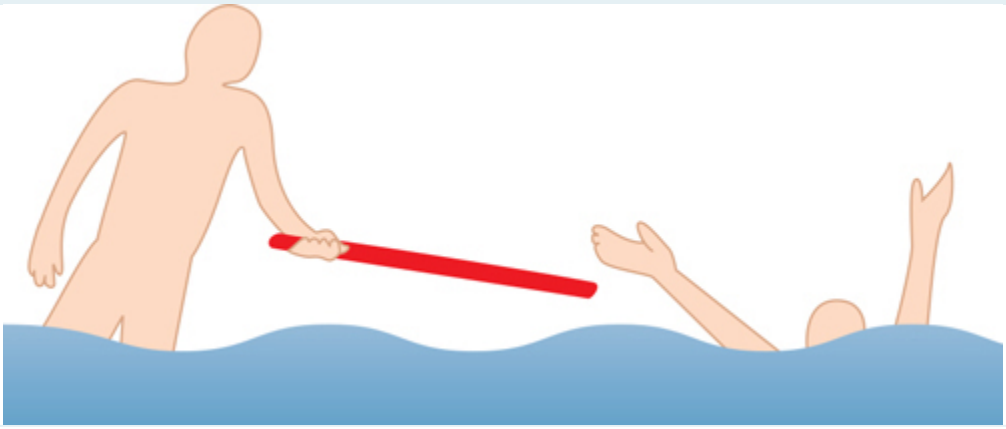
A throw rescue



Wade

If a person cannot be reached by reaching or throwing, the rescuer may enter the water. This technique brings the rescuer closer to the victim. When wading, the rescuer must be careful to test the depth of the water.

A wade rescue



Row

If the water is too deep to wade, a suitable rescue craft can be used to get closer to the victim (for example, a surfboard, canoe or boat).

A row rescue



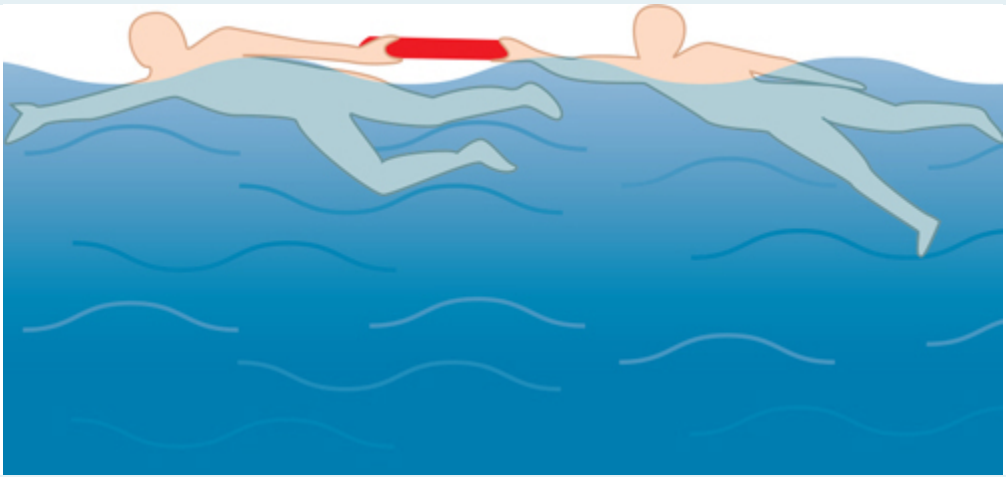
Swim

Swimming to the casualty is the second-least safe method of rescue.

Tow

If all the techniques previously described fail or are unsuitable, physically towing a victim is the last option. A rescuer is most vulnerable to danger using this technique. There are a number of safety tows that can be adopted to rescue victims. If you want to find out more about these tows and other rescue techniques, you may like to enrol in a Royal Life Saving Society certificate course. There is a wide range of certificates, ranging from beginners to advanced.

The tow rescue is the least safe.



Provide emergency care

Drowning is death caused by asphyxia (insufficient oxygen reaching the tissues of the body). Although the final cause of death is failure to get air into the lungs, there are other factors that can contribute to death (such as heart attack, stroke or hypothermia).

When a person drowns, a relatively small amount of water gets into the lungs. Generally, this amount of water is not enough to interfere with the normal transfer of oxygen. However, water in the lungs can cause irritation and result in fluid collecting in the alveoli. This further reduces the transfer of oxygen to the blood and may result in a condition called **secondary drowning**. This may occur up to 72 hours after the emergency. As a result, the victim must be kept under observation.

When there is a drowning emergency, the rescuer should:

- check for dangers, such as currents and rips
- effect the rescue as quickly as possible
- return the victim back to shore quickly
- follow the DRSABCD plan (refer to section 6.2).

6.5.6 Spinal injuries

Most spinal injuries or neck injuries are sustained due to diving accidents. Swimmers dive into shallow water and hit their head on the bottom.

The symptoms of spinal injury are:

- pain
- swelling
- lack of feeling in limbs below the injured area
- inability to move.

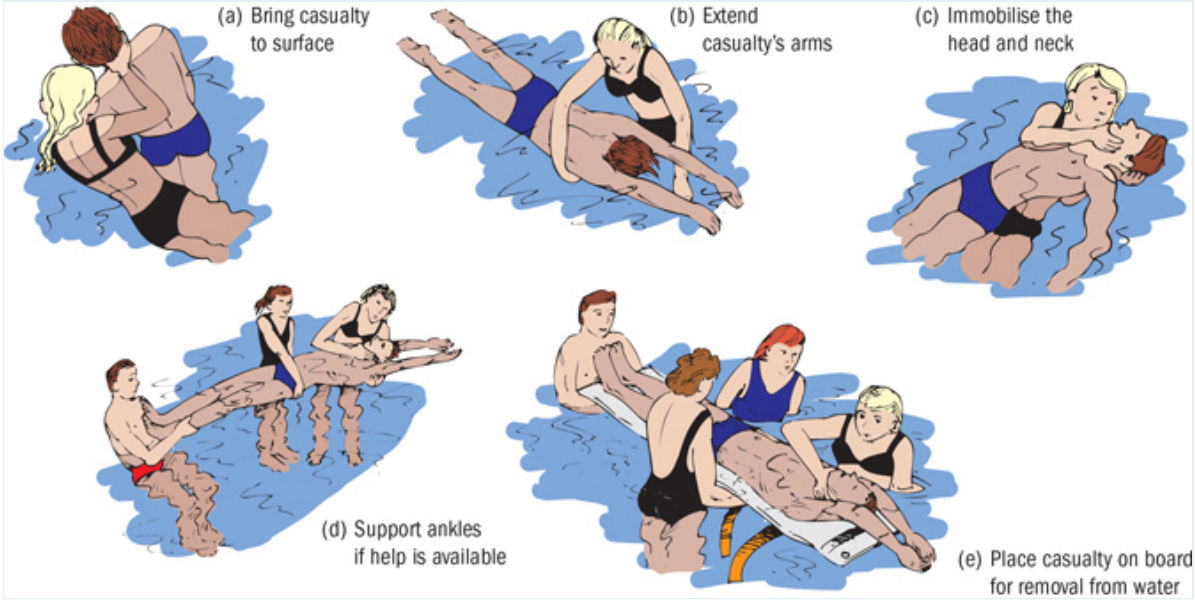
Before taking action and effecting the rescue, the following considerations must be taken into account:

- the person's size in relation to the rescuer
- whether the casualty is conscious or unconscious
- the availability of additional help.

Management

- Immobilise the casualty. This means placing them in a position that will prevent the spine from moving in any direction, and keeping them as still as possible. If face down, the casualty should be rolled over as soon as possible.

Rescue procedure for a spine-injury victim



- Clear and check airway. Follow the same process as for DRSABCD. Maintain breathing, and if breathing is absent, commence CPR.
- Recruit other people to assist.
- Stabilise the casualty. The assistants can help to keep the casualty steady and still until medical help arrives, or they can assist to remove the person from the water.
  Rescuer 1: keeps head and neck steady

  Rescuer 2: keeps hips steady and at water level

  Rescuer 3: keeps legs and ankles steady

  If a stretcher or board is available, the casualty may be placed on it.
- Removal from the water should be attempted only if the casualty cannot be kept comfortable in the water until medical help arrives. When removal is necessary, it should be attempted only if the casualty is on a board. If care is not exercised, the injury could be made much worse than it already is.

6.5.7 Other conditions

Sudden entry into cold water

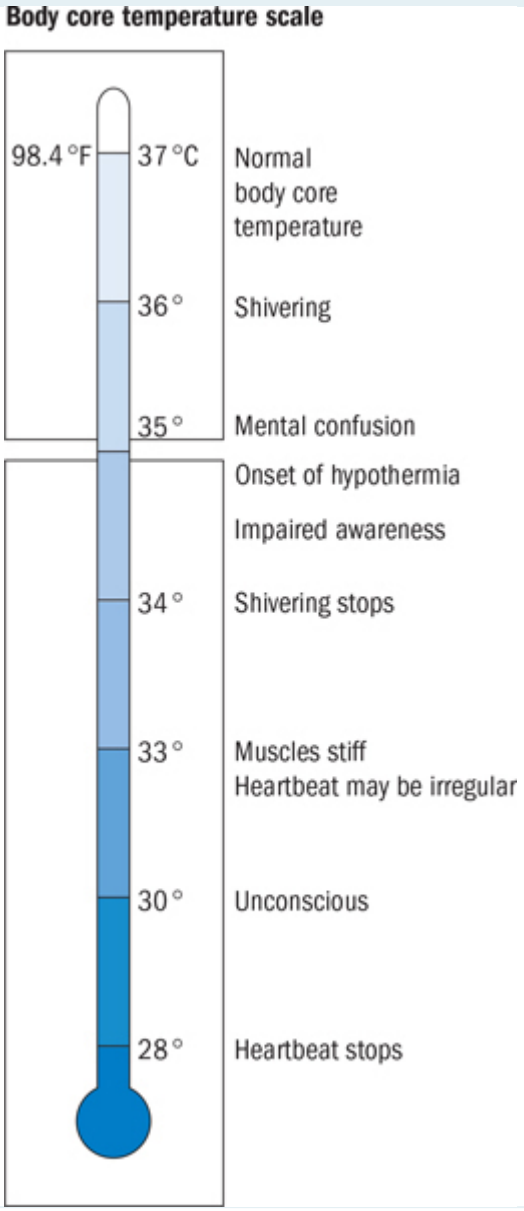
The human body has a normal temperature of 37 degrees Celsius. If we enter cold water (around 15 degrees or cooler), our breathing rate increases. This increased rate is greater than the body needs. As a result, the levels of carbon dioxide in the blood drop, leading to dizziness or even unconsciousness. In older people, this can result in heart attack or stroke.

TABLE 6.1: The survival times for immersion in cold water

Degrees	Time
0 °C	15–30 minutes
5 °C	30 minutes
10 °C	1.5 hours
15 °C	2 hours
20 °C	5.5 hours

Children and thin adults lose body heat more rapidly. If a person is immersed in cold water for a prolonged period of time, hypothermia will develop (see section 6.3). For more information, use the **Chilling truth** weblink in your Resources section.

Effects of cold water immersion on the human body



Survival techniques in cold water

The key to surviving in cold water is to conserve heat and energy. To do this, the person must:

- retain clothing
- keep the head and as much of the body as possible out of the water

- adopt **HELP (heat escape lessening posture)** to minimise heat loss, shown in the figure below. This position delays heat loss by protecting areas which lose heat most quickly — the head, sides of the chest and groin.

The HELP posture



- adopt a **huddle position** if in a group (shown in the figure below). This minimises heat loss by the group pressing the sides of their chests, groins and lower body areas together.

The huddle position



- float on their back if there is no **flotation device**. Movement increases body heat loss, so therefore minimise movement as far as possible.

- swim only if close to shore or upturned boat, as swimming ability will be affected adversely due to cold. The casualty should swim at only one-tenth of their normal swimming ability. The figure below shows survival times in cold water, adopting various strategies. Swimming does not come high on the list.

Relative survival times in cold water (10 °C) adopting various strategies



DID YOU KNOW?

Cold water carries heat away from the body 25 times faster than air of the same temperature.

Don't be afraid to be involved in water activities; just be aware of the safety issues.



ACTIVITIES

1 Water safety

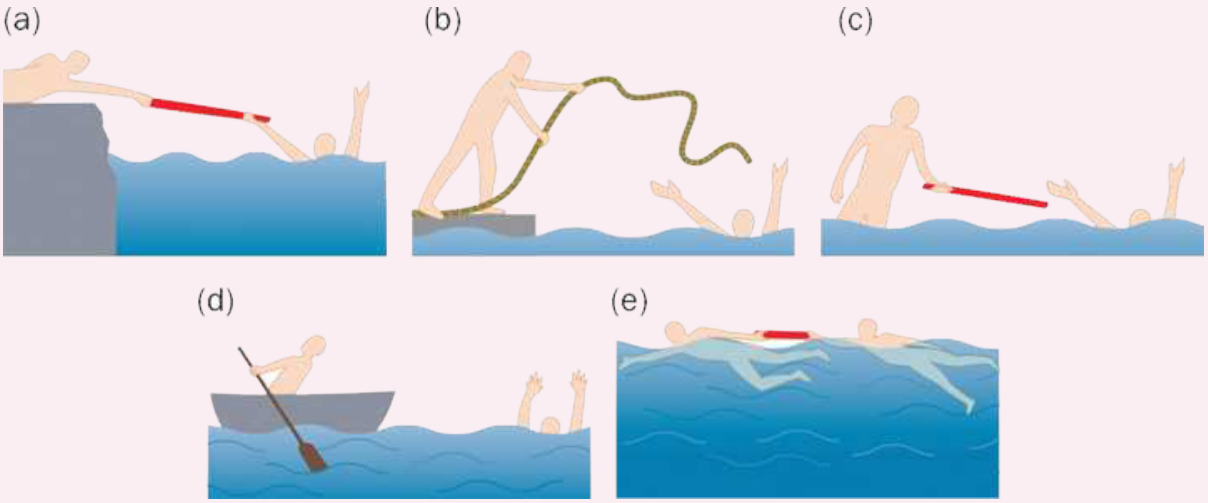
Complete the following table of potential water hazards using the information found in this lesson.

Potential hazards	How they can be dangerous to swimmers	Safety points to avoid danger
River		
Lake		
Beach		

2 Rescue techniques

Describe the water rescue technique illustrated in each of the diagrams below, including:

1. the degree of safety for the rescuer
2. the equipment needed for each rescue
3. the type of waterways where the technique would be most likely to be used.



3 How would you react?

Four teenagers are swimming in a river near the bank, throwing a soccer ball to each other. The river is about 20 metres wide and there is a slow current running down it. One of the teenage boys makes a bet that he can swim across the river and back. He sets off and reaches the other side, but fails to see weeds near the bank. He is suddenly caught in the weeds and starts shouting for help.

Imagine you are one of the teenagers on the other side of the river. Using the following rescue principles, explain how you would save the victim.

1. Acceptance of responsibility
2. Assessment of the situation
3. Number of people in difficulty
4. Plan of action
5. Available assistance
6. Selection of rescue aids
7. Action (the rescue)
8. Emergency care

4 Investigate

Use the weblinks in your Resources section and other sources to investigate one of the following programs or groups. Evaluate the range of programs and strategies it provides to encourage people to participate safely in physical activities.

5 Match up

Match the terms below with the relevant definitions.

1. Ventilation
2. Immobilise
3. Dehydration
4. Coma
5. Hypothermia
6. Huddle position
7. CPR

a. Excessive loss of salt and water from the body
b. To prevent from moving
c. A severe accidental cooling of the body
d. The mechanics of breathing
e. A method of providing artificial blood circulation to a person who is unconscious, shows no signs of life and is not breathing normally
f. A condition in which the brain fails to respond to the message sent to it
g. A position in the water where a group of people press close together to minimise heat loss

6 Spinal safety

Use the **Spinal safety** weblink in your Resources section to read an article by a person with a spinal injury, and then answer the following questions.

1. How would you raise awareness about this problem?
2. Were you surprised to read that the victim had only jumped in?
3. What strategies could be used to reduce the likelihood of this type of accident occurring?
4. What types of things should you be looking for before diving or jumping into a river or dam, or off a pier?

CHECK & CHALLENGE

Explain

1. What are the three steps you should follow if you find yourself caught in a rip at a patrolled beach?
2. Give details of three dangers present in each of the following areas: rivers and lakes; beaches; and swimming pools.
3. Explain what the huddle position is, when you would use it and how it helps reduce heat loss.

Evaluate

4. Males aged 25–34 and adults aged 55+ represented a large proportion of drownings in 2015–16.
    a. What factors do you think contribute to the high incidence of drownings in these two age categories?
    b. What do you think families, local communities and governments can do to reduce this statistic?
    c. Investigate the **Grey Medallion** weblink. What does this government strategy hope to achieve?

on Resources

- **Explore more with these weblinks:** Chilling truth
- **Explore more with these weblinks:** AUSTSWIM
- **Explore more with these weblinks:** Life Saving Victoria
- **Explore more with these weblinks:** St John Ambulance Australia
- **Explore more with these weblinks:** Spinal safety
- **Explore more with these weblinks:** Grey Medallion

6.6 Sports injury management

6.6.1 Preventing and reducing injury

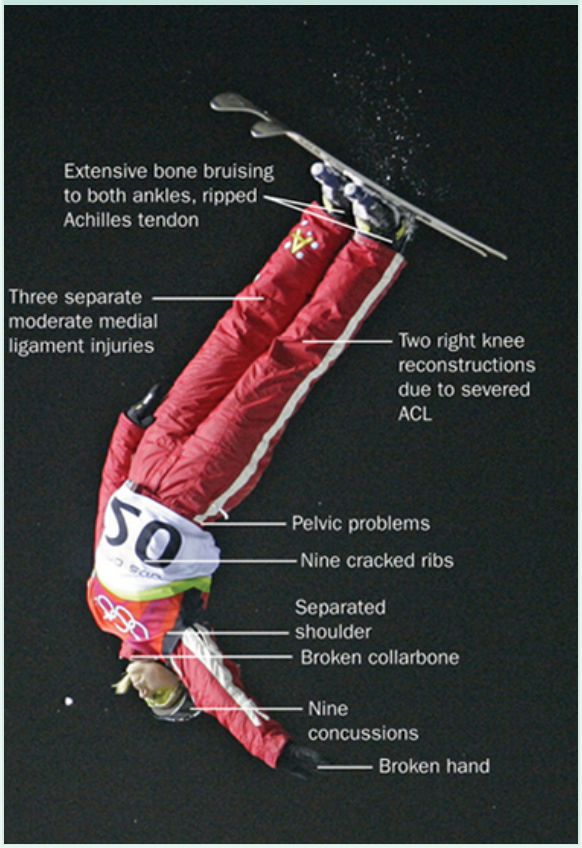
Australia has earned the reputation of being a sports-mad country. Many people are obsessed with playing and watching sport. With our vigorous, enthusiastic participation in sport comes the drawback of sustaining injuries. In this lesson we will explore ways of preventing or reducing the effects of injuries by developing a sound knowledge of safety rules and treatment techniques.

ENGAGE

A sporting injury can be defined as any condition which causes a player or athlete to miss a game or training, leave the field of play, or seek medical treatment or first aid. Independent research commissioned by Medibank Private has found sports injuries cost Australians $2 billion in 2005. The most recent Medibank Private Sports Injuries Report (2006) found that, on average, 5.2 million sports injuries occur every year. Minimising injuries by concentrating on safety is therefore vital. Prevention is the key to reducing the incidence of sports injury.

Sports Medicine Australia is a national umbrella body for the prevention of lifestyle diseases through sports medicine and sports science and injury prevention. Use the **Sports Medicine Australia** weblink in your Resources section to find out more about preventing injury. As a group, choose an acute injury and read through the fact sheet. Discuss and summarise the important information, record any interesting aspects of the injury, and present your group's findings to the class.

The injuries sustained by Alisa Camplin, former world aerials champion.



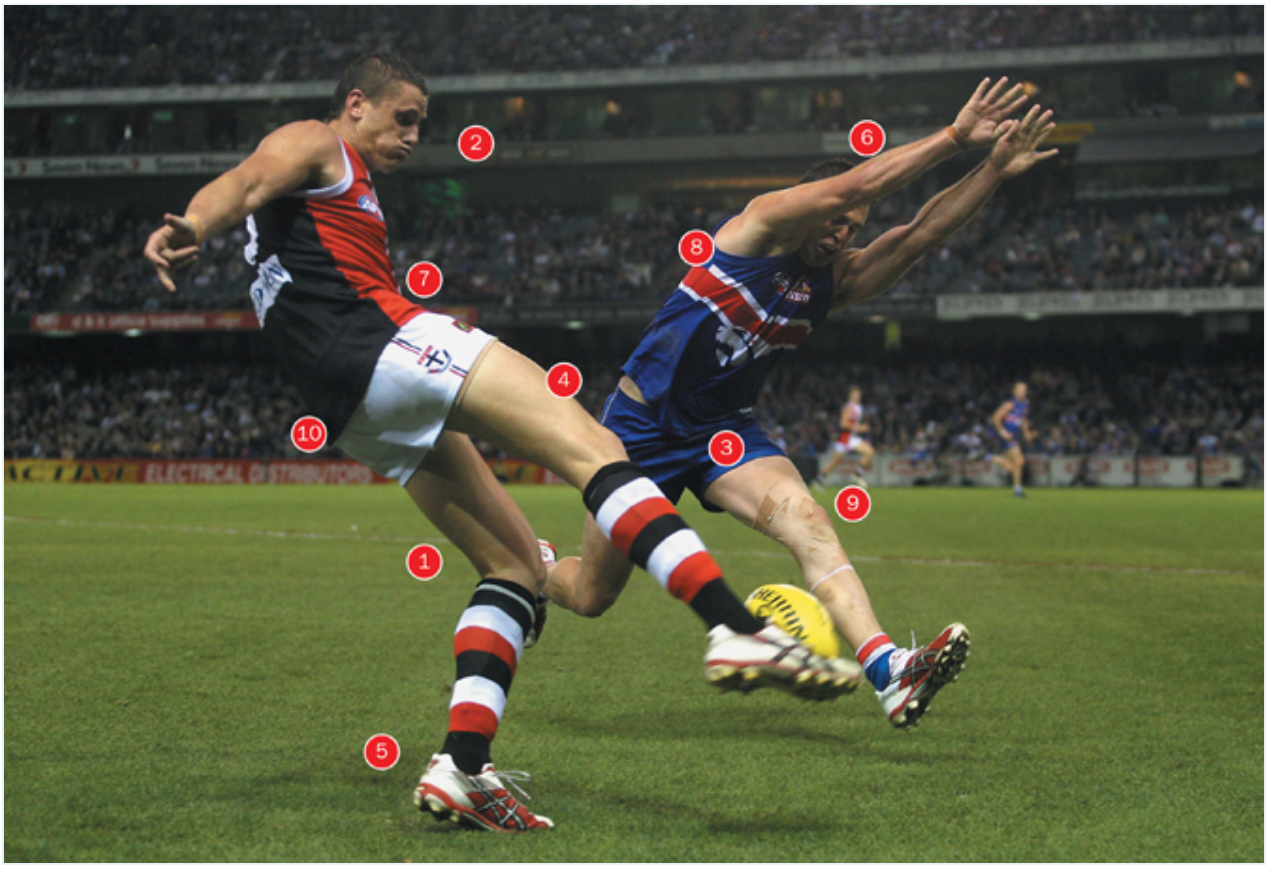
on Resources

Explore more with these weblinks: Sports Medicine Australia

6.6.2 Types of sports injuries and treatment

Acute sporting injuries

An athlete can expect to suffer from a number of different sports injuries during his or her career. The severity of each injury will vary greatly in terms of injury damage, recovery and rehabilitation. Some sports lend themselves to specific types of injuries. The following figure shows the most common sports injuries sustained in Australian Rules football.



The top 10 most frequent injuries in AFL football, how they are treated and the length of time the player may be away from the game:

1. *Hamstring tear.* Ice treatment and rest are followed by stretching one exercises. Week to 6 months off.
2. *Facial lacerations*. A bad cut may need to be stitched. Players aren't allowed on the field if they are bleeding. Most players will be back by the next game.
3. *Groin injury*. Muscles in the groin are usually strained by stretching the legs too far. Depending on the severity of the injury, the player may have from one week to six months away from play.
4. *Thigh haematoma*. Mild to severe internal bruising. Ice treatment and stretching exercises are used to treat this injury. The player will probably be back by the next game.
5. *Sprained ankle*. Depending on the severity of the sprain, treatment ranges from strapping the ankle to reconstructive surgery. This may mean 2–12 weeks away from the game.
6. *Concussion*. Players with **concussion** are taken from the field and tested for confusion and amnesia. Players are not allowed to return to play in the same game or practice session that day. Players may miss one or two games; however, serious head injuries are rare.
7. *Rib fracturing/bruising*. The chest may be strapped and the player must rest. Fractures take 2–4 weeks to heal.
8. *Shoulder injuries*. Treatment ranges from strapping and rest to reconstructive surgery, depending on the type and severity of the injury (such as a strain or a dislocated shoulder). The player may be away for 2–16 weeks.
9. *Torn knee ligaments*. This is a severe injury which requires surgery and physiotherapy. The player may be absent for 6 weeks to more than one season.
10. *Lower back strain*. This includes injuries to discs which may require surgery. The player will be away for 1–6 weeks.

DID YOU KNOW?

The frequency of hospital treated sports injuries is growing at a rate of 6 per cent per year.

Acute sports injuries mostly occur spontaneously and are usually very painful. The injury may occur due to an action within an event, a type of contact as part of a game, or an exercise within an intense training session. All areas of the body are at risk of suffering an acute sporting injury. If not treated correctly, such injuries may deteriorate to a form of overuse or chronic injury. For more information, see the **Acute sports injuries** and **AFL injuries** weblinks in your Resources section.

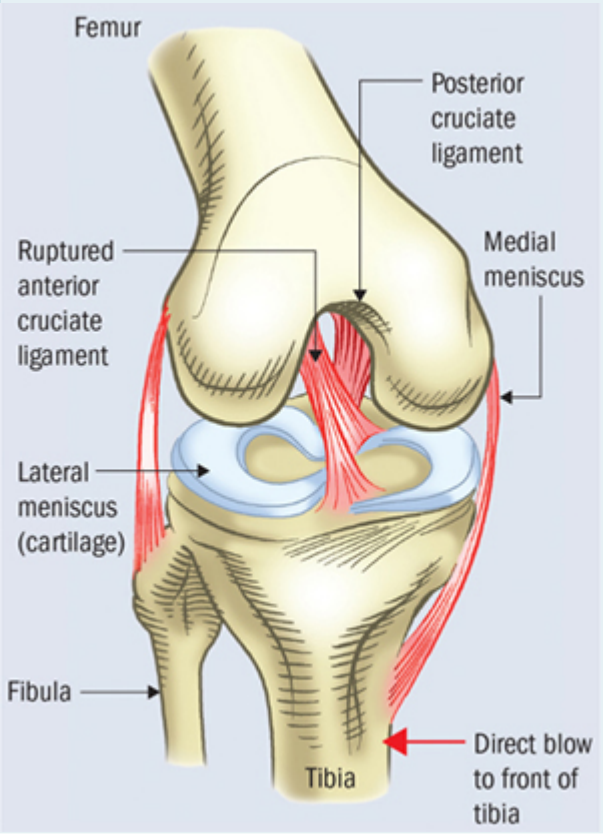
DID YOU KNOW?

Over the past 21 years the number one injury in AFL remains the hamstring strain. The most severe AFL injury is the anterior cruciate ligament tear in the knee.

Knee injuries

Of the major sports injuries in Australia, knee injuries rank the highest in terms of cost to the community — in both direct medical costs and indirect costs due to time off work.

ACL injury



Heat illness injuries

Training and competing in hot conditions can lead to illnesses such as heat exhaustion, heatstroke and dehydration, discussed in section 6.3.

By developing an extreme heat policy, heat illness can be prevented and assistance can be given to officials, coaches and participants to recognise and manage potentially dangerous heat situations.

Overuse or chronic injuries

When managing sports injuries, sometimes a difficult task for the coach is to convince the athlete to rest, to modify workloads and/or take time away from a sport. These steps may be the only way to prevent overuse or **chronic sports injuries** from occurring. The majority of sports and overuse injuries begin as minor trauma involving soft-tissue injuries — injuries that affect muscles, ligaments or tendons.

If high workloads and low levels of rest are programmed, the athlete can develop an overuse injury. This is particularly relevant to younger athletes who are going through puberty and growth spurts.

DID YOU KNOW?

If we are hit in the diaphragm, the diaphragm muscle goes into spasm and we cannot breathe. This is a frightening experience and is called ‘being winded’. Treatment is for the victim to calm down and wait for the muscle spasm to subside.

Resources

Explore more with these weblinks: Acute sports injuries
Explore more with these weblinks: AFL injuries

6.6.3 The body's response to injury

In a contact injury (direct injury), such as a corked thigh, the tissue that has been damaged will usually bleed. With a corked thigh, there will be pain and bleeding under the skin in the soft tissue of the thigh muscle. A lump may appear where contact has been made. Often, the bruise does not appear until the next day or even later. The bruise is the bleeding trapped inside the skin. The aim of first aid is to:

- stop the bleeding
- reduce the bruising and restore normal movement to the thigh.

If a ligament suffers more than normal stress (for example, if a running person steps into a pothole), it will usually **sprain** or tear. This will cause bleeding, swelling and pain under the surface of the skin.

Injuries resulting from overuse can also occur. Although there is no loss of blood under the surface of the skin, there is still swelling and irritation. There may be inflammation, heat, redness, stiffness and pain, as with tennis elbow or swimmer's shoulder.

6.6.4 Managing sports injuries

When managing sports injuries, it is important to have a basic checklist to follow. There are four questions that should be considered.

1. What is this injury? (Diagnosis)
2. What should I do for it? (Treatment)
3. How did it happen? (Cause)
4. How do I stop a recurrence? (Prevention)

When people approach an injured person, there is the possibility that they may make the injury worse. There must be an assessment made of the extent of the injury, whether the player can continue and whether he or she needs treatment.

A checklist known as **SALTAPS** can be used to assess most injuries. These letters represent the procedure to be followed when diagnosing a sports injury.

1. ***S****top* play immediately when an injury occurs. The player should be examined on the field or, if practical, removed from the field or court.
2. ***A****sk* the player what happened, as well as how, when and why.
   Questions may include:
   - How did it happen?
   - Were you hit or not?
   - From which direction were you hit?
   - Could you move afterwards?
   - Where does it hurt?
   - Did you play on?

3. ***L****ook* at the injury carefully before you touch it. Compare it to the other limb, looking for any change in:
   - colour
   - shape
   - size.

     A pale look may indicate damage to the artery; a blue colour may indicate obstruction to the veins; redness can indicate inflammation. If there is an obvious change in shape compared with the other limb, this usually indicates a fracture, **dislocation** or both. An increase in size will indicate bleeding under the surface of the skin.

4. ***T****ouch* the injured player to further assess the injury *only* when you have thoroughly looked at the injured area and its opposite limb. Begin by feeling the opposite side of the body, paying particular attention to bone shapes, contours and bumps. Next, feel the injured area for any differences in tissue thickness, lumps, bumps or fluid under the surface. If there is a difference in temperature, this may indicate infection.
5. ***A****ctive movement.* Ask the person if he or she can move the injured area. If not, do not try to move it yourself. Note the range and directions of movement, and any clicking, grating or creaking around the limb.
6. ***P****assive movement*. When you have established the degree and extent to which active movement is possible, gently move the part through its range of movements without using force.
7. ***S****tand up, play on.* Check to see whether the person can put weight on the injury. Can he or she walk or run? Is the person fit to play on?

It is important to note that the decision to play on should not be made by the player or the coach. The decision should be made by a qualified trainer. This is important, because a player can play on with a serious injury in the heat of the moment, when he or she is warmed up and is caught up in the excitement of the game. For example, former world boxing champion Jeff Fenech has boxed through title fights with broken hands; and former AFL Essendon champion, Paul Van Der Har, kicked a 60-metre goal with a broken bone in his leg.

However, to continue playing with an injury can be very serious. The result may be that a minor injury could become a major injury; for example, a slight calf **strain** could, if the player continues to play, develop into torn calf muscles.

6.6.5 Signs and symptoms of soft-tissue injuries

The signs and symptoms of a soft-tissue injury are:

- pain
- swelling
- loss of movement.

The aim of first aid is to limit the amount of blood loss and to decrease swelling and pain. The management plan to achieve this aim is **RICER** — rest, ice, compression, elevation, referral.

1. ***R****est.* Sit the person down, away from the action.

Applying ice treatment



2. ***I****ce* should be applied continuously for 20 minutes. This can be crushed ice placed in the middle of a damp towel, or an ice pack that is kept in a first aid kit or in the fridge. Ice constricts the blood vessels around the injury and therefore lets less blood escape. This reduces blood loss and swelling. Ice should be applied at least once every hour for mild injuries for 24 hours (slight ankle sprain) and up to 72 hours for severe injuries (hamstring tear). Ice should not be applied directly to the skin. Rather, wrap it in a wet cloth, as shown below.
3. ***C****ompression* is achieved by the use of an elastic bandage. The elastic bandage applied around the injured area restricts internal bleeding and reduces swelling, as shown below.

A compression bandage



4. ***E****levation* is achieved by raising the injured part so it is above the level of the heart. This reduces blood flow to the injured area, and hence reduces blood loss and swelling.
5. ***R****eferral.* Refer the athlete to a qualified sports medicine practitioner for a complete appraisal of the injury. This will ensure correct treatment and speedy rehabilitation. If the management plan is well executed and the goals are achieved, then recovery will be enhanced and the sportsperson will return to training more quickly. The repair of the injured area will also be more successful; that is, the person is more likely to regain the same movement and strength in the injured area.

In general, the RICER method is continued for the first 48 hours after the injury has occurred. The reason why it is approximately 48 hours is because this is how long a soft-tissue injury will bleed. If you are certain that internal bleeding has stopped after 48 hours, you can commence with the recovery phase of the treatment.

After 48 hours, the objective is to heal, stretch and strengthen.

- *Heal*. The body will begin the healing process naturally. It will try to remove the swelling and bruising. You can assist this process by applying heat to the area; for example, a ray lamp or very light massage of the area. Do not be too rough — you may start the bleeding again.
- *Stretch*. This involves moving the injured area by increasing activity within the limits of pain. In other words, move the injured area until pain tells you to stop. Early stretching will help the area regain full flexibility and minimise scarring under the surface.
- *Strengthen.* Once stretching has increased mobility, attempt to put weight on the injury progressively. Again, pain has to be your guide.

Stretching an injured muscle



on Resources

Try out this interactivity: RICER
Searchlight ID: int-5501

6.6.6 Prevention of injury

The old saying that prevention is better than cure is still true today. As a coach or a player, you have a responsibility to reduce your chances of injury. The coach sets the standard for what he or she expects at training and at competition.

There are a number of ways in which injuries can be prevented. These include ensuring an adequate warm-up and cool-down is completed prior to and at the end of every training session and competition. This topic was discussed in detail in chapter 5, and it is extremely important that correct warm-up and cool-down activities are used.

Developing correct skills and techniques are also important, and you and your coach can monitor this. Studies have shown that the higher the level of skill, the lower the chance of injury. Appropriate skill progressions, rule modifications and equipment modifications are important when developing skill, and therefore necessary for the prevention of injury.

Injuries can occur at any time in a training session or during competition. However, studies have shown that they are more common when a player is fatigued. This would indicate that developing a good level of fitness for a particular sport or activity is very important. After injury, a gradual progression to full training is very important to reduce a reoccurrence of the injury.

A summary of injury prevention



Many rules in sport are designed to create a safe environment for performers or players, who should be encouraged to abide by these rules. Coaches may like to set clear written rules for training and playing. Most schools and sporting associations have adopted codes of conduct for players, coaches and spectators. These should be made available to all concerned and reinforced by the clubs involved.

Poor design or faulty equipment and poor playing surfaces also may lead to injuries that could have been prevented. It is important that equipment is checked and maintained regularly and that playing areas are level and firm, sprinklers are not left uncovered, and that permanent features such as goal posts are padded and highly visible. It is also important that spectators are kept well away from the players.

(a) Gloves, pads and a helmet are used to protect the batsman against impact from the ball.
(b) An ice hockey helmet and face mask protects against impact from the puck, other players and their sticks.

(a)



(b)



Many protective devices have been designed to reduce injury. Players in World Series Cricket were the first ones to wear helmets in cricket. Helmets have since been modified and players are encouraged to wear them in most standards of cricket.

There are many other protective devices that have been designed to reduce injuries in sport. Some of these are mouthguards, pads, eye goggles, gloves, shin guards, life jackets and wetsuits.

Another way to reduce injuries is fluid replacement. Remember to drink before, during and after training and competition, and not just on hot days or when thirsty.

Sunburn and sunstroke are major concerns in Australia's harsh summers. In conditions that expose players to outdoor conditions, remember to ‘slip, slop, slap, seek and slide’.

Cold can also have life-threatening consequences. When not participating, players should wear adequate warm clothing. Ensure another warm-up is carried out after long breaks.

Illness and medical conditions can have an effect on injury and participation. When athletes are ill, the body is vulnerable and the risk of damage to organs and tissues is high. Athletes in this situation should not participate. Some athletes may have other, more permanent problems. Again, medical screening and clearance should be obtained before allowing further participation.

Balanced competitions can also reduce injuries. During adolescence, players in contact sports can be at risk because of the inequality in size and strength due to the wide range of physical maturity in underage teams. Consideration needs to be given to grading teams on more than just chronological age.

Remember that prevention is common sense. By following the guidelines set out in this chapter, players, coaches and parents can help reduce the risk of injuries occurring.

DID YOU KNOW?

In the United States, a system is in place in high school sport to classify adolescent athletes based on height, weight and age. Each athlete's height, weight and age are added and assigned a value. If the total reaches or exceeds 90 exponents, the athlete plays on the varsity or junior team. If the total is 84–90, they play on a separate B team. For values less than 84, the athlete floats to C level. This system attempts to fairly categorise adolescents who are growing at different rates.

6.6.7 Safe blood practices

Sport is great for our health and fitness, but due to increasing awareness of HIV and other blood-borne viruses, attitudes to blood on the field or court have changed considerably in the past 20 years. People have become much more aware and concerned about the transmission of diseases through participation in sport. All players and club officials should be aware of how to safely handle blood spills because you never know what viruses people may have.

During adolescence, players in contact sports can be at risk of injury because of the inequality in size and strength.



In contact sports such as NRL, bleeding players are required to immediately leave the area of play for medical or first-aid treatment.



A number of blood-borne viruses have the potential to be transmitted during sporting contact. The more serious viruses — HIV, hepatitis B and hepatitis C — can greatly affect your health. According to Sports Medicine Australia, even the more common infectious diseases such as colds and flu may be spread during the close contact of sport and, while not usually as serious, these illnesses will reduce your competitiveness and enjoyment of the game.

What is the blood rule?

The blood rule in most contact sports dictates that ‘any player who is bleeding must leave the playing area for immediate attention from a medical or first aid officer’ (Sports Medicine Australia). The player cannot return to the game until the bleeding has stopped and the wound is covered. If any blood has been spilled onto the uniform, the piece of clothing must be replaced. Any equipment that has been contaminated with blood must be cleaned or replaced before play continues.

If bleeding starts again, the player must again leave the playing area until bleeding is under control and the wound covered. If this is not possible, then he or she must take no further part in the game.

DID YOU KNOW?

'The chances [of being infected by HIV through sport] have been estimated to be 1 in 125 million. Your chances of getting killed driving to the football stadium are infinitely greater . . .'

Professor John Dwyer, immunologist, *Blood rules ok* booklet

How to clean up a blood spill

Playing areas

Playing surfaces on which blood has been spilt should be washed until all visible blood has gone, then disinfected with bleach and water for at least 30 seconds.

Clothing

All teams should have spare uniforms and extra clothing available, such as spare football jumpers.

All clothing and towels etc. that have been contaminated with blood should be soaked in bleach or disinfectant for 30 minutes, then washed at a high temperature on a long cycle.

Sporting clubs should have a special bag in which all bloodied clothes can be placed so they can be safely transported to a laundry.

In summary, individuals and sporting clubs have responsibility for playing their part in preventing the spread of infection through participation in sport. By following some simple guidelines, the risk of spreading infection of blood-borne viruses can be greatly reduced.

Sporting clubs have responsibility for:

- adopting an infectious disease policy
- making sure there is a safe and clean environment for players, spectators and officials
- proactively adhering to the blood rule. Don't wait until the umpire notices and sends the player from the ground; individuals should remove themselves from play if bleeding.
- continuing to educate all members on appropriate handling of blood spills.

The best management is prevention. We are all responsible for safety.



ACTIVITIES

1 Injuries

Investigate common overuse injuries relevant to a sport of your choice. Use the **Injury fact sheets** weblink in your Resources section to select one overuse injury and read through the fact sheet. Summarise the important information and record any interesting aspects of the injury. Develop a PowerPoint presentation and present your research to the class.

2 Hot weather policy

Using the **Extreme heat** weblink in your Resources section as a guide, develop a hot weather policy for your local sporting club.

3 Sports medicine

1. Research each of the following fields of medical practice.
    a. Physiotherapy
    b. Osteopathy
    c. Chiropractic

2. In pairs, role-play a radio interview with a practitioner in each field, and provide information on:
    a. the theory behind the practice
    b. the role they play in injury prevention, injury management and injury rehabilitation
    c. the qualifications required to practise in each field.

4 Class debate

Conduct a class debate on the following topic: ‘A player is not required by law to divulge their HIV/hepatitis status’.

Affirmative: This group will argue for the issues being presented — that a player **should not** be required by law to divulge their HIV/hepatitis status.

Negative: The other group will argue against the topic — That a player **should** be required by law to divulge their HIV/hepatitis status to club administration, fellow players and competitors.

CHECK & CHALLENGE

Explain

1. Use the **Heat policy** weblink in your Resources section to read about and summarise Tennis Australia's heat policy. Why do you think it was introduced?
2. Describe the difference between an acute and a chronic sporting injury.
3. Describe four methods clubs can implement to reduce the risk of transmitting blood-borne viruses to players, spectators and officials.

Elaborate

4. Imagine you are a sports trainer for a local basketball team. One of the players goes up for a rebound, lands on the foot of another player and rolls his ankle.
    a. Use the SALTAPS checklist to assess the player's injury.
    b. What type of injury is likely to have occurred?
    c. Describe the RICER management plan you would recommend to enhance the recovery process.

5. Why should team managers ensure that spare uniforms are available at each game?

Evaluate

6. Evaluate the protective equipment in a sport of your choice. List all the protective equipment required for your chosen sport and rank each item in order of importance. What types of injuries could be prevented if the protective equipment is worn?
7. Imagine a basketball player has accidently received an elbow to the nose during play and their nose starts to bleed. Some of the blood drops onto the ball.
    a. What responsibility does the umpire have upon noticing the exposed blood?
    b. Describe how blood droplets on a basketball or netball court should be cleaned up.
    c. Blood has dripped down the front of the bleeding player’s singlet. Once their nosebleed is under control and no longer bleeding, can they recommence play? What additional precautions should be taken before they return to the game?

Elaborate

8. Discuss whether you think interschool sport in Australia should adopt a classification system similar to the one used in the United States to help reduce the risk of injuries occurring due to inequality in size and strength that is present when teams are categorised only by chronological age.

on Resources

- **Explore more with these weblinks:** Heat policy
- **Explore more with these weblinks:** Sun protection
- **Explore more with these weblinks:** SunSmart campaigns

6.7 Review

6.7.1 What have I learned?

- First aid is the initial help that is given to an injured or ill person by people at the scene of an accident.
- Most accidents are preventable, and it is important to take precautions to ensure safety at home and when engaging in outdoor activities.
- In the event of an accident, a useful plan is the DRSABCD action plan sending for help, which involves checking for danger, seeking a response from the patient, sending for help, checking the patient's airway, checking their breathing, and using cardiopulmonary resuscitation (CPR) and/or defibrillation if necessary.
- CPR is a technique that combines rescue breaths with external cardiac compression. It is used when a casualty is unconscious and is not breathing.
- It is important to learn first aid techniques and sports injury management so that you may be prepared in the event of an accident.
- Following common sense water safety rules can save lives. Always check water for hazards before entering rivers, lakes or beaches; be aware of local conditions; swim between the flags at beaches; and never swim alone. Be aware of survival techniques and rescue procedures.
- Sports injuries are a major cause of injury, with millions of people suffering sports injuries in Australia each year.
- Acute injuries are caused spontaneously during training or the game. These include concussion, lacerations, bruising, bone fractures, sprains and dislocations.
- All sports injuries should be treated according to the guidelines summarised by RICER, which stands for rest, ice, compression, elevation and referral.
- Diagnosis of sports injuries is summarised by SALTAPS, which stands for stop, ask, look, touch, active movement, passive movement and stand.
- The coach must set up protocols within the club for the prevention and management of sports injuries.
- All blood spills should be treated as potentially infectious and handled according to the club’s infectious disease policy.
- A player who is bleeding should leave the playing area for immediate attention from medical personnel.

CHECK

1. Identify potential dangers in a specific area of your school or sports club. What steps could you take to eliminate, substitute or reduce these dangers?
2. Imagine you are at a party and one of your friends suddenly collapses and is unconscious. Following the DRSABCD action plan, discuss the steps you would take to manage the situation.
3. Explain the difference between hypothermia and hyperthermia.
4. Describe what a swimmer should do if caught in a rip at a patrolled beach. How can a swimmer get out of a rip if they are swimming at an unpatrolled beach?
5. What are the procedures a sports trainer should follow if one of their athletes suffers a soft tissue injury, such as a sprained ankle?
6. If you play for a local club, investigate whether your club has adopted an infectious disease policy. If you do not play for a club, choose a sport you enjoy watching. Next, investigate if this club or sport has a blood rule in place in order to prevent the spread of blood-borne viruses and other infectious diseases in their sport.
7. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

How would you respond in an emergency situation?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14733

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5398

Try out this interactivity: True/false quiz
Searchlight ID: int-5499

Try out this interactivity: Crossword
Searchlight ID: int-5500

Chapter 7: Challenge, risk and safety

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7 Challenge, risk and safety



7.1 Overview

7.1.1 Taking risks safely

Learning objectives

- Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health, safety and well- being may be at short or long term risk (ACPPS091)

- Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health, safety and wellbeing may be at risk (VCHPEP144)

Throughout your life you will take part in many and varied challenging activities. That's the best part about being a teenager: you have all of life's experiences ahead of you! But in order to live a full, active and healthy life, it is important to know how to keep yourself and your friends safe.

Not all risks should be avoided. With proper consideration to safety, they can make worthy challenges.



ESSENTIAL QUESTION

How can the risk of injury and death to young people be minimised?

STARTER QUESTIONS

1. What are the characteristics of a challenge?
2. Which activities do you consider to be challenging?
3. What are some risks you've taken in the past year?
4. What was the outcome of those risks?
5. How do you keep yourself and others safe?

INQUIRY SEQUENCE

7.2 Risk taking

7.3 Harm minimisation

7.4 Alcohol and safe partying

7.5 Smoking and illicit drugs

7.6 Road safety

7.7 Project: risky business

7.8 Review

on Resources

Watch this eLesson: Challenge, risk and safety
Searchlight ID: eles-2338

7.2 Risk taking

7.2.1 Positive and negative risks

Young people participate in many risky activities every day. Some of these risks can be positive and should be actively pursued; others can have negative effects on health.

ENGAGE

Each day, people are presented with challenges that must be met, and they must make decisions in response to these challenges. Making the right choice or reacting in the most appropriate manner is the key to maintaining good health and personal safety.

Risk is defined as exposure to injury or loss. The injury can be to you or others; the loss can range from money and material possessions through to self-esteem and relationships.

In small groups, discuss risk and then decide on the top 10 risk-taking behaviours of young people. Classify each one as either a positive or negative risk, giving reasons for your answer. As a class, discuss why you think some young people pursue the risky behaviours identified by each group.

Risk is defined as exposure to injury or loss. Do you consider driving to be risky?



7.2.2 Types of risk

Risk taking is a part of everyday life. Being able to identify the level of risk or, indeed, whether a risk is involved at all in an action or activity is a very important skill.

Many young people are not aware of potential risks and so do not consider the impact that certain behaviours and actions may have on their health and the health of others. The risks adolescents take may impact on their physical, social or emotional health and wellbeing. Table 7.1 provides examples of risks within these three categories.

Not all risk taking is negative. Risk taking can also have positive effects, especially emotionally, such as building **self-esteem**. An example of this might be applying for class or school captain. The emotional risk is that you may not be elected or you may be teased by your peers. However, the positive outcomes are that you can develop self-esteem by successfully making public speeches as part of the campaign process and, if you succeed in being elected, you will experience a boost in self-esteem and confidence.

Some of the risks in table 7.1 are positive and some are negative. As a class, discuss which category you think each belongs to and what the level of risk is (high, moderate, low). If there is disagreement, explore the reasons why opinions are differing.

TABLE 7.1: Risks that adolescents may take that affect themselves and others

Physical	Social	Emotional
• Eating a poor diet • Riding a bike without a helmet • Experimenting with drugs • Undertaking a rock-climbing and abseiling course	• Experimenting with a relationship • Changing peer groups • Stepping in to stop a friend being teased • Disagreeing with a friend about an activity he or she wants you to join	• Teasing and bullying • Sending text messages • Making a public speech • Becoming a mentor for a younger student

Talking to someone new can feel like a risky situation for people who are shy.



7.2.3 Perceptions of risk

Class discussion should have made it clear to you that different people have different ideas about what constitutes a high-risk activity and what constitutes a low-risk one. A person's perception of risk may be determined by one or more of the following factors.

- Previous knowledge or experience
- Level of skill in relation to the activity
- Self-confidence
- Self-esteem
- Influence of peers and **peer group**
- Influence of drugs at the time a decision is made
- Amount of supervision available by adults or instructors during the activity

7.2.4 Why do people take risks?

Adults and adolescents make poor choices and place themselves and others at risk for many of the same reasons. Some young people, in particular, take unreasonable risks due to lack of experience and prior knowledge about certain unsafe practices. Other reasons include:

- impressing peers
- attention seeking
- depression
- peer pressure
- rebelling against authority
- to maintain a friendship or relationship
- poor role modelling (especially by parents)
- responding to a challenge or a dare.

Poor choices can lead to high-level risk taking, which often has a negative effect on health, self-esteem, friendships, and the respect and trust your friends and parents have in you. Injury to yourself and others, as well as property damage and trouble with the law, may also result from poor decision making and thoughtless responses to a challenge.

7.2.5 Acceptable risks, positive outcomes

Adventure and extreme sports, while risky, lead to positive outcomes for participants.



Acceptable risk taking can lead to positive outcomes for groups and individuals. Risk taking in a controlled environment such as outdoor education activities, including rock climbing, abseiling, canoeing, bushwalking and rafting, provide opportunities for groups and individuals to learn more about themselves, see remote parts of nature and build self-confidence, self-esteem and spiritual health. Other activities, such as downhill skiing, skateboarding, rollerblading, karate, skydiving, surfing and mountain bike riding are, while not without risk, exhilarating and challenging, leading to positive health outcomes. Other acceptable or positive risks that are important for individual growth include applying for a new job, taking on a leadership role, public speaking and standing up for something you believe strongly about. Even though there is a risk of failure in these situations, if people don't take these risks, they are limiting their chances of succeeding.

Chapter 6 provides guidelines and first aid and safety rules for participation in outdoor and adventure activities. These must be adhered to so that risk to all participants is minimised.

Schools are not the only providers of these activities. Opportunities to participate in outdoor and adventure activities are also provided by groups such as:

- Scouts
- Guides
- Duke of Edinburgh award
- Victorian Outdoor Education Association
- Royal Life Saving Society of Australia.

Studies have revealed that the brain is not fully formed until the mid-twenties. The parts of the brain that control decision making and impulse control mature last, which may help explain why teenagers are more likely to take risks. A University of Melbourne neuroscientist, Professor Stephen Wood, has studied the brains of teenagers. He believes that not all risk taking is wrong, and that society's main challenge is to help protect and manage young people from risks that can kill. He also believes there should be opportunities for young people to safely experience the levels of excitement they need. While many national and state health strategies are designed to reduce risk in the community, it is important to recognise that risk taking is a normal part of growing up. There are many safe ways to take risks.

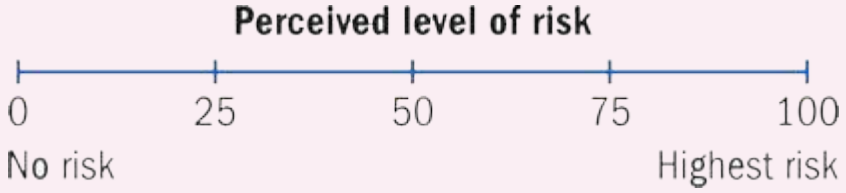
Performers need to have the confidence to put themselves ‘out there’ in front of audiences and critics. Fear should not stop you from pursuing your dreams.



ACTIVITIES

1 Ranking risks

1. Draw a continuum, similar to the one shown below, and then place each of the activities that follow onto the continuum.



   a. Going to a party where alcohol will be provided
   b. Rock climbing with an instructor present
   c. Crossing the road at the lights
   d. Surfing at Bells Beach
   e. Driving at 100 km/h in a 60 km/h zone
   f. Bungee jumping
   g. Flying in a hot air balloon
   h. Drinking alcohol alone
   i. Doing a somersault on a trampoline
   j. Taking a pill given to you at a party

2. Compare your continuum with that of the person next to you. Are they the same?
3. In pairs, discuss the concept of perceived risk. Why do some people rank some activities as higher risk than others?
4. As a class, list ten new activities that have some level of risk. Mark out a physical continuum on the classroom floor or on the board. As each activity is read out, each person should make a judgement about the level of risk and stand at this point on the continuum. Constructively, share your views on why you have judged the activity at this risk level.

2 Risky business

1. Use the **Youth is a risk** worksheet in your Resources section to read an article on youth risk taking and then answer the questions.
2. Use the **Safe behaviours** worksheet in your Resources section to explain how parents and schools should be involved in teen life.

3 World records

Using the **Guiness World Records** weblink in your Resources section, identify some safe, reasonably safe and unsafe challenges people have set themselves.

4 Risky habits

Complete the **Making responsible choices** worksheet in your Resources section to practise evaluating risky situations.

5 Weighing the risks

In small groups, address each situation outlined below. Discuss realistic responses to each scenario and outline what you think you would do in each situation.

1. You are new at school and in order to be ‘initiated’ into the group you really want to hang out with, you are being dared to steal food for them from the canteen.
2. On the way to a school dance with friends, somebody pulls out a cigarette and passes it around. Eventually, the cigarette ends up in your hand.
3. You are alone at home with your boyfriend/girlfriend and they are pressuring you to have sex with them, but neither of you have a condom.
4. You are on your P-plates and are heading to a party. You have enough room for four passengers, but your friends want to squish six passengers into the car.
5. You owe your parents $20, but you have no money. All your friends tell you that playing poker online is fun and an easy way to win money.

CHECK & CHALLENGE

Explain

1. Give five examples of positive risks and five examples of negative risks, giving reasons for your answer.

Evaluate

2. Using the positive and negative risks identified in question 1, discuss who influences people to take these risks.

Elaborate

3. Would you describe yourself as someone who takes risks? Why or why not? What is the riskiest thing you have ever done? Why did you do it?

on Resources

Complete this digital doc: Youth is a risk
Searchlight ID: doc-14734

Complete this digital doc: Safe behaviours
Searchlight ID: doc-14736

Complete this digital doc: Making responsible choices
Searchlight ID: doc-14735

Explore more with these weblinks: Guiness World Records

7.3 Harm minimisation

7.3.1 Strategies to stay safe

What strategies do we use in everyday life to help minimise the chance of injury to ourselves and the people around us?

ENGAGE

Harm minimisation strategies are designed to reduce risk and minimise the potential harm that could occur to people engaging in all types of activities. Harm minimisation can be practised by individuals, groups, schools, governments and the private sector. In small groups, brainstorm the precautions you take in your everyday life to help avoid risk or injury to yourself or others.

Risk evaluation is an important life skill. Which person has employed a harm minimisation strategy?





7.3.2 Good attitudes

In this section, **harm minimisation** strategies are explored for some specific situations encountered by young people, such as drug and alcohol use, and driving or using the road. However, there are general techniques that can be used by all individuals to help avoid unsafe situations. The risk of harm can be reduced by thinking through a situation, investigating the situation or activity and planning your involvement well ahead of time.

Checking equipment carefully prior to commencing an activity will reduce the risk.



Good attitudes towards personal safety and the safety of others should be adopted. These include:

- concern about your own health and safety
- concern about the health and safety of others
- careful consideration of safety rules and guidelines
- careful planning and preparation prior to the activity
- never assuming that ‘it won't happen to me’.

7.3.3 Recognising an unsafe situation

There are times when you get a gut feeling that all is not right, and you feel unsafe. It is important to acknowledge this feeling, recognise the potential for harm and make a decision to remove yourself and friends from the situation, or downscale the situation or risk by taking positive action.

The following actions can be used to avoid or downscale an unsafe situation.

- *Assertiveness*. State your point of view clearly, but without being aggressive and without putting the other person down.
- **Conflict resolution**. Talk through a problem or situation so that both groups come to a mutual agreement without aggression or violence.
- *Planning and problem solving*. Anticipate a risk or problem and decide on an action to solve it.
- *Refusal*. Assertively state ‘no’ if you do not wish to continue or be involved.

7.3.4 Being assertive

Often, it is difficult to say ‘no’ when you want to or need to. People will pressure you with comments such as ‘one won't hurt’, ‘nobody will find out’, or ‘everybody does it’. There are many factors that make it difficult to say ‘no’ or assertively state your point of view.

- It is easier to copy others than it is to think for yourself.
- You may want to impress your friends.
- You may feel like doing something radical or wild.

On the other hand, there are many good reasons to be **assertive** and say ‘no’. Positive self-talk is a great way to withstand pressure. Examples include:

- ‘I can make up my own mind.’
- ‘I am intelligent enough to think things through and understand the **consequences** of my actions.’
- ‘Real friends will respect my right to make my own decisions, and they will understand my point of view.’

Being strong enough and assertive enough to make individual choices takes practice and thoughtful analysis of the situation.

Being assertive is a valuable life skill.



Being assertive means standing up for your own rights and views while still recognising and respecting the rights of others. An assertive person typically uses the following types of language.

- ‘I may not necessarily agree with you, but I respect your point of view.’
- ‘I believe the right thing to do is … ’

Being assertive also means being able to act on your beliefs or **attitudes**. Some people say all the right things, but the real test of strength comes when these attitudes are put into action. For example, you may say that environmental protection and conservation is important, but your actions contradict this if you don't recycle, you litter or you leave the lights on at home when you are out.

7.3.5 Conflict

Conflict is a normal part of daily life and may occur in a range of settings. Conflict occurs when two people, or groups of people, disagree or have different points of view. The conflict can occur:

- in the workplace
- in the home
- at school
- in a sporting team
- in a friendship group.

Conflict can be between:

- parents and children
- teachers and students
- employer and employee
- males and females
- friends, peers, colleagues and mentors
- coaches, athletes and umpires
- teammates and opponents.

Conflict generally occurs when there has been a lack of communication.

Resolving conflict — the process

Being able to recognise that a problem exists is the first step in resolving the conflict. The problem must be discussed by both people or groups and a solution determined that is agreeable to both parties. This has to be done without aggression, abuse or violence. Steps in resolving conflict are listed below.

1. Explain your point of view clearly and concisely.
2. Listen carefully to the other person's point of view.
3. Ask questions and give answers in a calm manner to make sure both people clearly understand the other person's point of view.
4. Consider the other person's feelings or point of view. Try putting yourself in his or her place.

5. Use positive body language such as:
    - making eye contact
    - facing the other person
    - avoiding crossing your arms or legs
    - keeping a comfortable distance.

6. Use language that the other person understands, and use ‘I’ statements rather than ‘you’ statements. For example, state what you think or feel by beginning your sentence with ‘I believe’ or ‘I feel’ rather than ‘you make me feel’ or ‘you don’t care’.

DID YOU KNOW?

The WACO (Walk Away Chill Out) campaign is aimed at giving youth an alternative to violence. This initiative was devised by the Matthew Stanley Foundation, a foundation created after Matthew lost his life when he was bashed outside a teenager’s party aged just 15.

Coming to an agreement — the resolution

One or more of the following outcomes will resolve a conflict.

- Realise that you were wrong or at fault and then apologise.
- Accept the other person's apology and then don't hold a grudge.
- Come to a compromise that suits both people.
- Agree to disagree, but don't continue to argue.
- Accept responsibility for the conflict and act to fix the problem.
- Always be honest and forthright.

Unresolved conflicts

Unresolved conflicts may lead to negative feelings, breakdowns in relationships, changes in peer groups, distrust, loss of employment and many other serious consequences. It is very important to learn conflict-resolution skills and be assertive enough to insist that productive communication leads to resolution, especially if the other person does not want to talk.

Learning to express your opinions is important, but it can be difficult, even in friendships.



ACTIVITIES

1 Being assertive

Form a small group with students you do not often talk to. Select two situations from the list below and discuss them. In particular, talk about what you think the phrase means, whether you have ever used it or something like it, and whether you think it harms anyone.

- Let's not go to school today, the one-day cricket is on in the city.
- It's easy. I do it all the time and I haven't been caught.
- It's only 10 pm, you have plenty of time.
- My friend is 18 and he can get beer for us. Let's have a few at the party.
- Don't tell anyone about this or I'll be in serious trouble.
- Tell them you lost it, they won't know any different.
- I broke it, but I'm not telling anyone. She can take the blame.
- I know who is taking stuff from the equipment room, but I'm not going to be the one to dob them in.
- Come on, graffiti is an art form and it doesn't hurt anyone.

After your discussion, consider the whole list and answer the following questions.

1. Which of the scenarios would have put the most pressure on you to either say ‘yes’ or comply?
2. List what the consequences could be if you said ‘yes’ to or did not disagree with each scenario. Think about your responsibilities to your school, parents, friends, yourself and people you don't even know.
3. List the possible consequences you would personally face if you said ‘no’ to any of the scenarios.
4. Did you disagree with any of the responses from other members of your group? Why?

2 Attitudes and beliefs

1. Make a list of six things about which you have a strong belief. For example, state your belief or attitude to racism, lying, graffiti, shoplifting, smoking and bullying.
2. Beside each one, state what you do to promote this attitude or belief. For example, you may actively deter bullying by speaking up about any bullying of which you are aware.
3. Are there any that you have listed that you do not act on or promote? How can you be more assertive in promoting your attitudes or beliefs about these issues?

3 Conflict resolution

Work with a partner to complete the following questions.

1. Describe a person with whom you can communicate easily. What is it about the person that makes communication easy?
2. Describe a conflict you have recently been through or are currently experiencing. It could be with a parent, friend, teacher or coach.
3. Use your partner to help role-play a conflict-resolution discussion that might lead to solving the conflict. Refer to advice provided in this lesson to help with your discussion.
4. Did you reach a resolution? If so, what was it? If not, what barriers prevented a resolution?

4 Harm reduction

Choose one of the following harm reduction strategies and use it as the basis for a class debate.

- Needle exchange programs
- Safe injecting houses
- No smoking in restaurants or pubs
- Ecstasy testing kits
- Hidden speed cameras

CHECK & CHALLENGE

Explain

1. What harm minimisation practices do you adhere to in your daily life?
2. Explain the difference between being assertive and being aggressive. Give examples to justify your answer.

Evaluate

3. Describe and rank 10 harm minimisation techniques that you could use to help avoid risk or injury.
4. What safety precaution or device do you most often utilise?

Elaborate

5. In which situations do you wish you were more assertive?
6. What situations might you face in the next five years that will require you to be assertive?

7.4 Alcohol and safe partying

7.4.1 Reducing risks

What are the risks associated with drinking alcohol, and how do we reduce the risk of injury and incident when having a party?

ENGAGE

Alcohol and binge drinking are some of the biggest social issues young people deal with. Many awareness initiatives have been introduced to combat these issues, such as ‘How will you feel tomorrow’, ‘Don't turn a night out into a nightmare’ and ‘Championship moves’. It is estimated that, on average, 81 000 Australians will be hospitalised from alcohol-related injuries each year. In this lesson you will explore the risks of binge drinking and excessive consumption of alcohol, and look at ways to party safely to avoid injuries.

Use the **DrinkWise** weblink in your Resources section to research campaigns and initiatives about drinking. In groups, discuss the effectiveness of such initiatives.

Celebrity comedian and radio DJ Dave Hughes is a non-drinker.



on Resources

Explore more with these weblinks: DrinkWise

7.4.2 Alcohol

High levels of alcohol consumption can cause immediate and long-term threats to life. In the short term, one of the risks is alcohol overdose, which leads to poisoning or unconsciousness, and can cause asphyxiation through ingestion of vomit.

In the long term, excessive consumption of alcohol has been linked to heart disease, stroke, liver disease, pancreatic disease and cancer of other organs. Alcohol is a widely used and 'socially accepted' drug — while 85 per cent of Australians regularly drink alcohol, less than two per cent of the population use illicit drugs.

Alcohol is the major contributing factor in boating, swimming and car accidents. Alcohol is also the leading cause of drug-related deaths in people under the age of 30. Statistics show that over 17 per cent of young people aged 18–24 consume alcohol on a weekly basis at levels that pose a medium-to-high risk to their long-term health.

- 42 per cent of 16- and 17-year-olds **binge drink**
- 20 per cent of 12- to 15-year-olds binge drink
- more than 500 young people under 21 years of age are attended to by paramedics each year for excess alcohol consumption
- 60 per cent of these are admitted to hospital.

7.4.3 Binge drinking

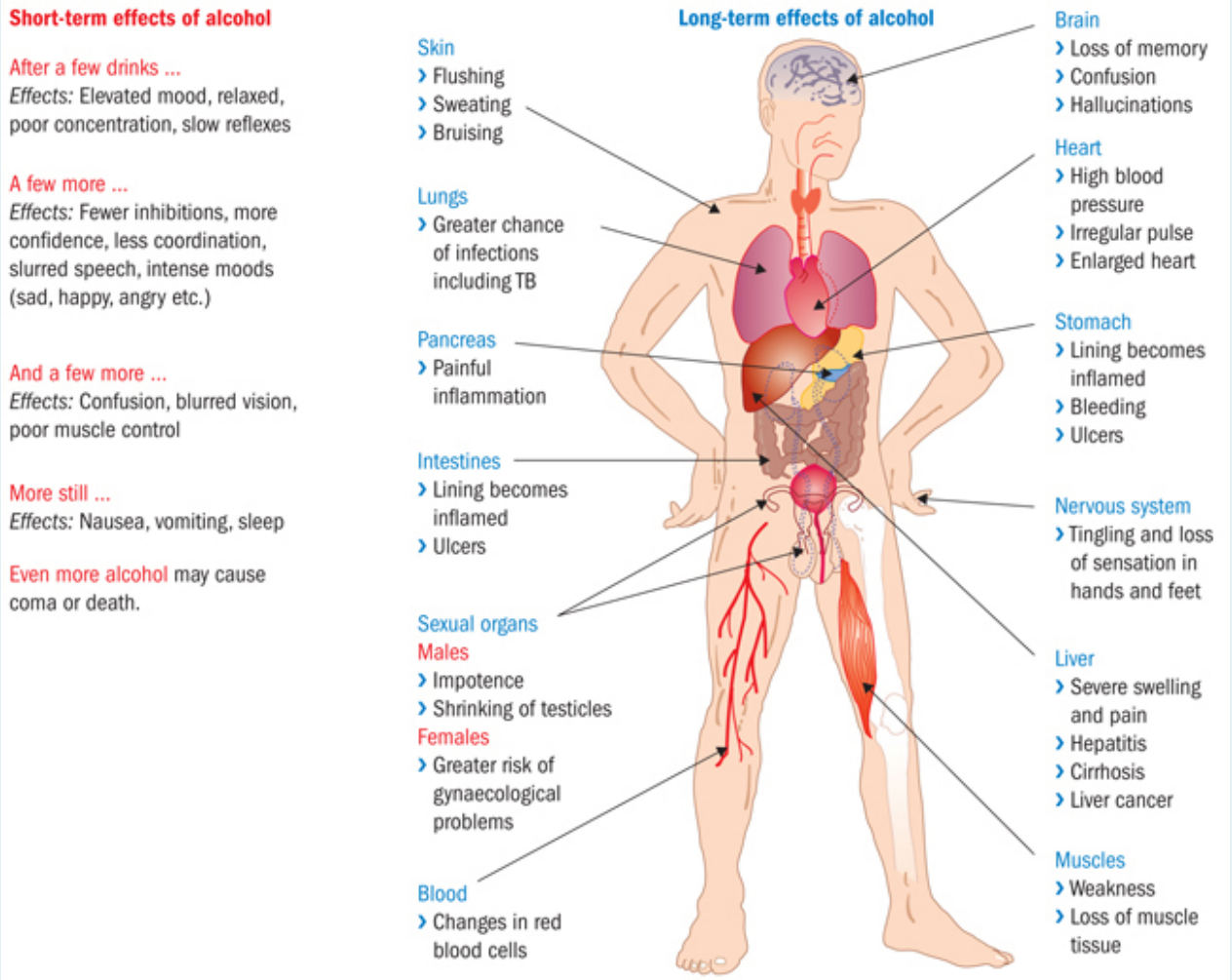
Binge drinking is fast, excessive drinking undertaken in one session. Getting 'hammered' or 'smashed' is often the goal for people who drink to get drunk.

In Australia, binge or risky drinking is defined as drinking more than four standard drinks at any one time. In the United Kingdom, it is defined as 8 or more standard drinks, while in the USA, it is defined as a pattern of drinking that brings blood alcohol concentration to 0.08 or above.

7.4.4 Effects of alcohol on the body

Some of the short- and long-term effects of alcohol on the body are shown below.

Alcohol affects all parts of the body, in both the short and long term.



Alcohol and its absorption by the body

Alcohol, once consumed, is absorbed into the bloodstream through the stomach wall and small intestine. Food in the stomach slows down the absorption, but does not prevent it.

The effect of alcohol on an individual varies depending on age, height, weight, gender, mood and general health. The effect also depends on how quickly the alcohol is drunk and whether any other drugs were consumed.

Sobering up after drinking alcohol can only be achieved with time. The liver breaks down approximately one standard drink of alcohol each hour. Cold showers, strong coffee and fresh air have no effect at all and do not speed up the process.

DID YOU KNOW?

One in eight deaths of young people (under the age of 25) is due to alcohol.

7.4.5 Safe partying — reducing the risk

The following strategies are some basic ideas that can be used to make your party safer.

- Allow guests into the party by written invitation only.
- Do not create open invitations on the internet using social networking sites.
- Hold the party in your own backyard or hire a local hall.
- Ensure there are activities to keep guests occupied.
- Arrange for a bouncer to be at the door.
- Set aside some ‘no go’ areas.
- Let the police know you are having a party.
- Make sure your parents are at home.
- Invite older adults to help serve food, for example, uncles, aunts and grandparents.
- Supply soft drinks.
- Do not allow drinks to be brought into the venue.
- Supply plenty of food.
- Discuss your expectations with your parents before you send out the invitations. Listen to their expectations as well. Come to an agreement.
- Negotiate the number of guests with your parents.
- Let your friends know both verbally and on the written invitation that there will be no alcohol or other drugs allowed at the party.
- Decide upon strict start and finish times and include them on the invitation.
- Make sure you have received all the replies to your invitations before the party.

Parties have the potential to get out of hand. Like any other activity involving risk, careful planning prior to the activity is extremely important to minimise potential harm to individuals and personal property.

Involving parents in party plans can help with risk management.



Having fun activities to occupy people at parties is a good safety measure.



DID YOU KNOW?

21 per cent of Australians under the age of 18 report having been harmed by another person's drinking.

ACTIVITIES

1 Why?

In small groups, discuss reasons why teenagers feel the need to drink alcohol. Discuss how stereotyres and peer expectations play a role.

2 Risky regrets

Make a list of things people may do under the influence of alcohol that they wouldn't normally do or may regret doing.

3 Safety rank

Rank these safety strategies into two categories: ‘vitally important’ and ‘not as important’.

1. Always move about with a friend or friends.
2. Carry your mobile phone.
3. Let your parents know what time you will be home.
4. Organise to have your parents pick you up at a specific time.
5. Don't accept open cans or bottles from strangers.
6. Don't drink the punch.
7. Don't put your drink down.
8. Let your parents know where you are going.
9. Leave the party early if you feel uncomfortable or ill at ease.
10. Always trust your ‘gut feeling’ and act on it.
11. Look after your friends and leave when they leave.
12. Ask who is going to supervise the party before you accept the invitation.
13. Ask about alcohol and make up your own mind about whether you should go or not.

4 Development of young drinkers

Research and write a report on the impact of early alcohol use (under 18 years old) on physical and mental development.

5 Deter binge drinking

Produce a pamphlet, poster or PowerPoint presentation that highlights the negative impacts of binge drinking.

6 Safe party tips

Design a poster that gives tips on how to conduct a safe party. Use the information in this lesson and the **Partying safely** weblink in your Resources section for ideas.

7 House party

Discuss problems with holding parties at your own house. Use the **Police partying** weblink in your Resources section to visit the Victorian police website and see how they are assisting to make house parties safer.

8 Create the questions

Use the **Regrets of yesterbeer** weblink in your Resources section to read an article about alcohol. Create five questions from the article for your partner to answer.

9 Evaluate campaigns

Use the **Hello Sunday morning** weblink in your Resources section to view a campaign related to drinking. Discuss the message it is trying to send and evaluate its effectiveness at addressing the problem.

10 What would you do?

In small groups, address each scenario outlined below. Discuss realistic responses to each situation and outline what you think you would do in each situation.

1. You are having a sleepover with a group of people at your friend's house and he/she decides you will play drinking games for a bit of fun. Their parents are home, but have already gone to bed.
2. You really like a boy/girl at a party but you don't have the courage to approach them. A friend suggests that you have a few drinks to give you a hand with the initial 'hello'.
3. Your parents have gone out for the night and your friend is encouraging you to have a house party while they are out.
4. You need a lift home from a party but you don't want to get in a car with anyone who has been drinking. Your friend, whom you arranged to go home with, has ended up having a few drinks and is insisting they will drive you home.
5. You are having a birthday party at your house, organised safely and cautiously with the help of your parents. You have given out written invitations to 30 friends. You are being encouraged by your mates at school to put the invitation on Facebook, inviting some 'cool' people they want to come.
6. A boy that you have known for a while has offered you a lift home. He has not been drinking and is responsible. On the way home he offers you a drink in the car.

11 Who can I turn to?

Go to your local council or state government's website. Investigate the support services and programs advertised/outlined for young people. Consider the following:

1. Who are the services and programs aimed at?
2. Are the services they offer appropriate for this age group?
3. Why would or wouldn't young people use these services/attend these programs?
4. What makes them effective resources for young people?
5. Would you recommend any of the programs to a friend?

CHECK & CHALLENGE

Explain

1. Summarise the effects of long-term alcohol use on each of the following organs: heart, liver, sexual organs, brain, lungs, stomach and intestines.
2. What are the myths associated with sobering up more quickly? What is the only real way a person can sober up?

Evaluate

3. How effective are police alcohol-safety campaigns?
4. How influential are stories about celebrity binges? In what ways do they influence your behaviour?

Elaborate

5. Do you think the legal drinking age should be raised to 21? Why or why not? Use the internet and other sources to research countries which have a legal drinking age of 21 and their reasons for enforcing this age restriction.

on Resources

- **Explore more with these weblinks:** Partying safely
- **Explore more with these weblinks:** Police partying
- **Explore more with these weblinks:** Regrets of yesterbeer
- **Explore more with these weblinks:** Hello Sunday morning

7.5 Smoking and illicit drugs

7.5.1 Dangers of drugs

What are the dangers of using cigarettes and illicit drugs? What is being done to reduce their use, particularly among young people?

ENGAGE

Smoking is the leading cause of preventable death in Australia. Through the introduction of tougher laws and confronting advertising campaigns, the percentage of people smoking is decreasing; however, it is still a major concern, with smoking killing more Australians every year than road accidents, alcohol and other drugs combined. On the other hand, the use of illicit drugs — especially 'party drugs' — is increasing.

We all know smoking and illicit drugs are bad for our health, so why do people still use them? List as many reasons as you can.

Smoking is harmful for everyone, but it is also illegal for people under the age of 18.



7.5.2 Smoking

Choosing to smoke cigarettes is often the result of peer pressure or poor role modelling. The government continues to bring in rules and initiatives to help reduce the number of people who smoke; some of these initiatives include banning smoking in public places, using graphic anti-smoking advertising on television and placing warning labels on cigarette packets. The government has also passed legislation to prevent advertising of cigarettes. The Quit campaign is very active in minimising the harm caused by cigarettes. Despite the best effort of governments and Quit, around one in six people aged 18 or 19 still smoke, and this places them at risk of many long-term health problems caused by cigarettes.

DID YOU KNOW?

There are over 4000 chemicals in tobacco smoke.

Immediate effects of smoking

In addition to the long-term effects, the following immediate effects are evident for up to 20 minutes after a cigarette is smoked.

- Increased blood pressure and heart rate
- Dizziness
- Brain and nervous system activity over-stimulated
- Reduced blood flow to extremities, including fingertips and toes
- Bad breath
- Poor sense of taste and smell

Tobacco causes more illness and death than any other drug. Research shows that 40 Australians die every day from smoking-related diseases, compared with 10 from alcohol-related diseases and four as a result of road crashes.

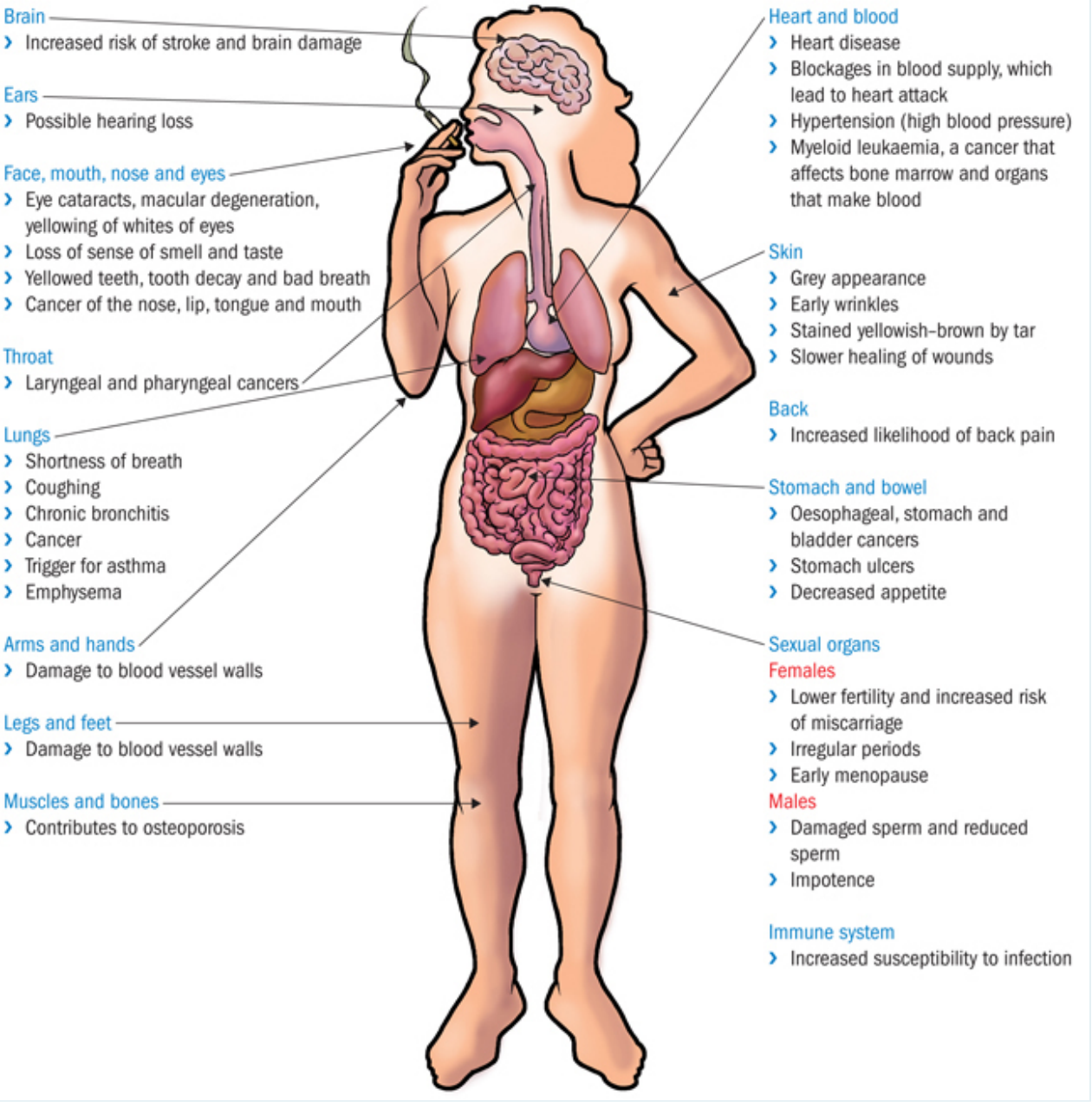
On a positive note, tobacco control strategies by the Australian Government have ensured a steady decline in smoking rates in Australia. In the last decade, the number of people who smoked daily has decreased by almost 40 per cent.

The campaign to further reduce the incidence of smoking among young people is continuing and the aim is to deter teenagers from having their first cigarette. More information about harm minimisation strategies and, in particular, the Quit campaign, is provided in chapter 8.

Long-term effects of smoking

Some of the long-term effects of smoking are shown below.

Long-term effects of smoking on the body



DID YOU KNOW?

Twelve months after you quit smoking, your risk of dying from heart disease is half that of a continuing smoker.

Resources

Explore more with these weblinks: Quitnow

7.5.3 Illicit drugs and personal safety

An **illicit drug** is a drug that has been banned by law. It is illegal to sell or take such drugs without a prescription from a doctor. Table 7.2 summarises the most common types of illicit drugs and their effects.

TABLE 7.2: Common illicit drugs and their effects

	Marijuana	Amphetamines	Heroin	Methamphetamine
Also known as:	**Cannabis**, pot, weed, mull, ganja	'The drugs that'll keep you awake all night'	Smack, white lady	Ice, meth, crystal, and chalk
Possible effects:	• Impairment of mental processes • Reduced motivation • Short-term memory loss • Poor coordination • Slow reflexes • Impaired driving ability • Panic and paranoia • Mood swings • Psychosis • Difficulty learning new things			

• Bloodshot or glassy eyes • Lung cancer and bronchitis • Low birth weight babies	• Anxiety and irritability • Panic attacks • Paranoia • Depression • Blood-borne infections (through sharing needles) • Increased heart rate and irregular heartbeat • Increased breathing rate • Heart palpitations • Headaches • Dizziness • Insomnia • Malnutrition • Emotional problems • Amphetamine psychosis and paranoid delusions	• Huge risk of overdose • Highly addictive • Nausea • Constipation • Anxiety disorders • Blood-borne infections (through sharing needles) • Death from overdose	• Anxiety and confusion • Mood swings • Increased pulse rate • Increased blood plessure • Hallucinations and delusions • Respiratory problems • Eating and sleeping disorders • Violent and/or erratic behaviour • Paranoia • Reduced motor skills • Impaired verbal learning • Emotional and cognitive problems

	Cocaine	GHB	Ecstasy
Also known as:	Coke, Charlie, gold dust, rock	GBH, Fantasy, liquid ecstasy, G	Eccy, MDMA, E, the love drug
Possible effects:	• Anxiety • Increased pulse rate • Paranoia • Agitation • Hallucinations • Respiratory problems • Collapse of the nasal septum • Eating and sleeping disorders • Sexual problems • Social, financial, workplace problems • Violent and/or erratic behaviour	• Extreme grogginess • Difficulty with vision • Problems moving and speaking • Disorientation • Convulsions • Seizures • Coma • Respiratory collapse • Amnesia • Death	• Paranoia • Decreased emotional control • Lethargy and energy loss • Nerve cell damage • Liver and brain cell damage • Jaw clenching and teeth grinding • Increased blood pressure and pulse rate • Raised body temperature • Excessive sweating • Nausea and vomiting • Severe depression • Insomnia
Source: 'Where's your head at?', National drugs campaign brochure.			

The effects of drugs on those who take them are unpredictable. This is because the side effects depend on various factors, including:

- the strength of the substance and its chemical properties
- the amount taken and the way in which it is taken
- other drugs taken at the same time
- the emotional state of the user
- the physical state of the user
- the environment in which the drug is taken.

Further information about **cocaine**, **ecstacy** and other illicit drugs is provided in the next section.

Choosing to be active at parties is a safer choice than drinking or taking drugs.



Alternative and new types of drug become available regularly; for example, speed, ice, uppers and meth are all versions of **amphetamines** not mentioned in table 7.2. It is important to remember that these drugs will negatively affect your health in a similar way to amphetamines, even if they have a different name.

Table 7.3 looks at harm minimisation strategies that are used to help reduce the risk of injury or death associated with drug use.

TABLE 7.3: Harm minimisation strategies

Drug type	Supply control	Demand reduction	Harm reduction
Tobacco (nicotine)	• Age restrictions on sale and purchase • Licensing of manufacturers	• Quit campaigns • Cessation classes for smokers • Ban on advertising and sponsorships • Increased tax to raise prices	• Smoke-free workplaces • Nicotine skin patches • Nicotine chewing gum • No smoking in hotels, clubs, restaurants and sporting venues
Alcohol	• Age restrictions on sale and purchase • Proof-of-age entry to licensed premises • Licensing of manufacturers	• Media campaigns • Education programs • Parent education about role modelling • Alcohol-free leisure activities	• Low-alcohol or non-alcoholic drinks • ‘Safe’ drinking guidelines • First aid training • Random breath tests for drivers

Prescription drugs and medicines	• Testing and manufacturing controls • Age restrictions on sale, purchase and use • Parent education	• Education programs • Parent education • Relaxation training • Stress management	• Consumer information on labels and packets (e.g. dose levels)
Cannabis (marijuana)	• Customs actions • Legal sanctions on supply, possession and use • Sanctions on use at school	• Media campaigns • Education programs • Relaxation training • Stress management	• Promotion of safer methods of ingestion
Opiates (heroin, morphine, methadone)	• Customs actions • Legal sanctions on supply, possession and use • Access restricted to medical uses	• Education programs • Treatment programs • Therapeutic communities	• Provision of free needles and syringes • Advice on cleaning equipment • Methadone programs
Ecstasy, LSD, amphetamines and others	• Legal sanctions on manufacture, supply, possession and use	• Public education campaigns	• Provision of water at raves or dance venues • Ensuring venues are well ventilated • Offering first aid at venues

Source: Australian Drug Foundation.

7.5.4 Actions to assist friends under the influence of alcohol or other drugs

When assisting a friend under the influence of alcohol or other drugs, the primary concern is always for the health and safety of your friend and yourself. If he or she is unconscious, you must follow the first aid procedures outlined in chapter 6.

If drugs other than alcohol are involved, you can assist medical officers when they arrive by finding out:

- the type of drug taken
- how it was taken
- when it was taken
- how much was taken
- whether the person has any past experience with the drug
- whether any other drugs (including alcohol) were taken
- which other people are likely to be affected.

If possible, you should retrieve any packaging for reference. It provides useful information for ambulance officers and doctors. Remember to:

- stay calm
- ensure your own safety and that of your friend and others
- seek assistance — send for help
- administer first aid (see chapter 6)
- try to get the facts
- provide further support to your friends following the incident.

Through understanding and following these simple steps, you may minimise harm and take control of potentially life-threatening situations. For more information on drugs, alcohol and celebrating safely, follow the **Turning 18** and **Safe partying** weblinks in your Resources section.

on Resources

Explore more with these weblinks: Safe partying

ACTIVITIES

1 Less smoking

In groups, brainstorm reasons why the percentage of young people smoking has decreased over past years.

2 Debate

As a class, debate the topic ‘Smoking should be illegal’.

3 Intervention

1. If you had a friend or group of friends who you felt were endangering their health and wellbeing by using illicit drugs, what would or could you do? Discuss this with a small group, then report to the class.
2. As a class, compile a list of everyone's ideas.

4 Illicit drugs

Create a pamphlet warning of the dangers of an illicit drug of your choice. In the pamphlet, give harm minimisation advice. Use the information in this lesson and other sources to help you.

5 Just say ‘no’

In groups, role-play ways of saying ‘no’ to using drugs.

6 Effects

Research the long- and short-term effects of an illicit drug, as well as how use of this drug might affect everyday life. Report back to the class with an overview of the physical, mental, social and financial effects.

7 Effective campaign

Use the **Quitnow** weblink in your Resources section to watch anti-smoking campaigns from Quitnow. Comment on their effectiveness.

8 Community support

Investigate one of the local youth support services in your area that helps young people with problems involving illicit drugs.

Address the following questions:

1. What support do they offer young people?
2. Would this be helpful to you?
3. Would you use this service? Why or why not?
4. Would you or recommend this to a friend if they needed help with illicit drugs?

CHECK & CHALLENGE

Explain

1. List all the illicit drugs that you have heard of. Give both their scientific and ‘street’ names.

Evaluate

2. Comment on the effectiveness of warning labels on cigarette packaging.
3. Evaluate what influences your attitudes towards drugs.

Elaborate

4. Why does the government legislate and spend money on smoking issues?
5. Why do you think illicit drugs are often mentioned in politics?

7.6 Road safety

7.6.1 Reducing the road toll

What are the factors that contribute to the road toll and how can we reduce them?

ENGAGE

Over the past decade, road fatalities in Australia have decreased by 25 per cent. Despite this, in 2015, 1209 people lost their lives on our roads. The National Road Safety Strategy 2011−2020 has a vision that no person should be killed or seriously injured on Australia's roads. In this lesson, you will explore the factors that contribute to these deaths and what can be done to help reduce the road toll.

Brainstorm all the different factors that increase the chance of injury or fatality on the road. Then use the weblinks in your Resources section to read articles about young drivers. What changes do you think will be most effective in improving road safety?

Learning to drive is a mark of independence and something many teenagers look forward to, but with it comes many risks.



on Resources

- **Explore more with these weblinks:** Car choice
- **Explore more with these weblinks:** Mobile bans
- **Explore more with these weblinks:** BAC 0.02

7.6.2 Road traffic crashes — the facts

Safe driving is essential for reducing the risk of crashes, injury and death. All Australians are at risk on our roads on a daily basis, whether they are a driver, a passenger or a pedestrian.

Safe driving is compromised by many factors, including:

- inexperience as a driver, particularly for young drivers
- fatigue
- alcohol consumption
- use of medication and illicit drugs
- speeding.

Each of these factors is explored in this section.

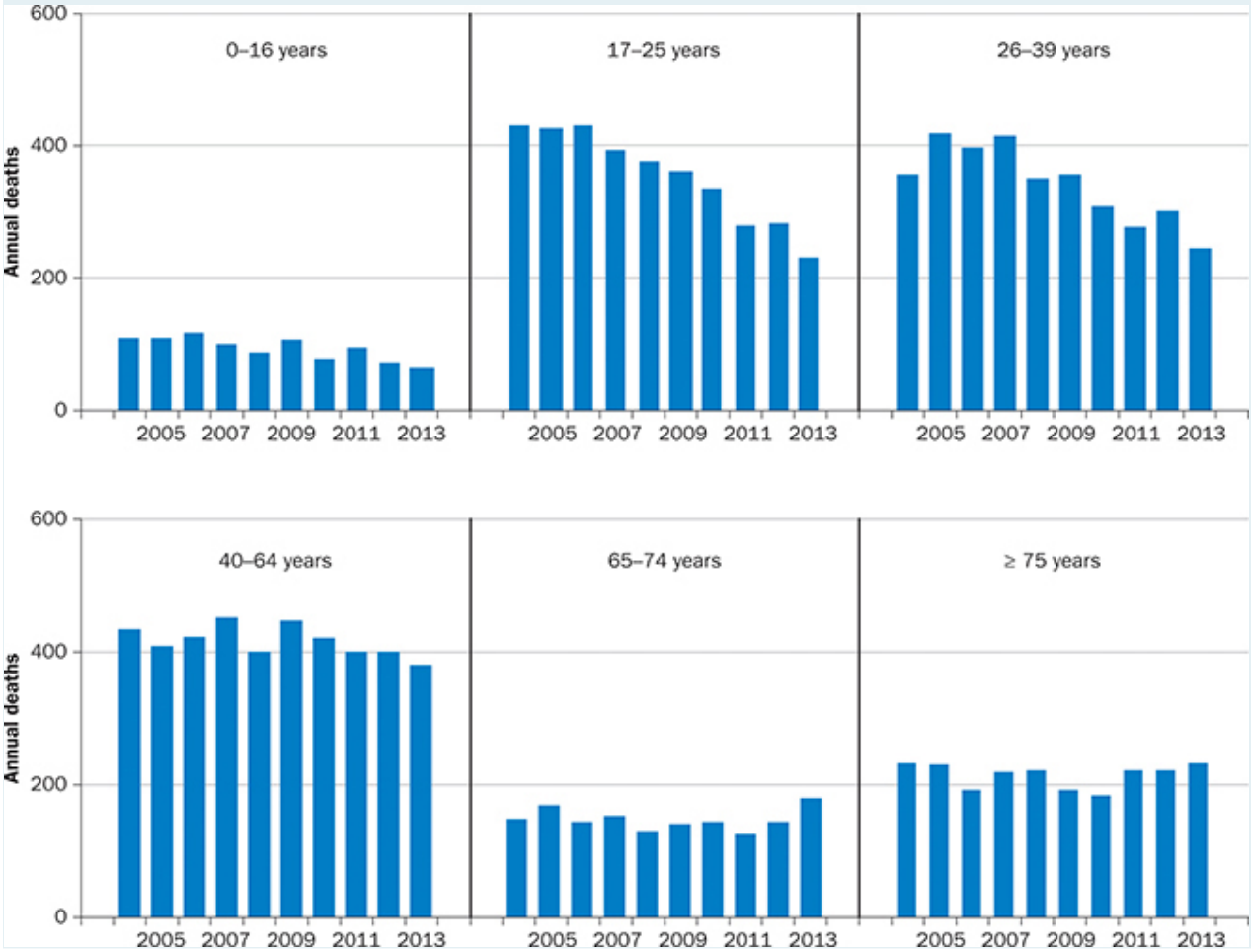
Passengers also have a responsibility to behave appropriately to reduce the likelihood of road accidents.



Young driver statistics

Road crashes are a major cause of both injury and death for young adults. In 2013, 229 of the drivers killed on Australian roads were aged 17−25. This represents 19.2 per cent of all fatalities. However, this figure is 29 per cent less than five years ago.

Road deaths by age group



Regarding deaths for people aged 15−24 years:

- The riskiest period is shortly after receiving your licence.
- More males are killed in road crashes than females.
- Seventy-seven per cent of deaths are passengers of the vehicle, not the driver.
- Sixty-seven per cent are killed in single vehicle crashes, in which no other vehicles are involved.
- Most road deaths for 15- to 24-year-olds happen in the evening (3pm to 9pm) on the weekend (Friday and Saturday nights).
- Twenty-five per cent of all serious crashes involve young people, although they make up only 14 per cent of licence holders.

Licensing schemes in Australia

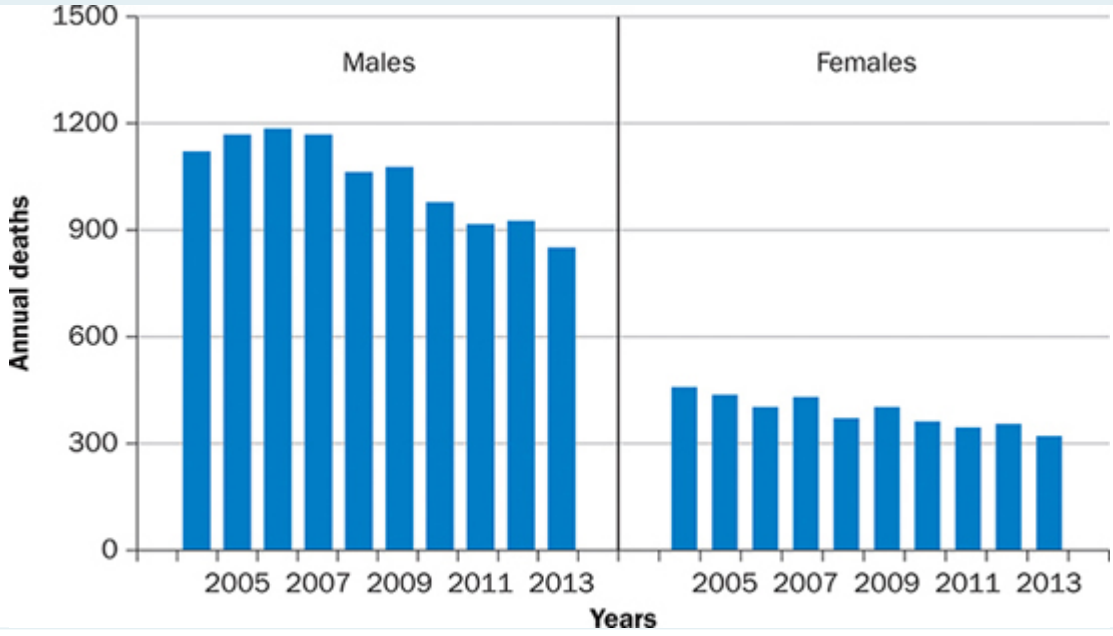
Both age and lack of experience are associated with increased risk of crashes. As a result, all states and territories in Australia have licensing schemes that are based around a learner period, with strict conditions, and a provisional period, with conditions that aim to give the holder more experience and more freedom.

Compared to a decade ago, in Australia today there are much tighter rules for novice/provisional drivers. Longer learner periods and restrictions on provisional licence holders have been introduced. The aim is to improve young drivers' skills before they encounter situations that may increase risk to dangerous levels.

Gender statistics

Males account for 72 per cent of all deaths on our roads. Ten years ago they accounted for a similar figure. In 2013, 856 males and 336 females were killed on our roads.

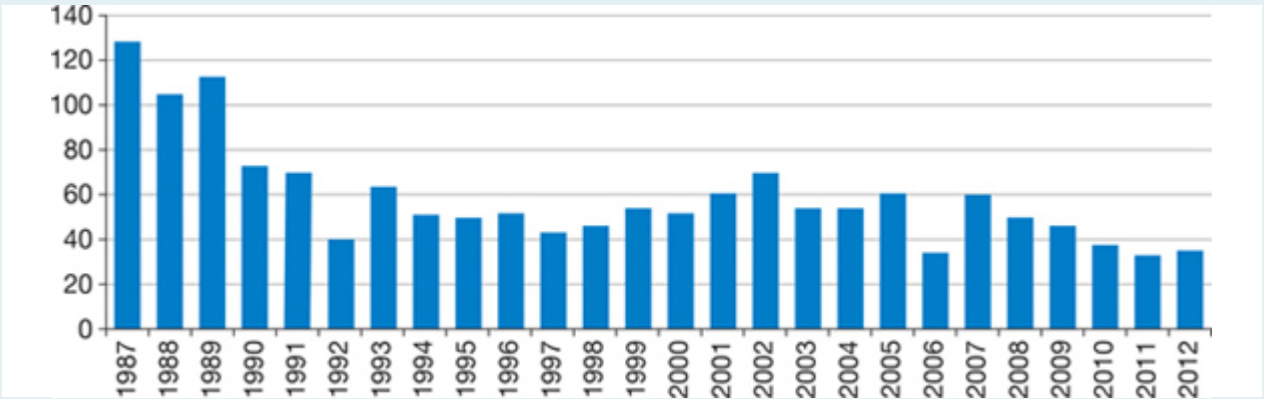
Road deaths by gender



Drink-driving

Alcohol continues to be a major factor in serious casualties, with more than a quarter of fatal crashes involving a driver over the legal blood alcohol concentration (BAC) limit. Thirty per cent of all deaths and serious injuries resulting from crashes are a result of drink-driving. The risk of involvement in a casualty crash increases rapidly with increasing BAC levels. This is true for all motorists; however, studies have shown that the risks are significantly higher for younger drivers. In Victoria, those aged 18−25 represent only 13 per cent of licensed drivers, but 36 per cent of all drink-drivers killed in road crashes.

Drivers/riders killed with a a BAC at or over 0.05.



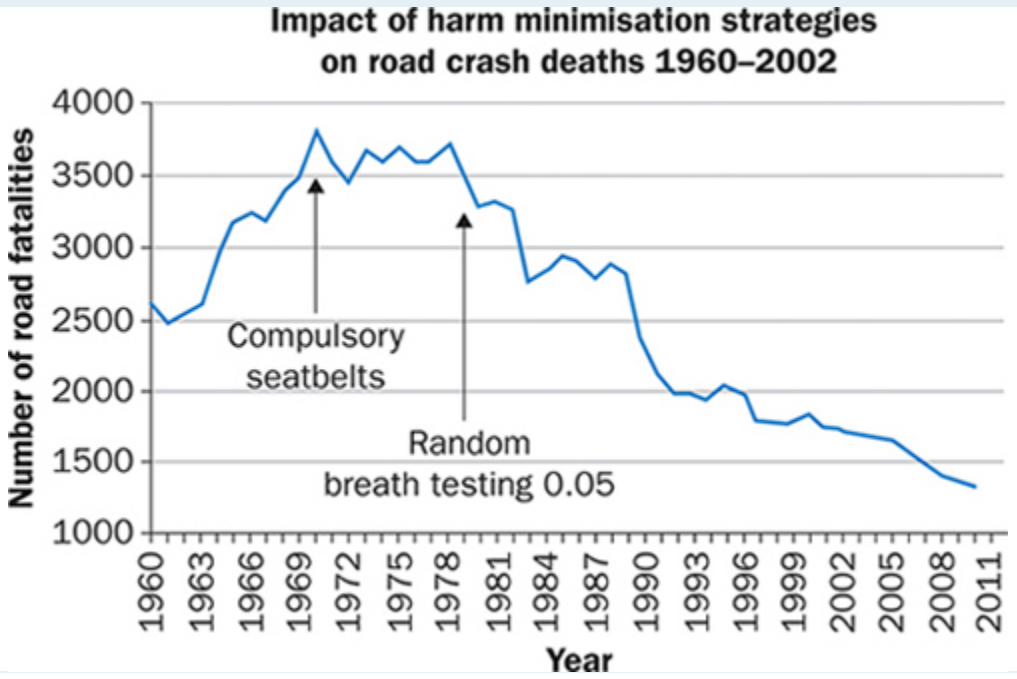
The majority of drink-drivers in fatal accidents are heavily intoxicated, registering more than three times the legal limit.

Harm minimisation and road safety

The figure below clearly shows the long-term positive effect of introducing seatbelt regulations in 1969 and **random breath testing** in 1978 on the number of road fatalities in Australia.

This is a strong example of the concept of harm minimisation, where people still drive cars; however, the strategy of compulsory seatbelts and random breath testing has reduced the incidence of harm. For more information about road safety, go to the **keys2drive** and **TAC** weblinks in your Resources section.

Impact of harm minimisation strategies on road crash deaths, 1960–2010



on Resources

- **Explore more with these weblinks:** keys2drive
- **Explore more with these weblinks:** TAC

7.6.3 Road safety and inexperienced drivers

Inexperienced drivers are generally young drivers and data indicates that they are more likely to be involved in road crashes than older drivers.

Using technology on the roads is an impulsive and dangerous behaviour.



- 47 per cent of drivers aged 18–24 have had a crash.
- 44 per cent have been fined for a driving infringement.
- 15 per cent of young drivers admit to having driven after using illicit drugs.
- 17–25 year olds account for approximately 25 per cent of all road fatalities.
- Five times as many young male drivers are killed in road accidents as women in the same age group.

Why are young men more likely to be killed in motor vehicle crashes? According to research, the following facts may explain the answer.

- 15 per cent of young men said that they are prepared to take the risk of driving a short distance after having a few drinks, compared to only 2 per cent of women.
- 47 per cent of young men would drive faster than the speed limit if they thought they would not be caught, compared with only 27 per cent of young women.
- 48 per cent of young men believe you have to take a bit of a risk when overtaking, compared with 35 per cent of young women.

7.6.4 Mobile phones

Mobile phones are a major distraction for all drivers, particularly young drivers. Driving is already complex and challenging enough without adding other elements. It is dangerous to use a mobile phone while driving because:

- it affects your judgement and concentration, and often results in riskier decision making
- it causes slower reaction times, especially when deep in conversation

- you are not alert to your surroundings, so you check your mirrors less often and are not aware of what is going on around you
- when texting, you often wander out of your lane or miss road signals such as those giving pedestrians and cyclists right of way.

In all Australian states and territories it is illegal to use a hand-held mobile phone when driving and when your vehicle is stationary but not parked, such as when you're at a red light.

Safe mobile phone and driving tips include the following.

- Pull over safely and park before making or receiving a call.
- Never read, write or send text messages.
- Never look up phone numbers or search on the internet while driving.
- Plan breaks in your trip for phone calls.
- Use voicemail.

A mobile phone can be an important emergency tool, but make sure you pull over and park your car before you use it.

7.6.5 Fatigue

Driving when fatigued is extremely dangerous. It is estimated that **fatigue** is a factor in 20 per cent of crashes. Most fatigue crashes occur during normal sleeping hours; however, fatigue is also common during daylight hours. Fatigue-related crashes seem to relate more to what drivers do before they begin their trip. Lack of sleep is a critical factor. Young drivers will be more at risk if:

- heavy study loads and work are combined with late-night socialising
- sleeping patterns change
- alcohol or other drugs are consumed.

The following checklist will help you to prepare for and prevent the risk of fatigue while driving.

Fatigue

What are the danger signs?

- Restlessness or daydreaming
- Yawning
- Sore or heavy eyes
- Delayed reactions

- Variations in driving speed or vehicle wandering across lanes

How is drowsy driving like drink-driving?

- Research shows that going without sleep for:
- 17 hours has the same effect on driving ability as a BAC of 0.05
- 24 hours has the same effect as a BAC of 0.10.

What if you start feeling driver fatigue?

- A power nap of 10 minutes or more can significantly lower the risk of a fatigue-related crash.

How can you avoid driver fatigue?

- Be well rested before you drive.
- Don't drive at times when you would normally be asleep.
- Don't start a trip after a long day's work.
- Be aware of your biological clock, such as often feeling sleepy during the afternoon.
- Plan your trip so you can take regular breaks.

The only cure for fatigue is sleep.
The police breathalise all drivers at some point.



7.6.6 Alcohol consumption and road safety

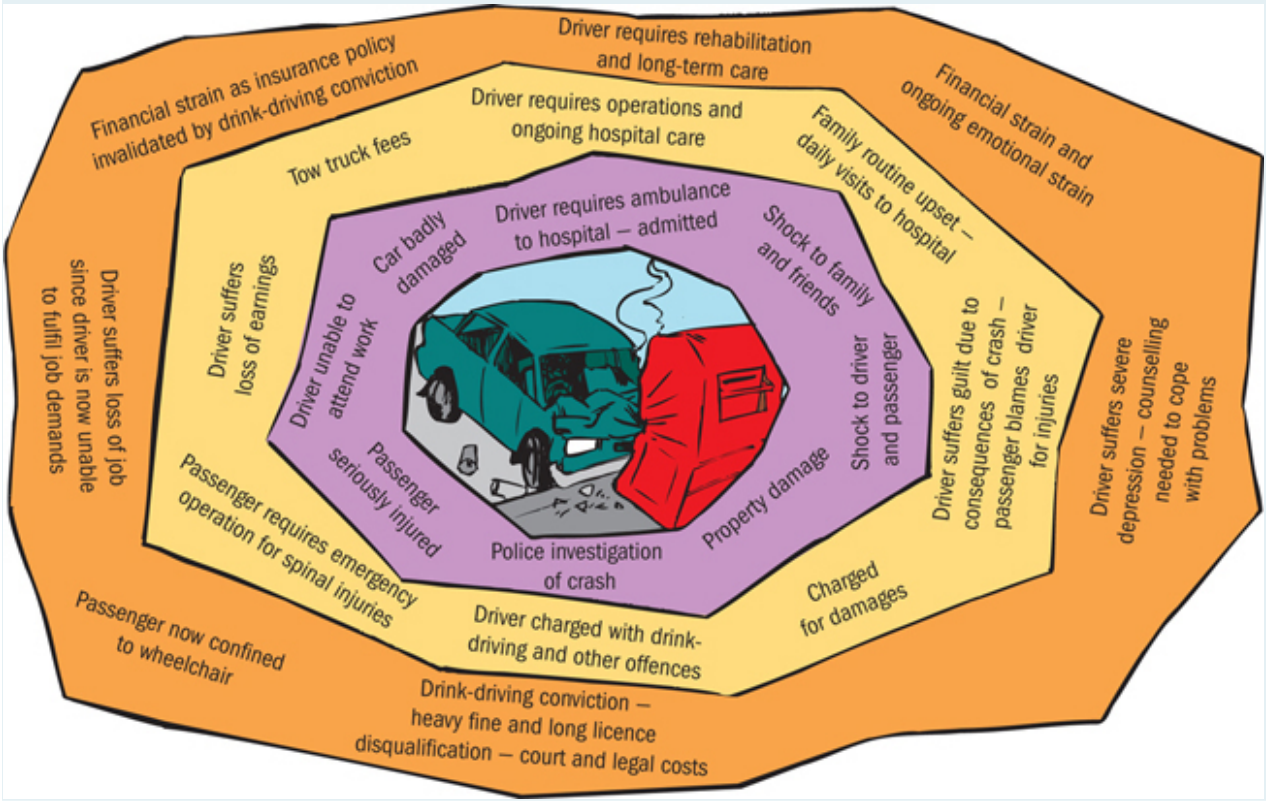
Alcohol and driving do not mix. If you intend to drink alcohol, you should organise alternative methods of travel or nominate a designated driver who will not drink alcohol at the event or party.

Blood alcohol concentration (BAC) is a measurement of the amount of alcohol in your bloodstream. A blood alcohol concentration of 0.05 means that a person has 0.05 grams of alcohol in their body for every 100 mL of blood. The legal limit for most drivers is 0.05; however, learner and probationary drivers must have a blood alcohol level of zero.

Knowledge about the short- and long-term effects of alcohol consumption may be useful to assist in understanding how alcohol consumption affects behaviour. An understanding of the effect of alcohol on driving is useful to illustrate why driving under the influence of alcohol is so dangerous. Any amount of alcohol will:

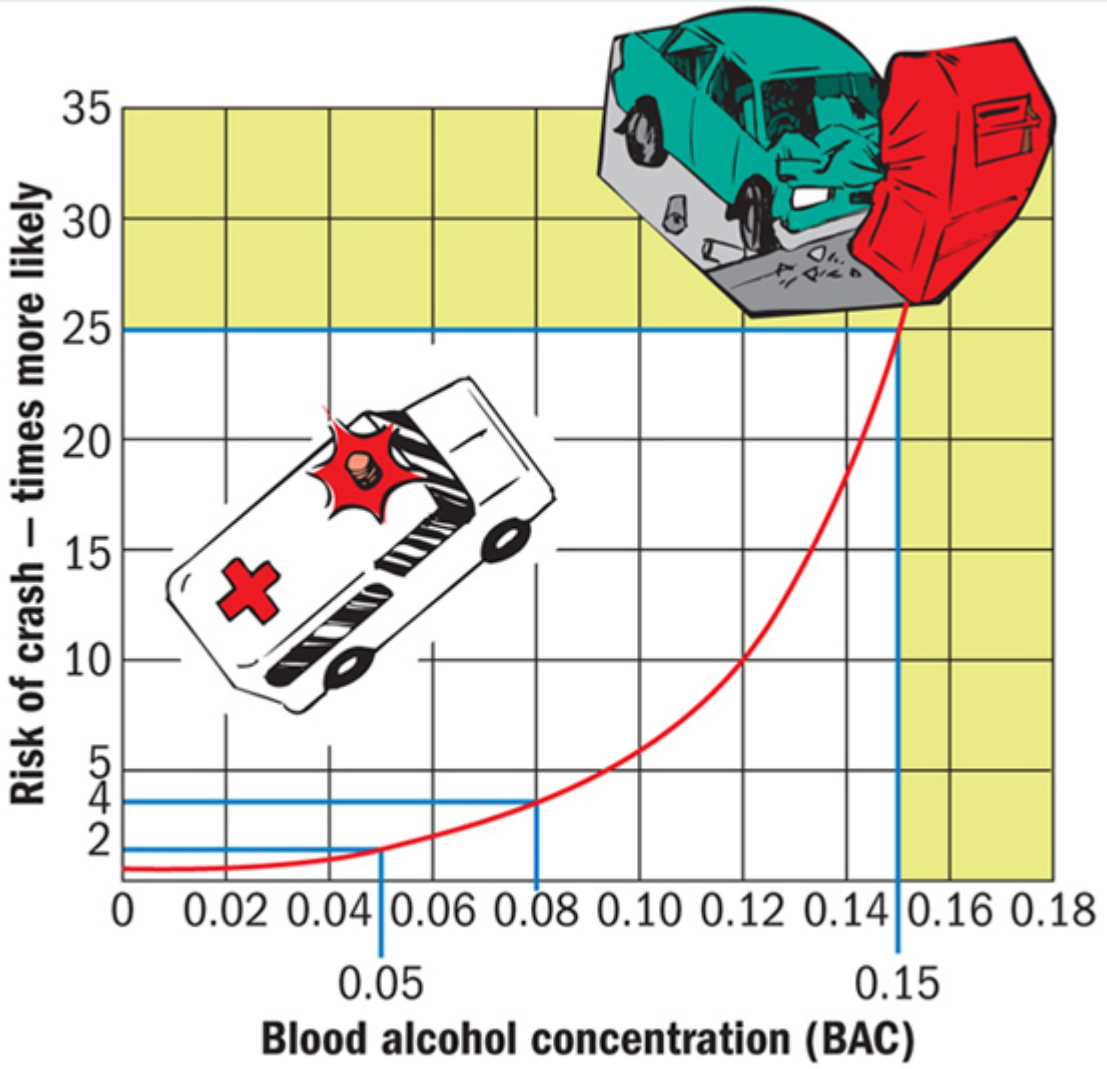
- reduce your ability to do more than one thing at a time
- make it hard for you to concentrate on your driving
- slow down your reaction time if anything unexpected happens (such as having to stop suddenly or swerve)
- make you feel more confident, which may lead you to take risks
- upset your vision, especially at night, and may also affect your hearing
- make simple tasks more difficult
- relax you, making you more likely to fall asleep at the wheel.

The possible short- and long-term effects of a drink-driving accident



The graph below clearly indicates why in 1989 the **TAC (Transport Accident Commission)** commenced its public education campaign to change drink-driving behaviour of drivers.

Probability of crashing at different blood alcohol concentrations



If you are no longer a probationary driver, and you must drive after having a couple of alcoholic drinks, it is important that your blood alcohol level remains below 0.05; however, remember that it is still safest to drive with no alcohol at all in your body. Use the **Standard drinks** interactivity in your Resources section to learn more.

on Resources

Try out this interactivity: Standard drinks
Searchlight ID: int-5505

7.6.7 Illicit drugs, medication and road safety

Be aware that drugs (medicinal or illicit) can decrease:

- mental alertness
- coordination
- sense of distance and speed
- vigilance and concentration
- reaction time.

When combined with alcohol, the result can be very dangerous. Stimulants and alcohol are a particularly dangerous combination as the alcohol may mask the effect of the drug and make it difficult for the driver to judge how, and to what extent, his or her ability to drive has been affected.

Police breathalyser vans and cars have the ability to test for drivers under the influence of drugs.

Medications and driving

If you or an adult or parent are taking medication for any of the following, you should carefully read the information accompanying the medicine and, if still concerned, contact the ADF (Australian Drug Foundation) on free call 1800 858584. Medication for these conditions can affect your ability to drive.

- Sleeping difficulties
- Depression
- Hay fever
- Blood pressure
- Nausea
- Anxiety
- Pain
- Arthritis
- Epilepsy
- Diabetes

Remember, when combined with alcohol, the result is unpredictable.

Illicit drugs

The effects of illicit drugs have been described in general earlier in section 7.4. Table 7.4 summarises the effects specifically related to driving.

TABLE 7.4: Drugs and driving do not mix

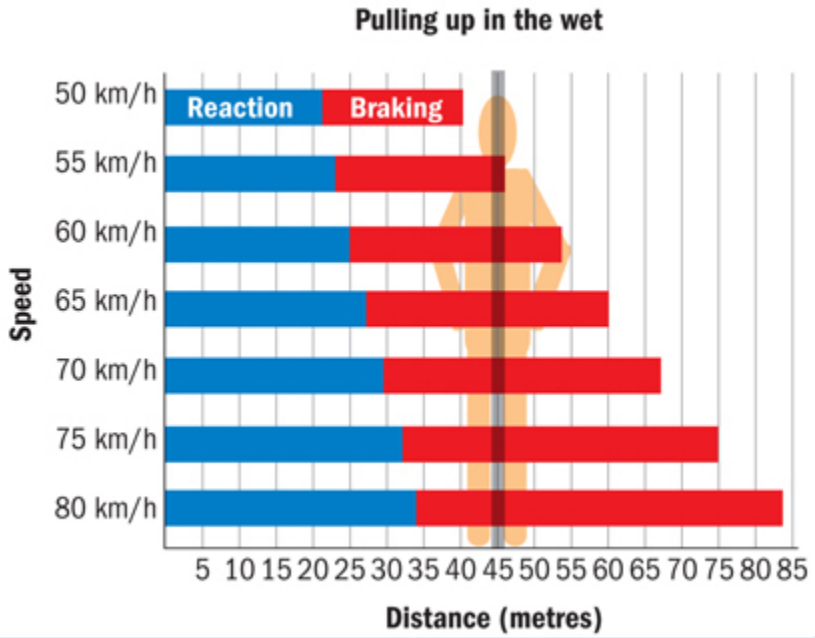
Drug	Effects on the driver
Ecstasy	• Gives the driver a false sense of confidence • Increases risk-taking behaviour • Distorts visual perceptions, which makes it difficult to judge distances • Decreases ability to coordinate the appropriate reaction when driving • Tiredness associated with an inability to sleep can greatly affect the driver's reflexes and ability to concentrate on driving
Cocaine	• Gives the driver a false sense of confidence • Rash decision-making and exaggerated confidence can lead to increased risk-taking behaviour • Does not increase driving ability or driver's coordination • Tiredness associated with an inability to sleep can greatly affect the driver's reflexes and ability to concentrate on driving
Amphetamines and methamphetamines	• Give the driver a false sense of confidence • Rash decision-making and exaggerated confidence can lead to increased risk-taking behaviour • Do not increase driving ability or driver's coordination • Tiredness associated with an inability to sleep can greatly affect the driver's reflexes and ability to concentrate on driving
Hallucinogens	• Distort driver's visual perceptions, making it difficult to judge distances and speed • Decrease ability to coordinate the appropriate reaction when driving • Tiredness associated with an inability to sleep can greatly affect the driver's reflexes and ability to concentrate on driving
Heroin	• Slows the driver's reaction time • Distorts driver's perceptions of distances and speed • Greatly reduces ability to concentrate • Decreases ability to coordinate the appropriate reaction when driving
Cannabis	• Hesitancy over reactions

Drug	Effects on the driver
	• Slower reaction time • Distorts driver's perception of distance and speed • Greatly reduces ability to concentrate • Decreases ability to coordinate the appropriate reaction when driving
Benzodiazepines and other tranquillisers	• Slow the driver's reaction time • Distort driver's perceptions • Decrease ability to coordinate the appropriate reaction when driving
Polydrug use	• Occurs when more than one drug is mixed at the same time so that both are active in the body. This can include alcohol, prescription and/or illicit drugs.
Source: Road safety issues in society, Ed. J Healey, Vol. 204, The Spinney Press, Thirroul NSW, 2004, pp. 24–7.	

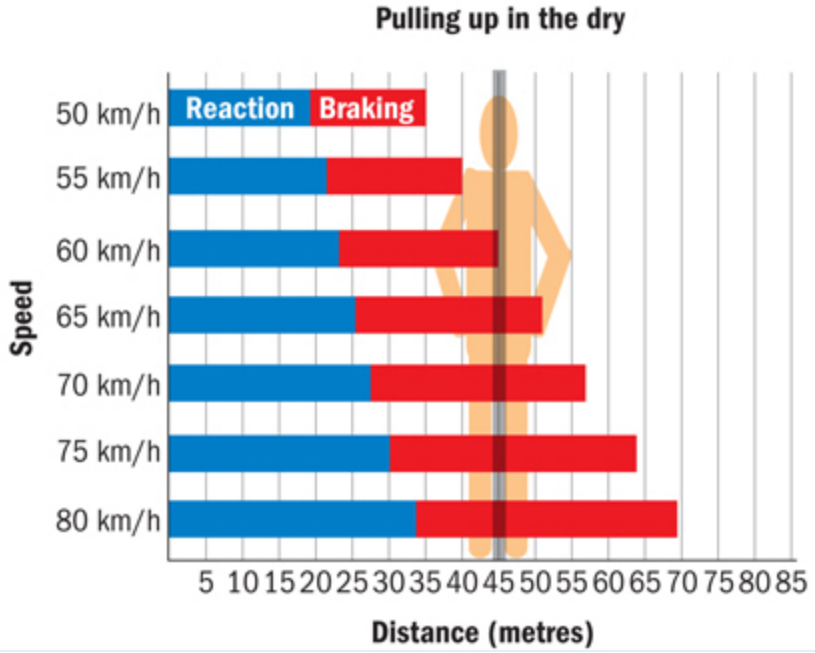
7.6.8 Speeding

Speed significantly increases the distance a vehicle needs to come to a complete stop after braking. The graphs below show the distance required to brake — depending on the weather conditions — if a person was to walk out onto the road 45 metres away from the car. Note that at speeds above 60 km/h, the person would be hit. In wet conditions, they would be hit at speeds above 55 km/h.

Pulling up in the wet



Pulling up in the dry



Speeding

Why does speeding increase the risk of crashing?

- Less time to notice and react to potential hazards
- More likely to lose control of your vehicle
- Longer braking distance

How does speeding increase crash severity?

- Research has shown that:
- a driver crashing at an impact speed of 80 km/h is twice as likely to be killed as a driver crashing at 60 km/h
- the probability of a pedestrian being killed in a collision involving a vehicle increases rapidly beyond impact speeds of 40 km/h.

Does speeding save you time?

- Generally, speeding will save you little time.
- Only 46 seconds is saved over 10 km by increasing average speed from 60 to 65 km/h.

How can you reduce your risk of speeding?

- Allow sufficient travelling time.
- Make a call if running late.
- Slow down in adverse conditions.
- Use speed limit warning devices where fitted.

Speeding increases the risk of crashing.



ACTIVITIES

1 TAC commercials

Use the **TAC** weblink in your Resources section to view the advertisements and then answer the following questions for each.

1. What is the message?
2. What age group and gender does it target?
3. What is your reaction to the advertisement?
4. Interview an adult and ask them about their reaction to the advertisement.
5. Comment on the long- and short-term impact of these types of advertisements on the general population.

2 Keys2drive

Use the **keys2drive** weblink in your Resources section to review and summarise a government initiative aimed at reducing the risk to young drivers on the road. Read the information and hints, and try the games. Do you think delivering information in various formats increases its effectiveness?

3 Effects of drink-driving accidents

Using the figure illustrating the possible short- and long-term effects of a drink-driving accident and the other information in this section, summarise the short- and long-term effects of a drink-driving accident on the driver, the driver's family and others.

4 Role-play

Use your understanding of the effects of drink-driving accidents and effective advertising campaigns to write a radio script for an anti-drink-driving advertisement.

5 Safety rating

Look up the safety rating of your family car using the **ANCAP safety rating** weblink in your Resources section and comment on its safety rating.

6 Law research

1. Research the anti-hoon laws and P-plate laws in Victoria. Do you think they will help to reduce the road toll for young male drivers?
2. Discuss the harm minimisation strategies that have been introduced since 2002 to help reduce the number of road crashes.

7 Promote it

Create your own road safety commercial and show it at your school assembly. Your commercial could show your group acting out responses to a road accident or it could be a PowerPoint slide show of shocking statistics.

CHECK & CHALLENGE

Explain

1. Which gender and age group has the greatest rate of fatality on the road? Explain why you think this is the case.
2. As a passenger, what signs should you look for that indicate the driver is fatigued?

Evaluate

3. Why do some people argue that the legal BAC should be decreased to 0.02? Give three reasons to support this argument and three reasons to dismiss it.

Elaborate

4. What safety technology has most improved car safety?
5. What are the main distractions to drivers and how do they affect driving?
6. Are there any road safety policies you disagree with? Why?
7. What road safety policies would you suggest to reduce the fatalities of young drivers?

on Resources

Explore more with these weblinks: ANCAP safety rating

7.7 Project: Risky business

projectsplus



7.7.1 Scenario

There are many new dangers for the younger generation. Learning about these dangers and making informed decisions is an important life skill. The education department is trying to teach students and prevent these dangers affecting the younger generation through their Health Education program.

Students are keen to re-develop the Health Education program and teach the topic from a young person's perspective. Topics include drugs, alcohol, relationship problems, STIs, road safety, cyber bullying and coping with stress.

7.7.2 Your task

In small groups, identify risky behaviours. Your group will need to choose one risk to focus on. The task is to develop a presentation to help teach the class the short-term and long-term effects of the risky behaviour, and how to minimise the risky behaviour. At the end of the presentation, you are to test your classmates using an interactive quiz you have prepared about the facts of your assigned topic.

Often there are myths, misconceptions and social pressures circulating about dangerous life choices, and many risky situations occur because people are unaware of the facts and likely consequences. Your team's interactive quiz will test the facts about the topic. The quiz will involve multiple-choice questions. Your classmates will win points by correctly answering questions of increasing difficulty within each category, with 100 points for the easiest questions and 500 points for the most difficult.





7.7.3 Process



- Open the ProjectsPLUS application for this chapter in your Resources section. Watch the introductory video lesson, click the ‘Start Project’ button and then set up your project group. You can complete this project individually or invite other members of your class to form a group. Save your settings and the project will be launched.
- Your objective is to make people aware of the facts and risks involved in dangerous behaviour. Test your classmates' awareness by giving them a quiz on the facts.
- Your team's interactive quiz will highlight key aspects of the risky behaviour. Categories that could be chosen are listed in the box below.
- Navigate to the Research Forum. Ten question categories have been pre-loaded as topics in the system. Choose four for your game and delete the other topics.
- Using your Resources section as your starting point, research ideas for questions in the categories you have chosen. Make notes about surprising facts, intriguing misconceptions and common consequences that you discover. Each group member should create at least three multiple-choice questions for each of the categories, some easy, some moderate and some hard. Remember that in a good test, there are plausible ‘wrong answer’ options. Enter your suggested questions as articles in the Research Forum. You can view and comment on other group members' questions.

- Visit your Media Centre to find images you may like to incorporate into your test.
- Your group should now collaborate to narrow down the questions so that for each category, there is one 100-point, one 200-point, one 300-point, one 400-point and one 500-point question. In other words, for each category you will need five questions of increasing difficulty, with 20 questions in total for your four categories.
- Once the questions have been finalised, you must add them to the PowerPoint game template located in your Media Centre. In your Media Centre you will also find a selection of images to download and use in your PowerPoint game.
- Assign time for each of your group members to have access to your PowerPoint file, and remember to leave time before the final due date so you can review each other's work and make any changes. Keep the team's quiz consistent by using the same font, the same style of graphics, etc.
- Print out your research report from ProjectsPLUS and hand it in with your PowerPoint game.



SUGGESTED CATEGORIES

- Facts about the topic
- Why are people involved in taking risks?
- Short-term effects
- Long-term effects
- Prevention strategies
- Services and support
- Laws and government programs
- Social pressure and consequences
- Health consequences
- Financial pressure and consequences

SUGGESTED SOFTWARE

- ProjectPLUS
- PowerPoint

MEDIA CENTRE



Your Media Centre contains:

- a PowerPoint game template
- a bank of images alluding to risky behaviour
- weblinks to help you research facts for your quiz questions
- an assessment rubric.

on Resources

Watch this eLesson:
Searchlight ID: pro-0063

7.8 Review

7.8.1 What have I learned?

- Risk taking is part of everyday life and can have positive or negative effects on people and property.

- Adolescents are more likely to undertake harmful risks due to inexperience.
- Making responsible decisions will minimise harmful risk taking.
- Outdoor adventure activities and many sports offer an outlet for acceptable risk taking.
- Harm minimisation strategies are designed to reduce risk and minimise potential harm.
- Federal and state governments have introduced harm minimisation strategies in many areas, including smoking, road safety and illicit drugs.
- Alcohol is a legal drug that can cause short- and long-term harm to health.
- Binge drinking is a particular problem among adolescents.
- Illicit drugs also cause short- and long-term risks to health.
- Safe partying requires careful planning, and such planning is an excellent harm minimisation strategy.
- Smoking is a legal activity for adults, but the chemicals in tobacco cause short- and long-term health problems.
- The Quit campaign targets tobacco smoking and aims to reduce its use, particularly among teenagers.
- Safe driving is dependent upon all road users following harm minimisation strategies such as wearing seatbelts, being below the 0.05 BAC limit and obeying speed limits.
- Males under the age of 25 are overrepresented in crashes and road deaths.
- Driving when fatigued is a significant factor in road deaths.
- Drink-driving is a major cause of road crashes and police test for BAC regularly.
- Illicit drugs and some medications impair a driver's ability to control his or her vehicle.

CHECK

1. Why do people take unnecessary risks?
2. What is meant by the term ‘harm minimisation’?
3. List five important tips for organising a safe party.
4. List the major harmful effects of smoking on the body.
5. What is an illicit drug? Give examples.
6. What factors help contribute to injury and death on the roads?
7. Which gender and age group is most at risk of being killed on the road?
8. Name harm minimisation strategies that are used to decrease the road toll.
9. What is a standard drink? How many standard drinks can males and females have to remain under the 0.05 BAC limit?
10. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

How can the risk of injury and death to young people be minimised?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14739

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5401

Try out this interactivity: True/false quiz
Searchlight ID: int-5402

Try out this interactivity: Crossword
Searchlight ID: int-5403

Chapter 8: Promoting healthy communities

Contents

8.1 Overview

8.2 The health status of a nation

8.3 Community influences on healthy behaviours

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8 Promoting healthy communities



8.1 Overview

8.1.1 Health, community and sustainability

Learning objectives

- Critically analyse and apply health information from a range of sources to health decisions and situations (ACPPS095)
- Evaluate health information from a range of sources and apply to health decisions and situations (VCHPEP148)
- Plan, implement and critique strategies to enhance the health, safety and wellbeing of their communities (ACPPS096) (VCHPEP149)
- Plan and evaluate new and creative interventions that promote their own and others' connection to community and natural and built environments (ACPPS097) (VCHPEP150)
- Critique behaviours and contextual factors that influence the health and wellbeing of their diverse communities (ACPPS098)

- Critique behaviours and contextual factors that influence the health and wellbeing of their communities (VCHPEP151)

Your health and the health of those around you will be an ongoing issue throughout your life. Being healthy is not just about the food you eat or the amount of exercise you do, but also incorporates how you are functioning mentally, socially and physically. How healthy you are will affect many aspects of your life, so it's wise to take an interest now!

Regardless of where you live now or where you will live in the future, you will be part of a community. It is important for your health and the health of those around you that you are connected to this community and the environment in which you live. As sustainable living becomes more accessible it will benefit your health and wellbeing to adopt a more sustainable lifestyle. An active and inclusive community is a healthy one!

What responsibilities do young Australians have for their own health and wellbeing?



ESSENTIAL QUESTIONS

1. What are some of the health issues affecting Australians, and what is being done to reduce the prevalence of these health problems?
2. In a world where connections occur more regularly online, how can you ensure you remain connected physically to your environment and the community in which you live?

STARTER QUESTIONS

1. What does being healthy mean to you?
2. Who is responsible for your health?
3. What is a healthy community?
4. What does living sustainably mean to you?
5. What factors affect the health of your community?
6. How do people in your community connect?
7. Where do you go to seek information about your health?
8. Overall, how healthy do you think Australians are compared to the rest of the world? Why?

INQUIRY SEQUENCE

8.2 The health status of a nation

8.3 Community influences on healthy behaviours

8.4 Connection to community

8.5 Connection to the environment

8.6 The national health care system

8.7 Government health promotion initiatives

8.8 Health promotion of specific community groups

8.9 Private sector and community health promotion initiatives

8.10 Review

on Resources

Watch this eLesson: Promoting healthy communities
Searchlight ID: eles-2339

8.2 The health status of a nation

8.2.1 Health in Australia

This lesson investigates the health of the ‘whole person’ and the community. You will explore the causes of illness, injury and death in Australia, and examine the nine National Health Priority Areas (NHPA).

ENGAGE

Australia has one of the highest life expectancies and best health systems in the world. Despite this, many Australians suffer from chronic illnesses. This is a growing problem facing the health system as the population ages.

Chronic diseases, such as some cancers, heart disease and type 2 diabetes, are estimated to be responsible for nearly 80 per cent of the total burden of disease and injury in Australia, and more than two-thirds of all health expenditure. Total expenditure on health goods and services in Australia in 2011–12 was estimated at $140.2 billion. Diabetes and heart disease alone cost the health system more than $6 billion each year. These chronic diseases are also having a large impact on some community groups, particularly Indigenous Australians.

Evidence has shown that certain lifestyle behaviours promote the onset of chronic disease. These include being overweight or obese, not getting enough physical activity, smoking, excessive alcohol consumption and unhealthy eating.

What habits do you have that may negatively affect your health?





Use the **KWLH** worksheet and the **Department of Health** weblink in your Resources section to complete an in-depth investigation into one or more of the following issues affecting the health of Australians.

- Dementia
- Osteoporosis
- Mental health issues related to adolescents
- Depression
- Melanoma
- Rheumatoid arthritis
- Asthma
- Stroke

- Diabetes mellitus type 2
- Immunisation
- Suicide
- Osteoarthritis
- Obesity
- HIV and AIDS
- Atherosclerosis

on Resources

Complete this digital doc: KWLH
Searchlight ID: doc-14740

Explore more with these weblinks: Department of Health

8.2.2 The health status of a nation

The National Health Survey conducted by the Australian Bureau of Statistics (2014–15) showed that the majority of Australians consider themselves to be in very good or excellent health.

Health status was strongly related to illness conditions. Those people with one or more medical conditions rated their health status lower than those without medical conditions. Overall, 75 per cent of the total population reported that they had one or more current long-term medical conditions. Many of these conditions were either minor or temporary and were easily managed.

8.2.3 National Health Priority Areas

The National Health Priority Areas (NHPA) are:

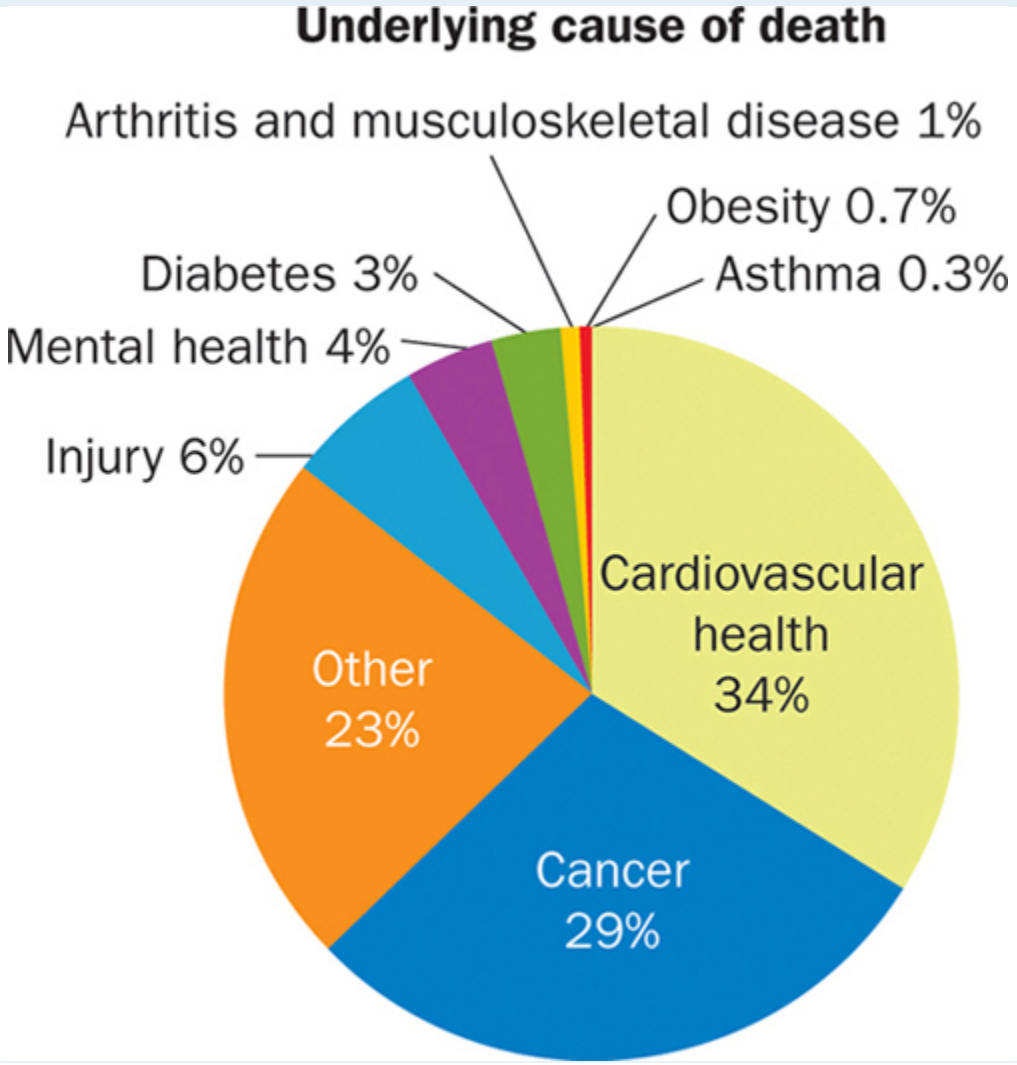
- cardiovascular health
- cancer control
- injury prevention and control
- mental health
- diabetes mellitus
- asthma
- arthritis and musculoskeletal conditions

- obesity
- dementia.

The NHPA initiative was Australia's response to a global strategy proposed by the World Health Organization (WHO). The initial NHPAs, outlined in 1996, included cancer control, cardiovascular health, injury prevention and control, and mental health. A further five NHPAs have been added since this time: diabetes mellitis (1997), asthma (1999), arthritis and musculoskeletal conditions (2002), obesity (2008) and dementia (2012).

In 2007, the NHPAs were associated with 90 per cent of deaths in Australia, and were the underlying cause of 77 per cent of these.

Poor cardiovascular health accounts for a significant number of deaths in Australia.



As a result, the Commonwealth, state and territory governments, as well as the private sector, have agreed to work together to develop and monitor program initiatives to improve health outcomes in these nine areas.

8.2.4 Risk factors

In addition to identifying the National Health Priority Areas, the risk factors common to the priority areas have been identified. These are shown in table 8.1.

The NHPA initiative recognises that strategies are needed to control these risk factors to prevent the onset, and reduce the long-term impact, of NHPA diseases and conditions.

TABLE 8.1: Common risk factors for the NHPA diseases and conditions

	Risk factor					
NHPA disease	**Tobacco smoking**	**Physical inactivity**	**Poor diet and nutrition**	**Excess body weight**	**High blood pressure**	**High blood cholesterol**
Type 2 diabetes	✓	✓	✓	✓	✓	✓
Asthma	✓					
Coronary heart disease	✓	✓	✓	✓	✓	✓
Stroke	✓	✓	✓	✓	✓	✓
Lung cancer	✓					
Colorectal cancer		✓	✓	✓		
Osteoarthritis		✓		✓		
Osteoporosis	✓	✓				

Source: Australian Institute of Health and Welfare (www.aihw.gov.au/nhpa/riskfactors/index.cfm).

There is evidence that lifestyle behaviours can promote or prevent the onset of chronic disease.



DID YOU KNOW?

After skin cancer, prostate cancer is the most common cancer in Australian men, and the second highest cause of male cancer deaths.

8.2.5 Cardiovascular health

In 2014, heart disease was the leading underlying cause of death for one in seven men and one in eight women in Australia. Heart disease includes angina, blocked arteries (heart) and heart attacks. In addition to the obvious grief suffered by families of cardiovascular victims, there is a considerable economic cost to the community in caring for people with cardiovascular disease. Cardiovascular disease is discussed more fully in chapter 5. Use the **Heart disease hits hardest in rural areas** eLesson and related weblinks in your Resources section to investigate heart disease further.

on Resources

Watch this eLesson: Heart disease hits hardest in rural areas
Searchlight ID: eles-0216

Explore more with these weblinks: Australian Cardiovascular Health and Rehabilitation Association

Explore more with these weblinks: National Heart Foundation

8.2.6 Cancer control

Cancer contributes to 3 out of every 10 deaths in Australia each year. It is a major cause of death and illness, and it impacts dramatically upon medical and care agencies within the community.

Important aspects of cancer control include the modification of risk behaviours such as cigarette smoking, excessive alcohol intake and exposure to the sun, along with early detection through screening programs.

Skin cancer

Australia has the highest incidence of skin cancer in the world. Two out of three Australians develop skin cancer at some stage in their life. The major cause is overexposure to the sun's ultraviolet radiation during childhood and adolescence. The ultraviolet rays in solariums have the same damaging effect as those that burn your skin when you are out in the sun. Solariums emit UVA and UVB radiation from above and below your body. Even small doses of UVA and UVB damage the skin, contribute to the ageing process and can cause skin cancer. Since the end of 2014, commercial solariums have been banned in the Australian Capital Territory, Queensland, New South Wales, South Australia, Tasmania and Victoria. In Western Australia and the Northern Territory increased safety provisions have been added, but there is no legislation to ban solariums yet.

Sunbathing is a dangerous activity, even with sunscreen and a hat. Australia has the highest incidence of skin cancer in the world.



The SunSmart campaign launched by the Cancer Council now uses the slogan, ‘Slip, Slop, Slap, Seek and Slide’. The new slogan of five steps stands for:

- *Slip* on a shirt
- *Slop* on some sunscreen
- *Slap* on a hat
- *Seek* out some shade
- *Slide* on some sunglasses.

Skin cancers account for 80 per cent of all new diagnosed cancers in Australia each year, and **melanoma** is the most diagnosed cancer for 15–44 year olds. The SunSmart campaign has had a large impact on the precautions Australians take when it comes to working and playing outside. In addition, most primary schools and many secondary schools now have strictly enforced sun protection policies.

For more information about cancer, follow the weblinks in your Resources section.

Cancer screening programs

The following screening programs provide a sample of those that are currently sponsored by the government.

1. Free breast screening (**mammogram**) targeted at women aged 50–69 years, but also available to women aged 40–49 and 75 and over.
2. Cervical screening (pap smear), funded through Medicare, is recommended every two years from the ages of 18–20 until 70 years old.

3. In May 2017, a human papillomavirus (HPV) test will replace the current Pap test for cervical screening. This will cover women aged 25 to 74 years. HPV vaccinated and unvaccinated women will be given an HPV test every five years.
4. The cervical cancer vaccine is a prevention program for 12–13-year-old girls and boys in the first year of secondary school.
5. By 2020, bowel cancer screening will be offered to people aged between 50 and 74.

DID YOU KNOW?

- Skin cancer costs the health system around $300 million annually, the highest cost of all cancers.
- Bowel cancer can be successfully treated if detected early, but currently fewer than 40 per cent of bowel cancers are detected early.

Resources

Explore more with these weblinks: Cancer Australia
Explore more with these weblinks: Cancer Council Australia
Explore more with these weblinks: SunSmart

8.2.7 Injury prevention and control

Approximately six per cent of all deaths are due to external causes. The leading cause of external death was suicide, followed closely by transport accidents.

Injuries are a major source of preventable illness and a significant cause of ongoing disability, often requiring hospitalisation. This places a heavy burden on health services and is a large financial cost to the community.

Each year 400 000 people have an injury so severe that they need to be admitted to hospital. Older people, particularly women, have high rates of injury. Teenagers and young adults also have a high rate of injury. Fractures, dislocations, sprains, bruising, muscle tears and strains are common injuries in sport. As most young Australians participate in some form of recreation or sport, it is important to provide relevant and accurate information and strategies for both preventing and treating sports injuries. Chapter 6 provides comprehensive information about the prevention and treatment of sports injuries. For more information follow the **Australian Injury Prevention Network** weblink in your Resources section.

on Resources

- **Explore more with these weblinks:** Australian Injury Prevention Network
- **Explore more with these weblinks:** Mental Health Council of Australia
- **Explore more with these weblinks:** Headspace
- **Explore more with these weblinks:** 10 tips to improve your mental fitness

8.2.8 Mental health

Mental health is related to emotions, thoughts and behaviours. People with good mental health are able to cope with general day-to-day events and challenges. They can work toward personal goals and function as effective members of the community. People with even a minor mental health problem may find that everyday activities are difficult to undertake and they cannot function as expected in the workplace, school, family or the general community.

The most recent National Survey of Mental Health and Wellbeing conducted by the Australian Bureau of Statistics found that an estimated 3.2 million Australians (20 per cent of the population aged 16–85) had a mental disorder in the 12 months prior to the survey.

More information on mental health, and supporting people with mental health problems, can be found in chapter 9 and in the weblinks in your Resources section.

8.2.9 Diabetes mellitus

Diabetes mellitus is a **long-term condition** characterised by high blood glucose levels due to the body producing little or no insulin, or not using insulin properly. Insulin is a hormone that helps with the movement and processing of glucose in the body. It is produced by the pancreas, an organ located at the back of the abdomen, behind the stomach.

The three main forms of diabetes mellitus are:

- gestational diabetes — which occurs during pregnancy and generally goes away once the baby has been born
- type 1 diabetes — an unpreventable, incurable auto-immune condition, in which the pancreas ceases to produce insulin because the cells reponsible for insulin production have been destroyed by the immune system.

- type 2 diabetes — a condition that develops gradually, with the body either losing the capacity to produce enough insulin, or becoming resistant to the effects of the insulin produced. This type of diabetes is often acquired later in life and although its exact cause is not known, type 2 diabetes runs in families (people may have a genetic predisposition to developing the disease) and numerous lifestyle risk factors that have also been identified. One of the key risk factors is being overweight or obese. This relationship is discussed further in topic 11.

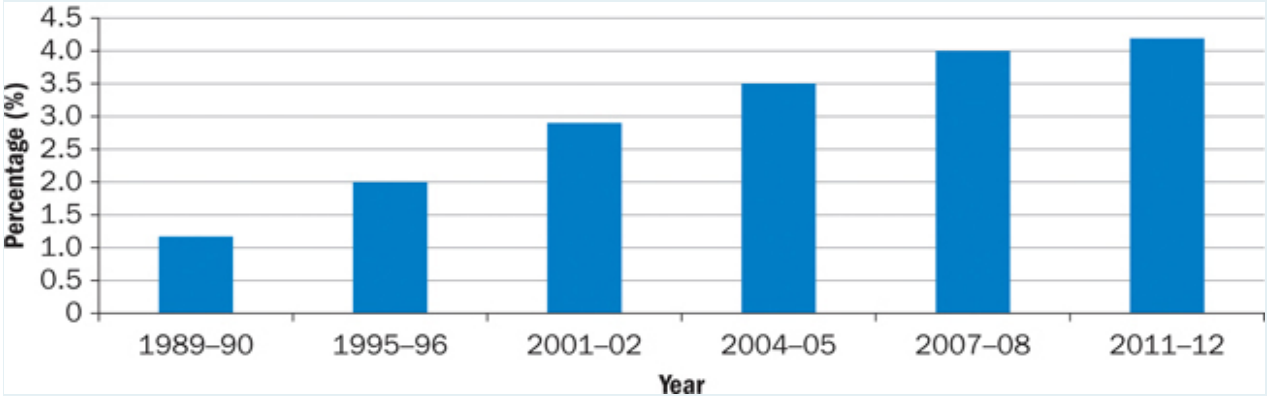
Diabetes is a costly disease and can lead to cardiovascular complications, eye and kidney diseases, and limb amputations.

The total financial cost of type 2 diabetes is estimated at $10.3 billion. Approximately 280 Australians develop diabetes every day. Almost 1.1 million Australians currently have diagnosed diabetes. This includes

- 120 000 people with type 1 diabetes
- 956 000 people with type 2 diabetes
- 23 600 women with gestational diabetes.

At least 2 million Australians have pre-diabetes and are at high risk of developing type 2 diabetes. For more information about diabetes, follow the **Diabetes Australia** and **Australian Diabetes Society** weblinks in your Resources section.

Percentage of the Australian population suffering from diabetes



Resources

Explore more with these weblinks: Diabetes Australia

Explore more with these weblinks: Australian Diabetes Society

8.2.10 Asthma

Asthma is a chronic inflammatory disorder of the lungs and air passages. An attack makes air passages narrow in response to various triggers, leading to shortness of breath, wheezing and, in severe cases, respiratory arrest. Asthma can begin at any age and is one of the most frequent reasons for hospitalisation among children aged 0–14 years.

In Australia, asthma affects one in six children and one in nine adults.



The management of asthma is an important public health issue because of the burden it places on those with asthma and the financial burden it places on the health system. The treatment and management of asthma is discussed more fully in chapter 6. To learn more about asthma, follow the **Asthma Australia** and **National Asthma Council Australia** weblinks in your Resources section.

DID YOU KNOW?

The prevalence of asthma in Australia is high by international standards.

Resources

Explore more with these weblinks: Asthma Australia

Explore more with these weblinks: National Asthma Council Australia

8.2.11 Arthritis and other musculoskeletal diseases

The most common musculoskeletal conditions are:

- osteoarthritis
- rheumatoid arthritis
- osteoporosis.

These diseases have low **mortality** rates; however, they have substantial impact on the quality of life of sufferers and place a heavy burden on the community.

Almost one in five Australians (3.85 million people) has arthritis and 2.2 million have osteoporosis.

It is estimated that by 2050, 7 million Australians will suffer from arthritis. In 2007, Access Economics estimated arthritis cost the economy $23.9 billion.

Osteoarthritis

Osteoarthritis affects the cartilage in joints. The cartilage degenerates and causes pain. It is most common in the knees, neck, lower back, hip and fingers.

Rheumatoid arthritis

This is an inflammatory joint swelling and degeneration. The immune system attacks the tissue lining the joints, causing inflammation, pain, heat and swelling.

Osteoporosis

Bone density and structure deteriorate, leading to risk of fracture. The most common sites are the spine, hip and wrist.

on Resources

Explore more with these weblinks: Arthritis Australia

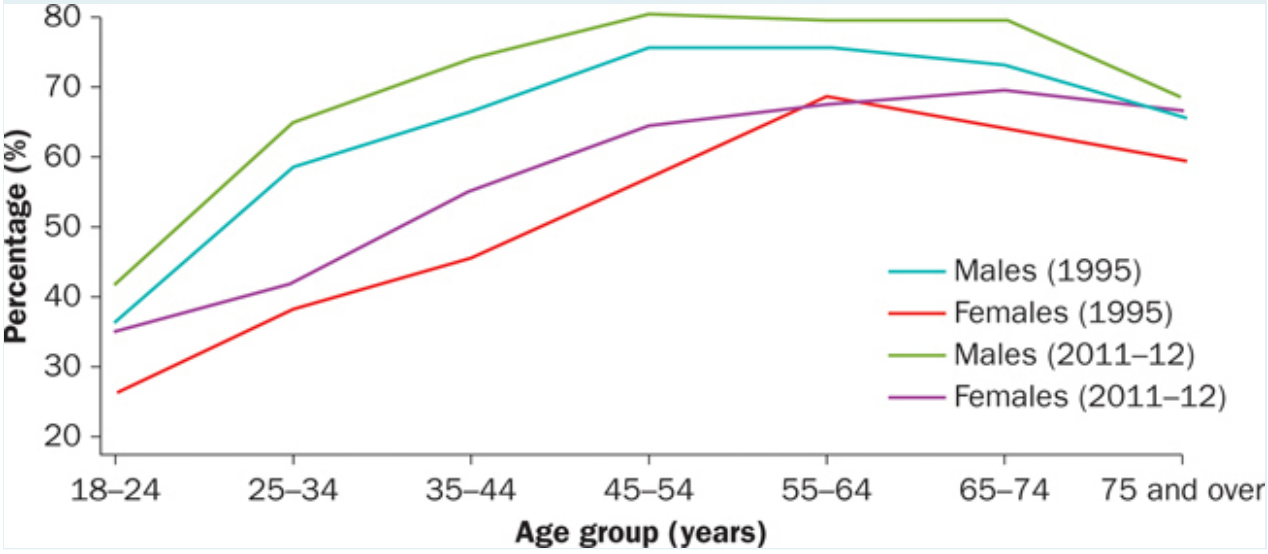
Explore more with these weblinks: National Institute of Arthritis and Musculoskeletal and Skin Diseases

8.2.12 Obesity

Australia is one of the most overweight nations in the world. In the latest National Health Survey in 2014−15, more than 60 per cent of adults and one in four children were found to be either **overweight** or **obese**. This is one of the greatest public health challenges confronting Australia, along with many other developed countries. The rate of overweight/obesity in Australia increases with age. In 2014−15:

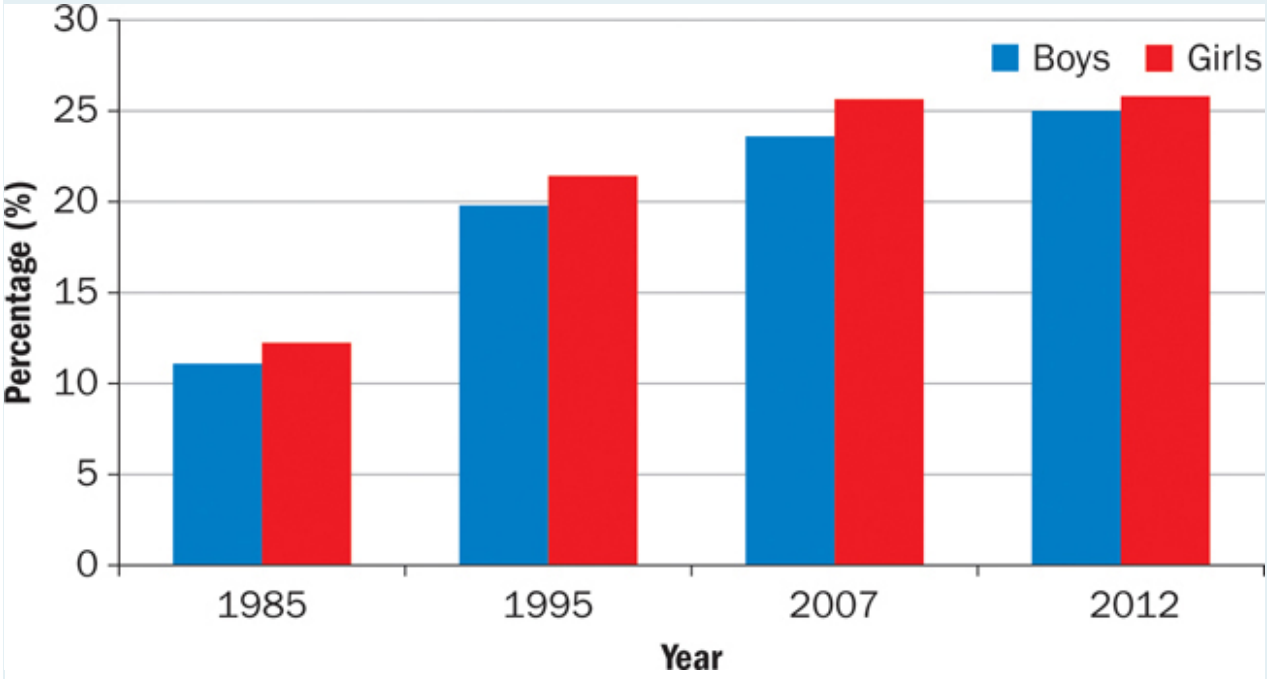
- young people aged between 18−24 years of age had the lowest rates of overweight/obesity in the Australian population.
- of children aged 5−17 years, 24 per cent of boys and 27 per cent of girls were either overweight or obese
- 79.4 per cent of males aged between 45−74 years were overweight or obese
- 65.7 per cent of females aged between 55−74 years were overweight or obese.

Overweight or obese Australia 1995 and 2014–15



The prevalence of overweight and obesity has been steadily increasing over the past three decades, sharply escalating in the last 15 to 20 years. In 1995, 56.3 per cent of Australians were overweight or obese. Overall, 70.8 per cent of men were overweight or obese in 2014-15, compared with 56.3 per cent of women.

Prevalence of overweight and obesity in Australian children aged 7–15 years, 1985–2012



Note: Data weighted for age, gender and region.

Obesity increases the risk of many other chronic and potentially lethal diseases and adds to Australia's health costs significantly. High body weight was thought to be responsible for 5.5 per cent of the total burden of disease in 2011, coming just after tobacco use and high blood pressure. In 2008, it was estimated that the total financial cost of obesity in Australia was $8.3 billion.

What are the risks of being overweight or obese?

People who are overweight or, in particular, obese have higher rates of mortality and morbidity than those who have a healthy body weight. Being overweight increases the risk of illness overall and from specific conditions. Obesity increases the risk of coronary heart disease, type 2 diabetes, gall bladder disease, ischaemic stroke, osteoporosis, sleep apnoea and some cancers. Weight loss can reduce the severity of some of these conditions, as well as improving cholesterol levels, blood pressure and glycaemic control, and decreasing the symptoms of osteoarthritis.

How do you maintain your health and wellbeing in the long term?



Resources

Explore more with these weblinks: Obesity Australia

Explore more with these weblinks: Obesity Policy Coalition

8.2.13 Dementia

Dementia is the single biggest contributor to the burden of disease due to disability in old age and is recognised as a major burden on the national health system. It is estimated that 322 000 people aged 65 and older suffer from dementia.

Dementia is a loss of brain function present over an extended period of time. It can be caused by degenerative (non-reversible) Alzheimer's disease; vascular dementia is caused by a series of small strokes that impair brain function. The two conditions often occur together. Dementia is rare in people under 60.

Symptoms of dementia

Dementia may be diagnosed when a patient has two or more problems in brain function. The problems may include language, memory, perception, emotional behaviour, or personality and cognitive skills, such as calculation, abstract thinking or judgement. Dementia usually first appears as forgetfulness.

on Resources

Explore more with these weblinks: Fight Dementia Australia
Explore more with these weblinks: Dementia Care Australia

8.2.14 Keeping yourself healthy

It is important to take action now in relation to your own personal health. If you want to reduce your risk of getting the chronic diseases we've just looked at, you need to pay attention to the behaviours in your lifestyle that could promote the onset of these diseases.

On top of eating nutritious foods and increasing physical activity to stay healthy, you must also think about your mental health. One part of this is to focus on positive self-talk. The way you talk to yourself has a huge impact on your outlook and motivation. Positive self-talk is the thoughts in your head and the things you say to yourself in order to uplift your spirits. Positive self-talk can and should be practiced in order to increase your confidence and reduce stress, both of which help keep you in positive health.

ACTIVITIES

1 Changing lifestyles

1. Different lifestyle choices in subsequent generations have been identified as factors that contribute to the increasing prevalence of diseases such as obesity and type 2 diabetes. In small groups, develop interview questions that reveal information about lifestyle choices that may be relevant to this topic.
2. Use these questions to interview your parents or other adults who grew up in the 1960s and 1970s. In particular, gather information about their lifestyle when they were adolescents.
3. Ask the same interview questions to a person in your class.
4. As a class, collate the information and conduct a class discussion on the similarities and differences between the lifestyle choices of the generations interviewed. Try to draw conclusions about the changes between the lifestyle choices of the two generations, and identify what factors could be responsible for the increasing prevalence of obesity.

2 Reducing your risk

Think about what you can do to reduce your chance of getting a health-related illness. Refer back to the nine National Health Priority Areas and as a class identify what you can do now and as you get older to reduce your risk in each of the areas.

3 Using self-talk

With the person next to you, discuss some ways you have used self-talk. Describe an incident where positive self-talk helped or motivated you. Is your self-talk always positive? Examine ways and situations you can practise positive self-talk to yourself.

4 Investigative report

Investigate one of the National Health Priority Areas and provide a report that covers:

1. incidence, age groups, gender and ethnicity
2. contributing causes and symptoms
3. treatments
4. local support agencies.

5 Mind map

Create a mind map to address one or more of the following topics. A simple example is illustrated below.

1. Dementia should not have been made a National Health Priority Area because it affects only a small percentage of the population and does not directly cause death.
2. Smoking should be banned in all public places in Australia.
3. All schools should enforce a sun smart policy that includes the wearing of hats and mandatory application of sunscreen at recess and lunchtime.



6 Media watch

1. Find a newspaper report about a health topic that affects Australians.
2. Compare the class collection to see whether there is a significant concern in a particular area.
3. Discuss why the media might report more on specific areas of health.

7 Health management

Interview a friend, relative or classmate about how they manage their asthma or diabetes.

8 BMI+

Use the **BMI+** worksheet in your Resources section and the internet to research BMI. Complete a pros–cons–questions analysis table on BMI in relation to the problem of obesity in Australian society. As a class, compare information and see whether individual questions can be answered.

Pros — How does BMI help overcome the problem of obesity?	Cons — What are the weaknesses or limitations of BMI?	Questions — What questions do you have about BMI?

CHECK & CHALLENGE

Explain

1. Explain what causes diabetes mellitus.
2. Why is the incidence of diabetes predicted to grow over the next decade?
3. Why were the nine areas identified as National Health Priority Areas?
4. The words ‘overweight’ and ‘obese’ are often used as if their meanings are the same. Explain why this is incorrect, and clarify what each means.

Evaluate

5. Does your school have a sun smart policy? If so, evaluate how effectively the policy is enforced. If not, suggest why introducing such a policy would be a good idea.
6. What lifestyle choices are contributing to the increase in prevalence of obesity and type 2 diabetes?
7. Do you believe dementia should have been added as a National Health Priority Area? Why or why not?

Elaborate

8. Why do food companies ‘supersize’ their serving sizes, and what effects has this had on society?
9. What are some of the social and emotional consequences affecting overweight and obese adolescents?

on Resources

Complete this digital doc: BMI+
Searchlight ID: doc-14741

Explore more with these weblinks: Early death from preventable diseases

Explore more with these weblinks: Physical Activity Everyday

8.3 Community influences on health behaviours

8.3.1 Context of health

A number of factors can affect the health of people in the community. In this section you will explore how the context of people's lives contributes to their health. You will look at why community health programs are vitally important and discover whether the communities you are a part of are healthy or not.

ENGAGE

Each **community** plays an important role in the health of individuals. Communities can influence health by providing and promoting services to individuals, providing opportunities for individuals and groups to make connections, and encouraging healthy and active lifestyle choices.

Think about how your local community encourages or discourages the health of the individuals in it. What about your school community?



8.3.2 Determinants of health

The health of individuals and communities is affected by many factors. These include:

- where we live
- what the physical environment is like
- genetics
- how much we earn
- education level
- our relationships with friends and family.

What types of factors affect your health?



Surprisingly, access to and the use of health care services often have less of an impact. If individuals require health care services such as doctors, dentists, counsellors or psychologists, they will usually seek them out. It is the more immediate behavioural and contextual factors that can greatly determine the health of individuals and communities.

The **determinants of health** include the social and economic environment, the physical environment, and the person's individual characteristics and behaviours.

Health is influenced by the context of people's lives. Individuals are unlikely to be able to directly control many of the determinants of health.

The World Health Organization identified the things that make people healthy or not. They include:

- gender — different diseases are suffered by males and females
- health services — access to and use of services for prevention and treatment
- income and social status — higher income and social status are linked to better health
- education — poor health is linked with low education levels, more stress and lower self-confidence
- physical environment — water and clean air, healthy schools, safe houses, communities and roads

- employment — people in employment are healthier
- social support networks — greater support from families, friends and communities is linked to better health
- culture — customs and traditions, and the beliefs of the family and community all affect health
- mental wellbeing.

8.3.3 Individual behaviours that influence health and wellbeing

Individuals have control over many behaviours that can influence their health and wellbeing. Some people might consider 'health' to be solely about nutrition and exercise, but many other areas can determine how healthy a person is.

- Physical activity is important for maintaining good health because it reduces cardiovascular risk factors, protects against some forms of cancer, strengthens the musculoskeletal system, and improves wellbeing by reducing symptoms of depression, stress and anxiety. Through these improvements, self-confidence, self-esteem, energy levels, sleep quality and ability to concentrate all increase.
- Nutrition is a protective factor against many diseases including coronary heart disease, hypertension, stroke, type 2 diabetes and many forms of cancer.
- Overweight/obesity can impact an individual's psychological wellbeing, increase their risk of developing cardiovascular conditions, asthma and type 2 diabetes, and can be associated with social isolation and lower income opportunities throughout life.
- Sun protection helps to reduce the risk of melanoma. By adopting skin cancer prevention measures such as wearing sunscreen, a hat, a shirt that covers your skin, sunglasses, and sitting in the shade during the highest UV danger parts of the day, you will significantly reduce your chances of skin cancers and sun damage.
- Substance use (smoking, alcohol and other drugs) can cause a range of health and social problems, both in the short term and longer term.
- Sexual health can be protected by the use of contraception to prevent STIs and pregnancy.
- Injury prevention can reduce the impact of incidents such as injuries caused by road accidents, assaults, poisonings and suicide associated with mental illnesses.
- Mental health can significantly impact a person's physical health.

Complete the **My health** worksheet in your Resources section to look at your own health behaviours and explore ways you can adjust your lifestyle to improve your own health and wellbeing.

on Resources

Complete this digital doc: My health
Searchlight ID: doc-14744

8.3.4 Other influences on the health and wellbeing of your community

Other factors besides the behaviours of individuals can influence the health and wellbeing of the community.

- Environmental factors — such as access to venues that encourage or enhance physical activity such as parks, sporting ovals, recreation centres and sporting stadiums. The quality of the air, water, food and soil where people live are other important environmental factors that can affect health. For example, air pollution can make it unpleasant and unhealthy to exercise outside or even walk from place to place, limiting the choice of exercise options available in the community. A lack of access to fresh fruit and vegetables could also have a negative impact on food choices.
- Community factors — such as support services, family cohesion, social networks and community participation all contribute to an individual's social health. How you connect with others and the relationships and support networks you have can determine how healthy you are socially.
- Socioeconomic factors — such as where you live, level of education, employment and income levels. This can affect the access you have to certain health services, medicines and treatments that aid in keeping you healthy. Education can determine the knowledge you have in relation to your own health. Income levels can determine the level of access you have to health services, and the types and quality of services to which you have access.
- Cultural factors — how engaged you are in your local community and the opportunities provided by the community for engagement affect your health. Cultural factors may limit an individual's access to physical activity, or encourage them to participate actively in sport. Culture can also influence the types of food you eat.
- Health factors — such as attitudes, beliefs and knowledge of physical activity, eating habits, smoking and alcohol consumption, and vaccinations to prevent communicable diseases.
- Health status — how 'healthy' each individual is, taking into account health conditions of individuals, physical ability (or inability/impairment) and an individual's wellbeing (physical, mental and social).

8.3.5 Access to community health resources

Government has always had an important role to play in public health. This role has involved protecting the public from health issues such as the spread of infectious diseases, but increasingly focuses on promoting health in the community. This focus on promoting health tries to prevent illness, particularly the prevention of lifestyle-related diseases such as obesity and type 2 diabetes. In this way we see local governments taking some responsibilities for creating healthier communities.

Sections 8.5 and 8.6 of this chapter provide detailed information about how federal, state and local government support and promote healthy lifestyles and health in general in the community.



Community health resources are any facilities, funds (money), people and materials that can be used for providing health care and services to the local community. These resources and services aim to improve the health and wellbeing of local communities by encouraging people to take an interest in their own health. Health care providers such as doctors provide care to individuals, education programs aim to promote the prevention of lifestyle-related diseases and conditions, and the development of health care programs and activities aim to improve social and physical environments in the community.

Support for marginalised groups in a community

But can everyone access these resources? For the marginalised in our community, access to health care is complicated by factors including lack of safe or adequate housing, inadequate access to financial support, education or employment, and a mistrust of the health services. People, or groups of people who are pushed to the fringe of society by others in the community, and those who are different from the perceived 'norm', are considered to be marginalised. The marginalised in your community could include Indigenous people, cultural/ethnic groups, seniors, youths and people with a disability. Section 8.3 of this chapter provides further information about marginalised groups and how they are supported.

Can you think of any other groups who might be considered marginalised? What factors do you think contribute to the marginalised in society's situation? How is their health affected and why?

Table 8.2 outlines how members of the community become disadvantaged.

TABLE 8.2: Five types of disadvantage

Domain	Indicators
Social stigmatisation (disapproval)	Being part of more than one stigmatised group, such as being Indigenous, a single parent who relies on welfare, having a disability, not being in paid employment
Early life disadvantage	Having divorced parents, parents who are unemployed, not finishing school, leaving home early
Financial hardship	Relying on government income support, having little or no wealth, low income, high financial stress, having unfavourable debt such as credit card debt
Poor health	Suffering chronic health problems, poor physical and/or mental health, poor health choices
Social isolation	Having poor relationships, little social support, few social contacts

Source: based on Cruwys, T., Berry, H., Cassells, R. et al., *Marginalised Australians: characteristics and predictors of exit over ten years 2001–10*, University of Canberra, table 2, 'Marginalisation — five domains of disadvantage', p. 10.

Compared to those in the community who are not disadvantaged, marginalised/disadvantaged individuals/groups:

- have much poorer physical and mental health
- are more likely to have chronic health problems and to report poor physical health
- report fewer social contacts and a lower number of people upon whom they can rely
- are more likely to receive income support (particularly the Disability Support Pension, Newstart unemployment benefits or Parenting Payment Single) and are reliant on this support for most of their income.

Use the **Youth community health services** weblink in your Resources section to examine a range of health-focused programs for young people and their families in a local community.

on Resources

Explore more with these weblinks: Youth community health services

ACTIVITIES

1 Media watch

1. Find a newspaper report about a marginalised group in your community.
2. Compare the class collection to see the different marginalised groups in your community.
3. Discuss why they are marginalised and what you could do to support these people/groups.
4. What social and economic factors can you identify that affect the health of these people/groups?

2 Investigate and create

1. Investigate community health resources in your area.
2. Find out how accessible they are (location, cost etc.) and who accesses them.
3. Create a brochure to distribute at the local council outlining services in the community, *or* create an app outlining these services. If creating an app, consider:
    - what the app will be called
    - what the app link will look like
    - the features of your app.

3 Growing up poor

1. Access the **Growing up poor** weblink in your Resources section to watch the *Four Corners* episode 'Growing up poor'.
2. As a class discuss your reactions to this community.
3. Do you think they are happy living in their current circumstances?
4. Have they done anything to change their circumstance?
5. What can the people in this community do to change their circumstances?

4 Helping the community

Access the **Girlspace** weblink in your Resources section to read a case study about a program that was set up in a local community to explore new ways of engaging and supporting newly arrived young women from culturally and linguistically diverse (CALD) backgrounds.

In a group, devise a program that could be implemented in your local community to improve access to health resources or improve the wellbeing of a group in your community. Consider:

- why it is important to your community
- what barriers the group currently faces when accessing health information

- how could you break down these barriers through your program
- how it will enhance the health and wellbeing of this group in your community
- who would deliver the program
- how you would promote the program so people attend.

5 Program improvement

1. Investigate a local youth community health program.
2. What could you change about the program to:
    - make it more attractive to young people in your local community
    - include a wider range of young people and make it more inclusive for those involved
    - make it more accessible to young people in your community
    - promote the program in a variety of ways to ensure a greater audience is captured?

CHECK & CHALLENGE

Explain

1. What cultural groups can you identify in your community?
2. How is income and social status linked to better health?

Evaluate

3. With the realisation that contextual factors influence health, what can the government do to minimise their impact?
4. Why is it important to have an active and healthy social life?

Elaborate

5. Have you or someone you know been a part of a marginalised group in the community? Have you/they experienced negative health consequences as a result?
6. When you think about the future, do you have a clear vision of where you want to live, whether you will work, have children and so on? What will the potential health consequences be of the decisions you make?

on Resources

Explore more with these weblinks: Growing up poor
Explore more with these weblinks: Girlspace

8.4 Connection to community

8.4.1 Communities and health

In this topic you will explore how the local community promotes a sense of connection through cultural celebrations. Celebrations can recognise a particular culture, or be celebrations for all Australians. You will discover how negative attitudes in the community affect the health of different individuals and cultural groups, including Aboriginal and Torres Strait Islander peoples.

ENGAGE

Every year throughout Australia there are many events that celebrate our unique cultural identity. These celebrations also occur in local communities, and importantly they aim to promote a sense of connection and belonging to the community. Can you think of any cultural events in your community that you have attended recently?

One example is Australia Day, a cultural celebration that local communities celebrate every year on 26 January. The day traditionally commemorates the establishment of the first European settlement in 1788. But it has become much more than that. It is an opportunity for Australians to come together to celebrate their country and culture. There are reflections on the achievements of the nation and explorations of ways to make the country even better in the future.



8.4.2 Community cultural connectedness

Whether they are small-scale local activities or major national occasions, Australians connect with each other and their community through cultural celebrations. Some events are nationwide, such as Australia Day, which includes both national and local celebrations. Some other important national events are International Women's Day, Harmony Day, NAIDOC Week, Australian Citizenship Day and Remembrance Day. Many local communities have their own celebrations to commemorate local characteristics or historical events. Can you think of an event your local community celebrates? Why is this important to your community?



DID YOU KNOW?

- Almost thirty per cent of the Australian population were born in another country.
- Migrants to Australia have enriched almost every aspect of Australian life, from business to the arts, from cooking to comedy and from science to sport.

Agricultural shows

Many towns and cities in Australia hold annual agricultural shows where rural producers, companies and local organisations show off their produce and their country lifestyle. The shows are important events — they highlight the significant contribution that rural communities make to Australia and help make connections between the city and country.



Sports events

Australians love their sport! Whether it's through participating or spectating, sport brings the community together. There are around 6.5 million registered sports participants in Australia and over 11 million people over the age of 15 undertake a physical activity at least once a week for exercise, recreation or sport.

Cultural events and festivals

Healthy and well-functioning communities celebrate a wide range of cultural events with the aim of unity and inclusiveness. Australian capital cities host events that provide opportunities to showcase Australian artists. Local communities hold their own smaller community-based festivals and gatherings, as well as events to attract a wider community audience such as film festivals, and folk, jazz and country music events.

Each year Australia has a Mardi Gras Festival in Sydney, a world-famous vibrant and colourful gay and lesbian event. Events such as these serve to showcase minority groups to a wider range of the population, increasing connections in the community, leading to healthier communities.

8.4.3 Negative attitudes and behaviours in the community

It is an unfortunate aspect of society today that **marginalisation**, **prejudice**, harassment and **homophobia** still impact negatively on individuals and communities. Indigenous Australians, homosexuals and minority ethnic groups are affected by negative attitudes from the community. Can you think of some other groups in your community that would experience such negative attitudes? How would this make these people/groups feel?



Access the **Invisible Discriminator** weblink in your Resources section to investigate the state of discrimination and community attitudes towards Indigenous Australians. Watch the included 'Invisible Discriminator' video, outlining the psychological effect that subtle racism has on Indigenous Australians. What impact did this video have on you?

Now watch the **Multicultural communities** weblink in your Resources section. This clip explores the impact that racial and cultural discrimination can have on a person's mental health. Given our multicultural society in Australia, complexities of identity can arise and this weblink highlights the fact that many people in Australia identify with a number of communities.

Then access the **Homophobia in the AFL** weblink in your Resources section and watch the short documentary on homophobia in the AFL.

on Resources

- **Explore more with these weblinks:** Invisible Discriminator
- **Explore more with these weblinks:** Multicultural communities
- **Explore more with these weblinks:** Homophobia in the AFL

8.4.4 Aboriginal and Torres Strait Islander peoples — family and community

Understanding, appreciation and respect for Indigenous Australians and their cultural beliefs and values is important within Australian culture and local communities. The marginalisation of Indigenous Australians is an ongoing issue in Australia and must be addressed if we are to move forward as a community and be inclusive of all. Aboriginal and Torres Strait Islander people have a complex system of family; their family relationships are the core of Indigenous kinship systems that are central to the way culture is passed on and to how society is organised. Learning more about how Indigenous communities relate to each other, work together and their spiritual beliefs is the first step in being inclusive and respectful.



In Indigenous culture, elders teach important traditions and pass on their skills, knowledge and personal experiences to the younger people. They educate children about the way of life of their people. In Indigenous societies elders are treated with respect. Indigenous communities have strong family values. Children are not just the concern of the biological parents, but the entire community. Therefore, the raising, care, education and discipline of children are the responsibility of everyone. This fosters a very strong sense of community.

In Aboriginal Australian society storytelling makes up a large part of everyday life. Storytelling is not only about entertaining people but is also vital in educating children about life. Through stories, children are taught about how they should act and behave, and knowledge is passed down about everyday life. Stories are also used to explain historical events, laws and spirituality. Storytelling ensures that Aboriginal heritage is passed on to the younger people.

Celebrations held in local communities aim to counter negative attitudes towards certain people or groups in the community by showcasing the many cultures and groups that form Australian society. An important way to promote respectful and healthy communities is for every group in our community to be recognised. Embracing the positive aspects of each culture will ensure a rich and inclusive community.

ACTIVITIES

1 Planning an event

With a group in your class, plan a community event that includes people from different cultural groups in your area.

- What will it be called?
- How will you promote it?
- Who are the intended attendees?
- What will happen at the event?
- How will you evaluate the success of the event?

2 Community cultural celebrations

In order to promote a sense of connection and belonging to the community, design a way of involving family, friends and members of the community in a cultural celebration.

You will need to think about:

- events that already take place in your community
- cultural identities in your community
- how you will involve everyone in the celebrations
- how the event will promote a sense of connection and belonging.

Use the **Australian cultural events** weblink in your Resources section for some initial ideas.

3 Video

With your classmates, create a video that:

- demonstrates counter-measures for the impact that racism and/or discrimination can have on health outcomes for people in the community
- shows that tackling racism and other forms of discrimination is good for health outcomes

- takes the context of intercultural understanding
- shows that a culturally competent person has the understanding, skills and strategies to effectively and sensitively communicate with people who have different languages, cultures, religions, genders, ethnicities, disabilities, ages and sexualities.

4 Creative writing

In Aboriginal society storytelling is a vital tool for educating children about life. Write a story that educates future generations about how local celebrations create healthy communities. In your story, show how these celebrations help to get rid of negative attitudes in the community. Use the **Australian cultural events** and **Aboriginal cultural events** weblinks in your Resources section for more information about these topics.

CHECK & CHALLENGE

Explain

1. Identify how cultural events help improve the health of a community.
2. What can you do to change people's attitudes about prejudice and homophobia?
3. How are Indigenous Australians marginalised in society?

Evaluate

4. How can Australians learn from Indigenous Australians in regards to community and culture?
5. In what situations could negative attitudes towards others in the community impact the health of those individuals?

Elaborate

6. Why are community events important for Australians?
7. What important elements do the many cultural groups who form Australian society bring to their community? Why is it important to recognise each cultural group?

on Resources

Explore more with these weblinks: Australian cultural events
Explore more with these weblinks: Aboriginal cultural events

8.5 Connection to the environment

8.5.1 Exploring nature and health

This lesson investigates the effect of natural environments on local communities. You will examine how the natural environment is used for physical activity within the local community, and explore actions to promote healthy and sustainable lifestyles. You will also investigate different approaches to managing resources, including how Aboriginal and Torres Strait Islanders show custodial responsibilities.

ENGAGE

A more sustainable world is a world where we live within the planet's means. There are many ways you can do your part for the planet by adopting a more sustainable lifestyle. Some ways you can contribute are by adjusting:

- what you buy and eat
- the amount of waste you produce and recycling more
- reducing water usage
- reducing energy usage
- using active transport.

To get started on a sustainable life, use the **WWF footprint calculator** weblink in your Resources section to measure your personal ecological footprint. This will work out your personal footprint based on the way you live your life today, such as what you eat, where you live, how you travel and the amount of energy that you use. Knowing your ecological footprint will help you to make informed choices that will help you to reduce your impact on the planet. Do you know the impact you are making on the planet?

The choices you make affect your environment.





Resources

Explore more with these weblinks: WWF footprint calculator

8.5.2 Healthy, active and sustainable lifestyles

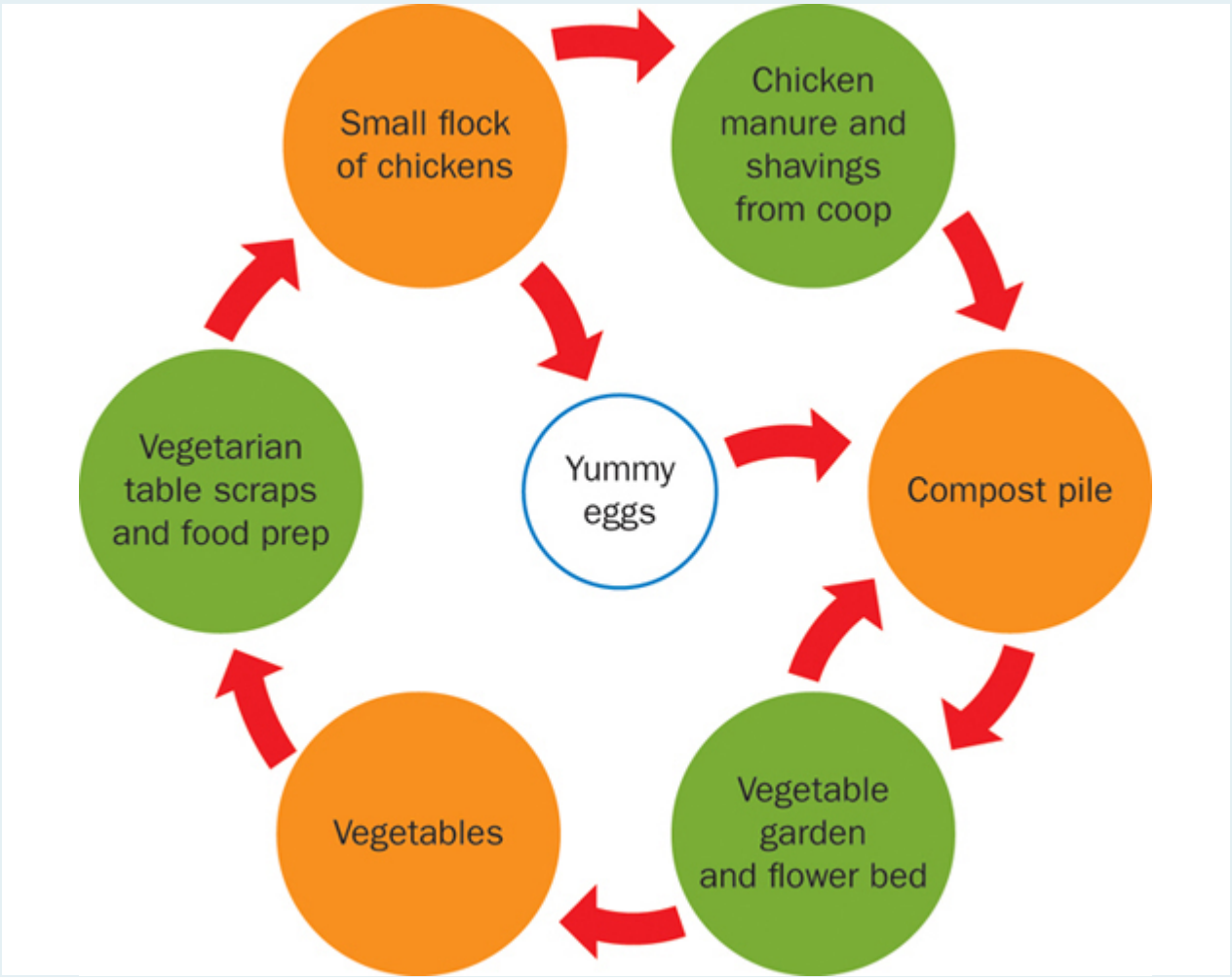
Many of us are unaware of the impacts our current lifestyles are having on the natural systems that maintain our lives. We need to take positive steps to move towards sustainability in order to help avoid the worst potential environmental problems. Small, easy changes to our current lifestyles can have positive effects on both the environment, and the health and wellbeing of our community and ourselves.

Choosing local and organic foods is one way of making your lifestyle more sustainable.



According to the World Health Organization, 13 million deaths annually and nearly a quarter of all disease worldwide are due to environmental causes that could be avoided or prevented. Doing your part to take care of the environment helps you protect yourself and others from the effects of serious health issues such as asthma and cardiovascular disease that can be aggravated by an unhealthy environment.

The simple act of keeping chickens provides an example of a sustainable lifestyle choice.



DID YOU KNOW?

There are many ways to be sustainable. Recycle or reuse items, whether it's a cardboard box, an old toy or a woolly jumper!

How can you green your routine?

Incorporating sustainability into your lifestyle involves becoming aware of the impact of your choices in food, products, and energy use. Focus on the small steps you can take at home, at school and in your community.

- Recycle — use, reuse and dispose of products properly.

> What small steps can you take to green your routine?
>
> 

- Compost to dispose of your waste — biodegradable products and food scraps can be used to enrich the soil.
- Buy recycled products — if we reuse what we already have, less waste is created.
- Use sustainable transportation — environmental impacts from vehicle emissions are reduced. Consider active and shared transportation options, such as walking, riding a bike and car pooling.
- Live a healthy lifestyle — by taking actions to sustain the health of the environment, you make a positive impact on the health and wellness of those who live, work and play in it. This includes incorporating physical activity into your daily life, eating healthy and nutritious food, reducing stress and staying connected to friends and family.
- Conserve energy and water — turn off your computer, turn off the lights and turn off and repair leaking taps.
- Purchase environmentally responsible products — buy products that are recycled and biodegradable.
- Think about your food choices — make sustainable food choices and choose foods that are healthy and nutritious.

What is the environmental impact of your food? Learn more about what you can do to make sustainable food choices by using the **Sustainable food choices** weblink in your Resources section.

What other actions can you adopt that promote a healthy, active and sustainable lifestyle? Talk to your parents about making green and healthy choices at home. Challenge yourself to do one extra sustainable action each week.

DID YOU KNOW?

If something is sustainable it should last forever.

on Resources

Explore more with these weblinks: Sustainable food choices

Managing environmental resources

Natural resource management is taking care of natural resources such as land, water, marine and biological systems, with a particular focus on how the management affects the quality of life for both present and future generations. Sustainability is important when managing environmental resources. The social, economic and environmental wellbeing of Australia depends on the sustainable management of our natural resources.

Sustainable management of natural resources is important for now and the future.



DID YOU KNOW?

Ten and a half per cent of mainland Australia's natural environment is protected by national environmental legislation.

Natural environment

Have you ever thought how nature nourishes you? It might be the cleansed feeling you get as you emerge from the surf or the calm as you sit next to a gentle creek reading your book. In Australia we are lucky to have such a diverse natural environment with so many beautiful places that allow us to enjoy everyday activities in our natural environment, such as physical activities or outdoor community events.

Share with the person next to you the last time you took part in an activity in the natural environment. What was the activity and how did the setting/natural environment enhance it?

Our natural environment can help us relax and affects our quality of life.



Physical environment

When we talk about the physical environment around us, we consider both the natural environment and the built (or human-made) environment. Your environment has an impact on the amount and type of physical activity you do. Many physical environments are designed for and to enhance physical activity, for example bike paths, swimming pools, gyms and sports fields; the availability and location of such resources can influence how much physical activity individuals take part in. Some physical environments, however, can restrict or prohibit the amount of physical activity, for example family homes and schools. In these cases, land is used for buildings and therefore little space remains to create facilities for physical activity.

Think of the physical environment that surrounds you. What aspects influence how much exercise you are able to do? What types of exercise does your physical environment provide you with the opportunity to take part in?

The built environment provides opportunities for development in order to enhance physical activity opportunities. Walking tracks, parks and bike paths being created in new housing estates are an example of this. Can you think of an example where the human-made environment has been changed or developed to encourage and enhance physical activity?

What does land mean to Indigenous Australians?

Modern life has led many of us to disconnect from nature and to forget how deeply we depend on the health and vitality of the environment. Over many centuries Indigenous people have developed a spiritual connection with, and understanding and deep appreciation of their land. For thousands of years the continent was managed and conserved by Indigenous Australians and through understanding Indigenous culture we can come to appreciate and gain a spiritual connection to the land.

The land owns Aboriginal people, not the other way around, and every aspect of their lives is connected to it. Aboriginal law and spirituality revolves around the land, the people, and creation, forming their unique culture and history. The connection to land gives Aboriginal people their identity and a sense of belonging.

Central to this culture is the way land is treated and the health of it. Land sustains the lives of Aboriginal people in every way; socially, culturally, physically and spiritually. The stories that are passed through the generations are connected to the land and maintaining this connection is vital to ensure important stories are passed down to future generations. Aboriginal law and life originates in and is governed by the land. For information about the strong link between Aboriginal health and land management, use the **Land management** weblink in your Resources section.

Ceremonial events help Aboriginal people renew their spiritual connection to the land and the sacred sites. These sacred sites are often called ‘living museums’ as they contain a rich history in which younger generations learn about those that came before them.

Every Australian should understand and respect the significance of the knowledge, culture and relationship with the land that Indigenous Australians have. Our interest and respect will support the Indigenous community, and assist Australia in moving forward in the journey of conciliation with its traditional owners.

on Resources

Explore more with these weblinks: Land management

ACTIVITIES

1 School natural setting proposal

1. Create a proposal for your principal to increase the use of your school's natural setting for physical activity.
2. Present your proposal to your class.
3. Evaluate and critique the effectiveness of your classmates' proposals.

2 Community natural setting proposal

As a class group, create a proposal for your local council to promote physical activity in local natural settings. The objective is to promote your own and others' connection to the community through this natural setting. Take into account availability of spaces, culture and diversity in the community. Are you catering to everyone's needs?

3 Mind map

Create a mind map to address the following: the health of the community is everybody's responsibility.

4 Investigative report

Investigate a way to make your life more sustainable and provide a report that covers:

- reasons why this method is sustainable
- how to achieve best results using this method
- local resources to assist living sustainably
- agencies (local or government) that support this method of sustainable living.

5 Investigate

Investigate the natural resources in your local community.

1. How does the local council manage them?
2. How does this management affect the quality of life for both present and future generations?
3. Are there any natural resources that, in your opinion, aren't being managed well?

6 Creative writing

Using the information you know about what land means to Aboriginal people and their spiritual connection to it, write a short story incorporating how Aboriginal communities have demonstrated custodial responsibility of their land.

7 Investigation

Create five groups. Each group will be allocated one weblink from those listed in your Resources section, showing different approaches to managing environmental resources.

Groups are to evaluate the approach and report back to the class outlining:

- which natural resource is involved
- how it is being managed
- why it is important
- the benefits for the environment in how the natural resource is being managed.

CHECK & CHALLENGE

Explain

1. What physical activities take place in your local physical environment?
2. How does your physical environment provide opportunities for physical activity?
3. What are the benefits to your health in adopting a sustainable lifestyle?
4. What is a carbon footprint? How can someone reduce their carbon footprint?

Evaluate

5. Do you think it is important to live a healthy and sustainable lifestyle? Why or why not?
6. Does your family follow sustainable living practices? If so, how and why? If not, why haven't they adopted them?
7. How much access does your community have to their natural environment? How does this encourage connections and physical activities?
8. Why do environmental resources need to be managed and why is this often outsourced to private companies?

Elaborate

9. Why doesn't the government make it illegal to undertake lifestyle practices that are not sustainable?
10. What are some consequences of not using natural settings for physical activity?
11. Do you think all Australians have a connection to the land? How are Australians connected to the land?
12. What do you believe is the most important natural resource that should be managed and protected?

on Resources

- **Explore more with these weblinks:** Marine Nation
- **Explore more with these weblinks:** Barrow Island
- **Explore more with these weblinks:** Spatial Vision
- **Explore more with these weblinks:** National wild dog plan
- **Explore more with these weblinks:** Mungo National Park

8.6 The national health care system

8.6.1 Medicare and private health insurance

In this lesson you will explore the purpose of Medicare Australia and learn about the different programs it provides to improve and maintain health and wellbeing. You will also explore the different ways individuals and families can extend their health cover through private health insurance.

ENGAGE

The Australian Organ Donor Register is administered by Medicare Australia to provide a way for people to record their consent or objection to becoming an organ and/or tissue donor. In the event of your death, information about your decision will be accessed from the Donor Register by authorised medical personnel and then provided to your family.

One organ and tissue donor can transform the lives of ten or more people. Although more than 80 per cent of Australians feel it is important to register a donor decision, only 33 per cent have joined the Australian Organ Donor Register. However, nine out of ten families agree to donation proceeding when their loved one was a registered donor. While you do not need to be registered to donate, it leaves your family in no doubt of your decision.

A strong health care system is vital to Australia's wellbeing. Have you ever needed medical care, or do you know of anyone who has? What support was needed?



You must be 16 years or older to register your organ donation decision on the register. The Australian Organ Donor Register is the only national register, and details can be linked to your Medicare number. It is also important that you discuss your decision with your family so they know your wishes.

If you would like to register your intention or objection to becoming an organ and/or tissue donor, you can:

- visit the DonateLife website
- call Medicare on 1800 777 203

- fill out a form at any Medicare office.

As a class, consider a reversal of the registration process and then debate whether individuals should automatically be enrolled on the Australian Organ Donor Register and be removed only if they register an objection.

Consider the effects this would have on the length of organ transplant waiting lists, the number of people who die waiting for organs, and the people who are unsure about or object to organ donation.

The Australian Organ Donor Register is the only national database for recording decisions about becoming an organ and/or tissue donor for transplantation after death.



on Resources

Explore more with these weblinks: Organ donor

8.6.2 Minister for Health

The Minister for Health is responsible for a wide range of health areas, including:

- Medicare benefits
- the Pharmaceutical Benefits Scheme
- hospitals

- private health insurance
- public health and Aboriginal health.

8.6.3 Medicare

Medicare is a public health system that covers all permanent residents of Australia. Its objective is to assist in improving health outcomes in Australia. It is financed by general taxes and a levy on all income earners of 2.0 per cent of taxable income.

Medicare provides eligible people with free hospital care as public patients in public hospitals. People also receive free or subsidised treatment by doctors and some optometrists. Table 8.3 lists a range of the services provided by Medicare.

The 15- to 24-year-old age group has the highest incidence of dislocations, sprains and strains.



TABLE 8.3: Health coverage provided by Medicare

Out-of-hospital services	In-hospital services
• Consultation fees for doctors, including specialists • Tests and examinations by doctors needed to treat illnesses, including X-rays and pathology tests • Eye tests performed by optometrists • Most surgical procedures performed by approved dentists • Specified items under the cleft lip and palate scheme • Specified items for allied health services as part of the enhanced primary care (EPC) program — contact Medicare for more information • You can choose the doctor who treats you for out-of-hospital services.	• Hospital bed or accommodation • Doctor or specialist assigned by the hospital • Nursing care, food, after-care by the treating doctor

Medicare does *not* cover:

- private patient hospital costs (for example, theatre fees and accommodation)
- dental examinations and treatment
- ambulance services
- physiotherapy, occupational therapy, speech therapy, chiropractic services or podiatry
- home nursing
- acupuncture
- glasses and contact lenses
- hearing aids and other appliances
- cost of prostheses
- medicines
- medical services which are not clinically necessary
- surgery solely for cosmetic reasons.

All Australian residents and eligible visitors are entitled to a Medicare card.



You can arrange private health insurance to cover many of these services; however, you must pay for private health insurance.

on Resources

Explore more with these weblinks: Medicare

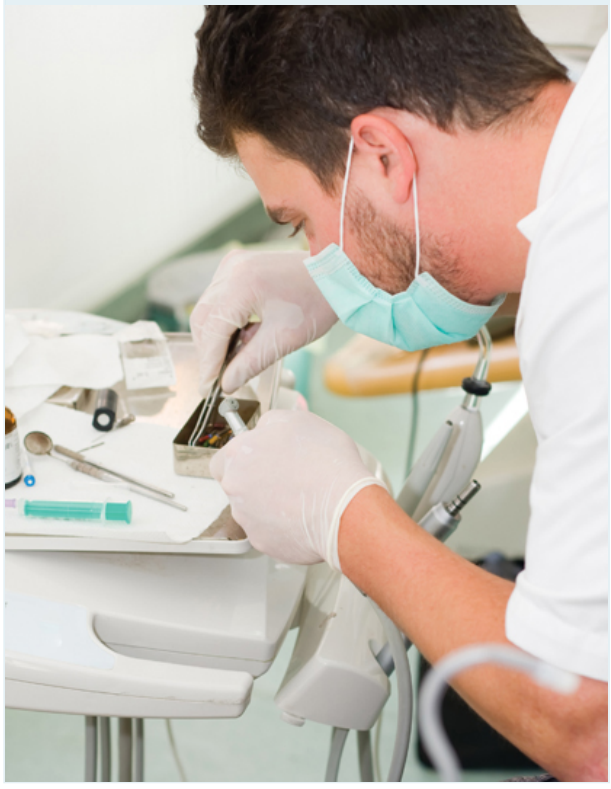
8.6.4 Private health insurance

As shown in table 8.3, Medicare covers only certain types of medical treatments; a range of health services are not covered. However, many of these services may be covered all or in part by a private health fund.

Private health funds offer a wide range of insurance plans for single people, couples and families. **Private health insurance** can include:

- choice of doctor in public and private hospitals
- no waiting period for elective surgery, and non-urgent surgical procedures when you choose (Medicare patients must join a waiting list)
- choice of private hospital
- choice of shared or private room in hospital
- extras cover, which provides part reimbursement of fees for additional health services such as dentistry, chiropractic, physiotherapy, optometry, home nursing and podiatry.

Dentistry is not covered by Medicare.



In 1998, only 30 per cent of the Australian population had private health insurance. This low figure was of concern to the federal government, which moved to assist providers of private health insurance to offer a strong incentive for younger people to join private health funds. A surcharge for entry dependent on age was introduced. This is called 'lifetime cover'. Entry before age 30 has no surcharge, but for each year after that, a 2 per cent surcharge on fees is imposed, so that entry at age 40 costs 20 per cent extra in fees each year, entry at age 50 costs 40 per cent extra and so on. In 2013, 54.7 per cent of Australians had private health insurance.

Every private health provider has a range of plans which offer varying types of extras cover. You should choose the one which best suits your situation.

8.6.5 Government responsibilities

State and local governments

Australia's health system is funded and delivered by several layers of government. The states and territories are responsible for:

- public services, such as school dental services
- regulating health care providers.

Local governments within states deliver mostly environmental health programs.

Federal government

The federal government provides five major sources of health funding. These are:

- grants to state and territory governments to assist with funding public hospitals
- medical benefits through Medicare
- pharmaceutical benefits
- health program grants to both government and non-government providers
- private health insurance rebates for private health insurance holders.

DID YOU KNOW?

There are almost 1500 people in Australia on organ transplant waiting lists at any given time. Some of them will die waiting. One organ and tissue donor can save the lives of up to 10 people and significantly improve the lives of dozens more.

DID YOU KNOW?

If you do not have Australian health insurance cover and want to have a baby at a private hospital, it will cost around $7500.

ACTIVITIES

1 Private health insurance

Investigate whether your family has private health insurance. If so, note:

1. the name of the provider
2. the name of the plan and the cover it provides
3. the monthly and annual cost
4. what cover is not provided.

If your family does not have private health insurance, investigate a plan to suit you and gather the relevant details. Use the **Insurance companies** weblink in your Resources section to help with your investigation.

2 Support services

1. Organise for one member of your class to go to the reception area of your local council offices and collect pamphlets providing details about the support services available. Alternatively, you may use the council website to gather this information.
2. In groups of four, choose one service and summarise what support it offers.
3. As a class, compile all groups' research and make a list of services, noting what each service provides and who can access it (e.g. age or gender). Are there any demographics not provided for in your local area?

3 Health care minister

Research the national or state minister for health. What initiatives are they currently pushing and what is the Opposition's response?

4 Contact details

Use the **Contact details** worksheet in your Resources section to record the contact details for the health services in your local community.

5 Consequences

Investigate what would happen if you injured your knee playing weekend football and required a knee reconstruction, but you did not have private health insurance.

6 Recommendations

Use the **Insurance companies** weblink in your Resources section to research and recommend the most appropriate private health insurance option for:

1. a young single person who plays a lot of sport and may need further orthodontic work in the future
2. a women in her forties who is planning on having a baby
3. a family with three young children
4. a healthy male who likes yoga
5. an office worker with back problems
6. a travel writer who likes adventure sports.

Use the **Insurance recommendations** worksheet in your Resources section to record your research.

7 International comparisons

Research some of the national medical systems found outside of Australia, such those found in the United States, Denmark or England. How does Medicare compare?

CHECK & CHALLENGE

Explain

1. Identify the advantages of taking out private health insurance before age 30.

Evaluate

2. Why does Australia have both a public and private health care system?

Elaborate

3. Do you think that Medicare and the public health system provide Australians with adequate health cover? Why or why not?
4. What do you believe is the most important aspect of having private health insurance?

on Resources

Explore more with these weblinks: Insurance companies

Try out this interactivity: Private vs public health
Searchlight ID: int-5508

Complete this digital doc: Contact details
Searchlight ID: doc-14797

Complete this digital doc: Insurance recommendations
Searchlight ID: doc-14798

8.7 Government health promotion initiatives

8.7.1 Benefits of health promotion

The federal government is committed to promoting the health and wellbeing of all Australians through offering services and advocating initiatives. By improving eating and physical activity habits, the development of chronic diseases like diabetes and cardiovascular disease could be prevented, with significant personal, social and economic benefits.

ENGAGE

Federal and state governments are committed to promoting healthy lifestyles, addressing obesity and taking preventative measures to improve the health of all Australians. The government is helping all Australians achieve healthier lives through initiatives such as the:

- Immunise Australia program
- Quit campaign
- Get Set 4 Life — habits for healthy kids
- the Stephanie Alexander Kitchen Garden National Program
- Healthy Spaces and Places
- Learning from Successful Community Obesity Initiative
- healthy weight information and resources.

Improving everyone's eating and physical activity habits benefits Australia's economy, health system and community involvement.



DID YOU KNOW?

The Australian Government has commenced an ongoing Australian health survey. This survey will collect data on nutrition, physical activity, physical measurements and chronic disease risk factors in Australia. Participants will be aged 2 years and over. The program will provide information for policy and program developments for children, adults and Indigenous Australians.

8.7.2 Government sectors and their responsibilities

An understanding of the responsibilities in health promotion at each level of government will help you to analyse the effects of legislation and other government actions. Table 8.4 summarises some of the responsibilities for each sector. Table 8.5 explores government management techniques for some of the major causes of sickness and death in Australia.

TABLE 8.4: Levels of responsibility in health promotion

Sector	Roles	Example
Commonwealth Government	• Policy • Providing direction • Legislation • Funding • Research • Cooperation with industry	• Developing a national road safety policy
State governments	• Programs • Policy • Legislation • Administration • Operation	• Running a state-wide drink-driving campaign
Local governments	• Controlling legislation • Running programs • Administering policy	• Ensuring swimming pools are fenced • Immunisation in school programs
Non-government organisations (NGOs)	• Running programs • Providing direction • Special issues	• Cancer Awareness Week run by the Cancer Council Australia
Business organisations	• Manufacturing/marketing of health products and services • Ensuring healthy workplaces	• The production and promotion of 'lean beef' by meat producers
Individuals	• Making healthy choices	• Eating low- or reduced-fat foods • Exercising regularly

We have a responsibility to look after our own health. All levels of government support and encourage us to be responsible, and promote a healthy lifestyle for all stages in life.



TABLE 8.5: Summary of management techniques for some of the major causes of sickness and death in Australia

Cause	Possible and existing government control/legislation and promotion initiatives	Possible behaviour modification	Possible medical intervention

Cardiovascular diseases	• Smoking legislation — banning smoking in workplaces, enclosed areas, in cars with children
	• Ban on tobacco advertising and tobacco sponsorship of sport
	• Increasing taxes on tobacco and alcohol
	• Use of the Heart Foundation's Tick for healthy foods
	• Heart health promotion in schools, such as Jump Rope for Heart
		• Don't smoke
		• Avoid factors leading to diabetes
		• Maintain diastolic blood pressure at or below 90 mmHg
		• Decrease:
		  • obesity
		  • dietary fat
		  • dietary sodium
		  • dietary refined sugar
		  • alcohol consumption
		  • cholesterol to below 4.5 mmol/L.
		• Increase:
		  • physical activity
		  • involvement in stress management activities.
			• Increase:
			  • emergency services
			  • surgery
			  • health care
			  • drug therapy
			  • access to services.

Cause	Possible and existing government control/legislation and promotion initiatives	Possible behaviour modification	Possible medical intervention

Cancer	• Screening for:
	  • breast cancer (mammography)
	  • cervical cancer (pap smear)
	  • bowel cancer
	  • prostate cancer.
	• The Australian Government funds the human papilloma virus (HPV) vaccines for 12−13-year-old girls and 14−15-year-old boys in order to prevent HPV related cancers, such as cervical cancer in females and cancer of the penis in males.
		• Don't smoke
		• Increase dietary fibre
		• Be regularly screened
		• Have annual pap smears
		• Decrease exposure to ultraviolet radiation
			• Improved drug therapy
			• Surgery
			• Chemotherapy

Injury	• Random breath testing
	• Swimming pool fence legislation
	• Set minimum codes for playground equipment
	• Improve labelling and safety packaging
	• Improve codes for safe toys
	• Change building designs for safer environments
		• Decrease alcohol intake before driving
		• Maximise usage of seat belts and helmets
		• Reduce risk-taking behaviour
			• Better drug treatment
			• Increase:
			  • surgery
			  • access to services
			  • health care services.

8.7.3 Immunisation

Australia's extensive **immunisation** program is an intervention designed to keep children healthy and protect them from illness. The National Health and Medical Research Council has recommended that Australia should aim for 90 per cent or more of children to be fully immunised.

Immunisation programs for children are recognised as an effective public health intervention and have been responsible for eradicating or minimising infectious diseases such as diphtheria, whooping cough and polio as major causes of death and disability in Australia.

Immunisation against infectious diseases is a government initiative aimed at optimising children's growth and development.



When most people in a community are immunised against disease, infections cannot spread and, in time, the disease may die out. Thus, the introduction of a vaccine has allowed us to eradicate smallpox worldwide. Polio vaccines have seen the elimination of polio in many countries. There have been no reported cases of polio in Australia since 1996. However, it is still important for children to be vaccinated against polio so that it does not recur.

Immunisation protects children against 16 deadly diseases including tetanus, whooping cough, measles, rubella, polio, haemophilus influenzae type b (Hib), diphtheria, mumps and hepatitis. The immunisation program has almost eliminated some childhood killer viruses that have been common throughout history. Use the **Immunisation against cervical cancer** weblink and **Immunisation targets diseases** worksheet in your Resources section to explore other diseases targeted by immunisation.

When children are enrolled in Medicare they automatically enter the Australian Childhood Immunisation Register. This register was established to monitor and better manage childhood immunisation programs. Once a child is registered, letters are sent to his or her parents or guardians to remind them when the next vaccination is due. This intervention attempts to provide assistance to care givers so that the number of fully immunised children may be increased. If a child's immunisation is not up to date, parents and guardians may not receive rebates, assistance or allowances for which they would be eligible if their child was fully immunised.

on Resources

Explore more with these weblinks: Immunisation against cervical cancer

Complete this digital doc: Immunisation targets diseases

Searchlight ID: doc-14799

8.7.4 State government health initiatives

Quit campaign

The smoking and health program Quit was established in 1985 by the Minister for Health and the then-named Anti-Cancer Council of Victoria. In 1987, Victoria introduced The Tobacco Act and established the Victorian Health Promotion Foundation. This made more funding available for the Quit campaign.

Quit has two major aims:

1. To reduce the prevalence of smoking
2. To reduce the exposure of non-smokers and smokers to the harmful substances in tobacco smoke.

To achieve these aims, Quit strives to:

- prevent young people from taking up smoking
- encourage and assist smokers to quit
- reduce exposure to and increase awareness of passive smoking
- support legislative and policy change aimed at smoking control.

Choosing not to smoke is one of the best decisions you can make for your health.



Quit has many approaches to achieve these aims. Government policy provides legislation restricting cigarette advertising and sales to help reduce opportunities for and inducements to young people to experiment with smoking. Price increases make cigarettes less available to young people on limited income. Regulations limiting smoking in public places reinforce the fact that smoking is dangerous and unnecessary.

Other interventions legislated by government to encourage people to be non-smokers are listed below.

- Children under 18 years of age are not permitted, by law, to purchase cigarettes.
- Shops that sell cigarettes are provided with a sign showing the legal requirements for cigarette sales.
- Cigarette companies are required to display a clearly visible health warning on cigarette packets.
- A ban on the sale of tobacco products from temporary outlets
- A power for the Minister for Health to ban the sale of certain tobacco products that appeal to young people
- Plain packaging on tobacco products to reduce the appeal to both adults and young people
- Restrictions on internet advertising of tobacco products
- 25 per cent increase in tobacco excise (tax)
- All Australian states and territories have laws that ban smoking in public places defined as enclosed, including public transport, office buildings, pubs and hotels, restaurants, shopping centres, educational institutions and entertainment venues, such as the MCG.
- A new law has recently been passed prohibiting smoking in vehicles in the presence of people under 16, in a bid to protect children from passive smoking.
- Some local councils have prohibited smoking at some outdoor locations under their control. Such locations include within 5 metres of a children's playground, outdoor dining venues and sporting venues.

Children under the age of 18 are not permitted to buy cigarettes.



DID YOU KNOW?

Effective 1 January 2011, legislation banned the display of tobacco products at points of sale.

Resources have been produced and distributed throughout schools to encourage and teach the skills to make positive health choices. In the wider community, education programs are promoted to encourage healthy attitudes. Community groups organise publicity and promotions to raise awareness in this area. Counselling and courses are available in workplaces and community health centres throughout Australia. Media campaigns are undertaken on television, radio and via print advertising to inform people about the health risks of smoking and the services available to smokers.

DID YOU KNOW?

Smoking is a key risk factor for the three diseases that cause most deaths in Australia: **ischaemic heart disease**, **cerebrovascular disease** and lung cancer. Many states in Australia are currently introducing legislation to ban smoking from outdoor dining areas, such as cafés and restaurants. Bans in New South Wales will be enforced from 6 July 2015, but Victorians will have to wait until 2018 until bans are enforced in their state.

Live Life Well

Live Life Well is a New South Wales Government program. It aims to help people to make simple changes to their lifestyle to give them the best chance of living without illness.

The focus is on preventing illness, rather than on treating sick people. Through information and simple tools it teaches you how to reduce your chances of developing diseases like heart disease, cancer and type 2 diabetes.

Live Life Well also provides health information about topics such as quitting smoking, healthy eating, alcohol and stress.

8.7.5 Local government health promotion initiatives

Local government also plays a significant role in promoting individual and community health and wellbeing. Local governments offer a range of services.

For example, some of the services available to residents in the City of Whitehorse include:

- immunisation of babies and children
- aged and disability services, including home care, assisted transport and food services
- family, youth and children's services, including maternal and child health services, child care, family day care, family support and youth services (Youth Connections and Youth Linx)
- youth employment program counselling
- advice on fencing existing swimming pools
- play groups and toy libraries

- hire service offering baby restraints for cars
- community health services and advice
- legal advice and assistance.

This is only a sample of the support services that may be provided to a community by local government and private bodies. Such services are accessible to people of all ages. Whenever you become aware of a need for advice or support for yourself or a friend, you may contact these services for help. Most schools have student support personnel available to assist students and parents who need either advice or referral to services provided by local and state government bodies.

ACTIVITIES

1 Government

Study table 8.5 and then complete the table below.

Summary of legislation or control measures put in place to reduce injury	Target group	Effects of control measures on the health of the target group

2 Smoking outlawed

Use the **Smoking outlawed** weblink in your Resources section to read an article about banning smoking.

1. Why do you think the Victorian government has banned smoking in outdoor dining areas?
2. What effect do you think this ban will have on members of the community?
3. Debate as a class whether this action is an infringement on smokers' rights.

3 Government initiatives

Use the **Healthy Together, Live Life Well** and **Girls make your move** weblinks in your Resources section to investigate some government health initiatives. Then, as a class, discuss:

1. which aspect of health the initiative targets
2. to which age group of the Australian population it is relevant.

4 Healthy me

Use the **Healthy me** worksheet in your Resources section to create a summary of:

- how being healthy makes you feel
- the physical activities you do to stay healthy
- the foods and drinks you consume to stay healthy
- the resources you could access to help maintain or improve your health.

CHECK & CHALLENGE

Explain

1. Describe the consequences to both children and parents if infants are not immunised.
2. Explain some of the interventions and laws in place in your state to encourage the reduction of smoking.

Evaluate

3. Consider the pros and cons of both bans and awareness campaigns. Overall, which do you think is more effective in changing people's habits and attitudes? Give reasons for your answer.

Elaborate

4. What is the difference between national, state and local government influence on health issues?

on Resources

Explore more with these weblinks: Smoking outlawed
Explore more with these weblinks: Healthy Together
Explore more with these weblinks: Live Life Well
Explore more with these weblinks: Girls make your move
Complete this digital doc: Healthy me
Searchlight ID: doc-14800

8.8 Health promotion of specific community groups

8.8.1 Targeted campaigns

There are a number of government programs and campaigns committed to promoting healthy lifestyles, addressing obesity and taking preventative measures to improve the health of all Australians. In this lesson you will explore some campaigns that target specific groups within the community.

ENGAGE

Bicycle Network's Ride2School program helps over 2000 schools across Australia to encourage students to walk or ride to school. The Ride2School program is funded by state governments, with the aim of changing people's behaviour and to get more students travelling to school in an active way, all year round. This type of active travel is a great way for students to get their recommended 60 minutes of physical activity every day.

In the 1970s, 8 out of 10 students rode or walked to school, but today only 2 out of 10 walk or cycle. Have you participated in the Ride2School program or taken part in National Ride2School day?

Think of a specific community group that you or a family member belongs to or could belong to. What benefits might these campaigns have for your health and wellbeing? For more information follow the **Ride2School** weblink in your Resources section.

The Ride2School Program aims to increase the number of students walking and riding to school.



Resources

Explore more with these weblinks: Ride2School

8.8.2 The Australian Sports Commission

The federal government established the Australian Sports Commission in 1984. This statutory authority aims to ‘enrich the lives of all Australians through sport’. It supports a range of programs designed to develop sporting excellence and increase sport participation by all Australians. The commission's programs include:

- the Australian Institute of Sport, which provides accommodation, training and a full range of specialist personnel and programs for elite athletes
- sport and business services, whereby the commission undertakes corporate activities to provide quality services and resources
- sports development and participation, whereby the commission promotes, funds and develops sports and recreation at the junior and non-elite level.

Every year, the federal government allocates money to the Australian Sports Commission. This money is divided among many different programs, including women and sport, disabled sport, masters sport and junior sport.

The Australian Sports Commission wants you to become an active Australian.



8.8.3 Women in sport

Underrepresentation of women and girls in sport occurs at many levels of sport; not only in players on the field, but in decision-making and leadership roles such as coaching, officiating and club administration. One way this imbalance in being addressed is through the Women Leaders in Sport (WLIS) grant program. Female administrators, coaches and officials can apply for up to $10 000 for training, with the aim of improving their opportunities to reach their leadership potential. It is an initiative of the Australian Government and is managed by the Australian Sports Commission (ASC) in partnership with the Australian Government Office for Women.

8.8.4 Sport for people with a disability

Sports Ability is an inclusive games program. It is designed to encourage people who have a disability to join in sport and active recreation, and has been developed by the Australian Sports Commission. Anyone with or without a disability can take part, regardless of age or gender. Sports Ability was designed so that people with and without a disability can join in sport and to give sports providers more ways of including people with disabilities into their programs. For more information about inclusive sport and recreation opportunities, follow the **Access for all abilities** weblink in your Resources section.

Organised and recreational sport should be accessible for all.



on Resources

Explore more with these weblinks: Access for all abilities

8.8.5 Masters sport

Masters sport is a rapidly growing area of participation. People of all ages are encouraged to train and participate in competition at all levels, ranging from local club competitions to world championships. In most masters sports, participants range in age from 30 to over 80 — there is no maximum age limit. The range of sports available is increasing every year and the focus is on participation.

8.8.6 Active Afterschool Communities

Active Afterschool Communities (AASC) is a program designed to give primary aged school children access to free sport and structured physical activity after normal school hours (3pm–5.30pm). This national initiative aims to have children develop a love of sport by providing a fun and positive experience. This may encourage them to join local sporting clubs and in turn, they will benefit from even more physical activity and positive social interactions.



8.8.7 Australia's Physical Activity and Sedentary Behaviour Guidelines

Australia's Physical Activity and Sedentary Behaviour Guidelines were developed by the federal government in response to alarming levels of excess weight and obesity in Australians. Participation in low-intensity physical activity on a daily basis has significant health benefits. The guidelines for children and adolescents recommend at least 60 minutes of moderate to vigorous physical activity every day. The guidelines are discussed in detail in chapter 5.

8.8.8 Physical and sport education in schools

This initiative by the Department of Education and Training was introduced following recommendations from the report of the Committee for the Review of Physical and Sport Education in Victorian Schools (known as the *Moneghetti Report*). The report highlighted the neglect of physical and sport education in the curriculum and expressed concern about young people's declining levels of participation in physical activity, their poor levels of physical competence, and their declining health and fitness levels. The following evidence was presented to the review committee:

- More than 50 per cent of 10–15 year olds have blood cholesterol levels above the recommended levels.
- 30 per cent of students are obese or overweight.
- 50 per cent of students do not exercise regularly.
- The number of 10–17 year olds participating in sport is declining.
- 60 per cent of boys and 75 per cent of girls do not participate in organised sport.

School sport is important for the health and wellbeing of the school community.



Schools have a significant role to play in redressing these trends. Across Australia the states and territories recommend minimum health and physical education time in school. In Victoria, for example, the Department states that for government schools:

- Prep to Year 3 will have 20–30 minutes of physical education each day
- Years 4–6 will have 180 minutes of physical and sport education per week, of which at least 90 minutes must be allocated to physical education
- Years 7–10 will have 100 minutes of physical education and 100 minutes of sport education each week.

8.8.9 Children

An emphasis on children provides the greatest capacity for prevention of health-related issues. It also provides the opportunity to involve adults caring for children. Specific activities have therefore been developed for implementation in schools, childcare services and maternal and child health programs.

Why does an emphasis on children provide the greatest capacity for prevention of health-related issues?



8.8.10 Families

Families are faced with a variety of issues around food choices at different stages, from breastfeeding to packing school lunchboxes.

Follow the **Eat for health** weblink in your Resources section to find advice about the kinds of foods needed for health and wellbeing, with specific advice for parents about eating when pregnant and breastfeeding, and what foods to give to infants, children and teenagers.

A Victorian Government initiative is the Premier's Active April. The aim is to promote healthy and active lifestyles and get people more active, more often. It is a challenge where all Victorians, including families, are encouraged to participate in 30 minutes of physical activity every day during the month of April. Specific events are promoted for families, schools and individuals in local areas, and a range of incentives and prizes are on offer to encourage participation.

Resources

Explore more with these weblinks: Eat for health

8.8.11 Culturally and linguistically diverse (CALD) backgrounds

The government also recognises the importance of engaging Australians from culturally and linguistically diverse (CALD) backgrounds to take up healthier and more active lifestyles. It has funded tailored programs for high-risk groups within this community. The Active Connections program aims to address barriers to participation in physical activity in CALD communities.

Tai Chi has been used to keep fit, and prevent and cure diseases, among the Chinese people since the 16th century. Tai Chi is a popular activity among older Australians.



ACTIVITIES

1 Research a specific program

1. Choose one community group, such as primary school children, people from CALD backgrounds, older adults or people with disabilities, and research a specific government program that encourages these community groups to become more active and lead healthier lives.
2. What difficulties and needs has the program identified?
3. What solutions has it suggested?

2 Health promotion initiatives

As a class, share your research of different health promotion initiatives targeting specific groups and compile a comprehensive list of government and industry policies/initiatives in place to promote the health of the Australian population.

1. Which of these are specific to your state?
2. Do you feel enough is being done in your state to have a positive impact on the community?
3. What initiatives are being taken at your school to promote health and physical activity?
4. How could the initiatives in question 3 be improved?

3 School health proposal

Using activity 2 as a starting point, come up with a new proposal to improve the health (physical or mental) of staff and students in your school. Work in small groups and include details of how you can make the idea work in practice, any obstacles that need to be overcome, why you chose it and how it can benefit the school. Present your proposal to your year level/school and take a vote on which idea should be implemented.

4 Youth mental health support

Headspace is a National Youth Mental Health Foundation aimed at helping young people going through a tough time.

1. Access the **headspace** weblink in your Resources section and answer the following questions:
    - What services do they offer?
    - What age groups do they cater for?
    - How can they be accessed?
    - Is their website easy to use?
    - Does the website provide useful and informative information?
    - How would a youth without the internet access these services?
    - Would you access this website/services if you needed help in this area? Why/why not?
    - Would you recommend Headspace to a friend? Why/why not?

2. What other mental health services are available for members of the community? Find two more and apply the questions above to those programs/organisations.
3. How could you keep/store the information from these services handy, so you can access them if you ever need to?
4. Investigate all of the ways you could share this information with other young people. Which do you think would be the most effective?

5 Alcohol and drug support

The Australian Drug Foundation is an independent not-for-profit organisation that undertakes research and creates campaigns and initiatives in relation to alcohol and other drugs.

1. Access the **Australian Drug Foundation** weblink in your Resources section and answer the following questions:
    - What services do they offer?
    - What age groups do they cater for?
    - How can they be accessed?
    - Is their website easy to use?
    - Does the website provide useful and informative information?
    - How would a youth without the internet access these services?
    - Would you access this website/services if you needed help in this area? Why/why not?
    - Would you recommend the Australian Drug Foundation to a friend? Why/why not?

2. What other drug or alcohol related health services are available for members of the community? Find two more and apply the questions above to those programs/organisations.
3. How could you keep/store the information from these services handy, so you can access them if you ever need to?

4. Investigate all of the ways you could you share this information with other young people. Which do you think would be the most effective?

6 Health services

1. As a class, come up with five health-related issues that are current in the community.
2. Divide into groups and investigate one health-related area per group.
3. In your group, find at least three services that provide advice and support on your health-related issue.
4. Critique the effectiveness of these services. You could address:
    - age groups targeted
    - modes of information delivery
    - effectiveness of services offered
    - usability
    - support offered.
5. Each group then presents their evaluations to the rest of the class.
6. As a class, investigate ways to store and share contact information for these services with other young people.
7. Create a database (of your choosing) that incorporates the effective health services that the class investigated.

7 Digital health campaign

Create a digital health campaign for a minority group in your community, in relation to their health. Present your campaign to your classmates and undertake a peer review to evaluate its effectiveness.

1. In your introduction you must:
    - provide an outline of the minority group
    - outline the health issues/concerns of this minority group
    - describe why you have chosen this group and the particular health concern.

2. For the campaign you must:
    - create a multimodal campaign that includes at least two communication methods, such as a video presentation and an accompanying information brochure
    - outline a clear aim/purpose of the campaign
    - include any relevant statistics/information you have about the minority group
    - outline who the campaign is intended for and who it is aimed to be presented to
    - outline the timeframe for the campaign and how its effectiveness will be evaluated.

3. Peer review:
    - How effective is the campaign? Does it effectively address a specific minority group? Does it take into account their health needs?
    - Is the campaign multimodal and are all the communication methods presented in an engaging manner?
    - Is the proposed timeline and evaluation of the program effective?
    - Comment about the overall effectiveness of the campaign for its target audience.

8 Cultural sport

1. Research sports from different cultures that might appeal to different sectors of the Australian community.
2. Suggest how such sports could be effectively used in government health initiatives.

CHECK & CHALLENGE

Explain

1. What is the purpose of the Australian Sports Commission?
2. List five key benefits of sport for young people.
3. What is the objective of the Indigenous Sport and Recreation Program (ISRP)?

Evaluate

4. What are some of the barriers people face when trying to be active?
5. Suggest strategies that might encourage specific community groups to lead healthier lives.

Elaborate

6. Why do you think access to sport and recreation facilities is important for all Australians, not just professional sportspeople?
7. Why do you think the federal government is funding programs and initiatives targeting overweight children and adolescents?

on Resources

Explore more with these weblinks: headspace

Explore more with these weblinks: Australian Drug Foundation

8.9 Private sector and community health promotion initiatives

8.9.1 Improving health access and support

In this section you will explore how private sector providers create increased opportunities for access to health and recreational activities for all age groups. You will investigate some of the health promotion charity organisations that raise awareness of their cause and also raise much-needed funds for research and support services.

You will also explore some exciting initiatives young people in the community have created to enhance the health and wellbeing of those around them.

ENGAGE

By increasing the availability of facilities such as gyms and courts, and promoting healthy activities, **community** access to sport and recreation has increased. This is a positive development, as the long-term health benefits of increased physical activity can be only beneficial.

Private sector facilities promote health and physical recreation in many ways.

- Recreation centres rent space to sporting clubs for training and competitions.
- Gyms offer classes in aerobics, circuits, cycling and boxercise.
- Swimming centres organise aquarobics and swimming squads.
- Tennis courts manage tennis tournaments, lessons and private bookings.
- Charities organise fun runs, walks and other events.
- Community groups promote social walking and riding events.
- Individuals or groups can visit indoor rock climbing centres, driving ranges, dance schools and bowling alleys.

Conduct a class survey to find out how many people participate in an organised sport or activity outside of school that is run by a private operator. Discuss why some people participate in those activities. What motivates people to join?

Basketball can be played indoors or outdoors at many venues in Australia.



8.9.2 ACHPER

The Australian Council for Health, Physical Education and Recreation (ACHPER) is a national, professional association representing people who work in the areas of Health Education, Physical Education, Recreation, Sport, Dance, Community Fitness and Movement Sciences.

The mission of the council is to promote healthy lifestyles for all Australians and, particularly, to study and promote its areas of focus.

Some of the special projects coordinated by ACHPER are:

- Jump Rope for Heart (in partnership with the National Heart Foundation)
- Australian Fitness Education Award (AFEA)
- publications including the *ACHPER Healthy Lifestyles Journal* and *Active and Healthy Magazine*
- PHASE (Physical, Health and Sport Education) training courses for teachers.

For more information, use the **ACHPER** weblink in your Resources section.

on Resources

Explore more with these weblinks: ACHPER

8.9.3 National Heart Foundation

The National Heart Foundation is an organisation committed to preventing heart attack, stroke and other heart disease through research, health promotion and the rehabilitation of heart patients.

The National Heart Foundation is not government funded and is an independent, Australia-wide, non-profit health organisation. It was established in 1960. The foundation's purpose is to improve the heart health of all Australians and to reduce disability and premature death from heart and blood vessel disease by:

- promoting and conducting research to gain and apply knowledge about heart and blood vessel disease, its prevention and its treatment
- promoting and influencing behaviour which improves blood vessel health by conducting education and other programs directed at health professionals, those with heart disease and the Australian community at large.

For more information, use the **National Heart Foundation** weblink in your Resources section.

on Resources

Explore more with these weblinks: National Heart Foundation

8.9.4 Life. Be in it.

The Life. Be in it. program was started by the Victorian Government in 1975 and is a well-known brand managed in South Australia by a community-based, non-profit service organisation, Life Leisure Events Management Incorporated. It is in the business of participation programs and event management. Life. Be in it. is currently a national program and promotes healthy, active lifestyle options through awareness campaigns, information services, health, recreation and sport programs, organisation networking and event management.

The Life. Be in it. Come 'n' Try program provides activities for people of all ages and abilities. The program has been around for more than 25 years. It has been successful in providing opportunities for thousands of people to experience hundreds of sporting and recreation pursuits, mostly free of charge or for a heavily discounted fee. The program helps sporting and recreation organisations by promoting their activity for a period of one month to people of all ages and abilities at various locations and times throughout the year.

For more information, use the **Life. Be in it.** weblink in your Resources section.

on Resources

Explore more with these weblinks: Life. Be in it.

8.9.5 Health promotion charity organisations

A **health promotion charity** is a charitable institution whose principal activity is promoting the prevention or control of diseases in humans. Health promotion charities operate in many areas of society and include most charitable institutions that:

- provide relevant information to sufferers of a disease, health professionals, carers and to the public
- research how to detect, prevent or treat diseases
- develop or provide relevant aids and equipment to sufferers of a disease
- treat and care for persons suffering diseases.

For many people, daily life involves controlling their diseases.



Examples of health promotion charities are:

- Cancer Council Victoria
- Juvenile Diabetes Research Foundation
- National Breast Cancer Foundation.

For more information on health promotion charities, use the weblinks in your Resources section.

on Resources

- **Explore more with these weblinks:** McGrath Foundation
- **Explore more with these weblinks:** Movember
- **Explore more with these weblinks:** Starlight
- **Explore more with these weblinks:** World's Greatest Shave

8.9.6 The Lowitja Institute

The Lowitja Institute is the national institute for Aboriginal and Torres Strait Islander health research. It is the only research organisation in Australia that focuses solely on the health and wellbeing of Aboriginal and Torres Strait Islander peoples.

The aim of the Lowitja Institute is to:

- give Aboriginal and Torres Strait Islander peoples a voice in activities they are involved in
- ensure collaborative and high quality health research is undertaken to benefit Aboriginal and Torres Strait Islander communities
- improve health outcomes for Aboriginal and Torres Strait Islander peoples by working with local and regional communities, and by setting the research agendas with both state and federal governments.

ACTIVITIES

1 Sporting pamphlet

Investigate some of the local sporting clubs in your area that train in a sport of your choice. Produce a pamphlet that lists club contacts, when and where they train and play, and how much it costs to join.

This pamphlet could be handed out to students after they have just completed a Physical Education unit on basketball, for example, so the student has a reference sheet to contact local clubs if they want to further pursue participation in that sport outside of school.

2 Exclusive

Some gyms cater only for women. Some dance schools cater only for children. Using the internet and other sources, brainstorm private sector initiatives that target specific groups within your community.

3 Your local

1. On a map, identify all the facilities and areas within a three-kilometre radius of your home or school in which people can be active.
2. What sports are not available in your local area? Does this have an effect on sport participation?
3. Discuss the importance of choice for promoting an active lifestyle.

4 Charity awareness

Research a health promotion charity that you are passionate about and create a pamphlet, website, Facebook page or poster to promote awareness for that group.

5 Promotional events and products

Brainstorm a list of the different promotional events, products and/or accessories that raise awareness and promote charitable organisations.

6 Calendar

Using the internet and other sources, mark on a calendar the official awareness days or weeks approaching in the next three months.

7 Healthy foods

1. Many foods claim to be healthy and are endorsed by organisations or campaigns through advertisements, labels and promotions. List as many healthy food organisations or campaigns as you can without research.
2. How effective are these campaigns at informing the public about healthy choices?

8 Sustainable food

As a class:

- investigate what sustainability is and what sustainable practices involve
- look into sustainable food production in Australia
- brainstorm ways to grow food sustainably, store and prepare food sustainably, and serve food sustainably
- investigate how sustainable practices affect/influence your health and the health of the community
- create a presentation aimed at informing your parents about sustainability and how it affects your health. Remember, your parents may not be very familiar with sustainable living practices.

- outline how you would prepare and serve food sustainably. You might like to create several dishes for your parents to try!

After you present the information to your parents, seek their feedback about how effective your information was in raising their awareness of the topic. As a class, critique how effective your presentation was.

9 Investigative report

1. Use the **Repower initiative** weblink in your Resources section to investigate this community action initiative started by young people.
    - What is Repower about?
    - Why was it started?
    - How does the Repower initiative relate to the health and wellbeing of the community?
    - What is the Reel Change competition and why was it started?

2. In the same way Reel Change empowered young film makers to have a voice about climate change, you are going to have a voice about a health-related issue that affects youths in your school or local community, such as drug issues, cyber bullying and obesity.
    - In pairs, create a script that addresses a health-related issue and present your plot to the rest of the class.
    - As a class, choose the two best scripts (covering different topics) and create a film based on the script.
    - Half of the class will be involved in one film, the other half in the other.
    - Work collaboratively to produce and edit the film.
    - Present your movies at a year-level or whole-school assembly. At the assembly, also address current statistics/issues based around the issue your film covers, and explain why it is a health concern at your school/in the local community.

10 Safe schools

Use the **The National Safe Schools Framework** and **Student Wellbeing Hub** weblinks in your Resources section to develop and implement a proposal to improve the wellbeing of staff and students in your school. Work in groups to create a multimodal campaign to present to the school community.

CHECK & CHALLENGE

Explain

1. Define the role of ACHPER, the Life. Be in it campaign and the National Heart Foundation.

Evaluate

2. Which organisations do you believe have the most potential to create major change in the health of Australians? Why?

Elaborate

3. What makes a successful charity event?
4. Give reasons why Australia needs charity groups to promote or support health issues.

on Resources

- **Explore more with these weblinks:** Repower initiative
- **Explore more with these weblinks:** The National Safe Schools Framework
- **Explore more with these weblinks:** Student Wellbeing Hub

8.10 Review

8.10.1 What have I learned?

- Health is defined as a state of complete physical, mental and social wellbeing.
- There are nine National Health Priority Areas: cardiovascular health; cancer control; injury prevention and control; diabetes mellitus; mental health; asthma; arthritis and musculoskeletal conditions; and obesity. State and federal governments are committed to improving the health of the Australian population in these areas.
- Cancer is a major cause of death and illness in our community. Cancer control programs authorised by state and federal governments include the SunSmart campaign and the Quit program.

- Diabetes has a significant impact on quality of life and reduces life expectancy. Its prevalence in our population has increased significantly over time, mainly due to a rise in obesity levels.
- Arthritis and osteoporosis have low mortality rates; however, they place a heavy burden on the community in terms of productive time at work and health care.
- Dementia is generally a disease of the elderly; however, it places a large burden on carers and family, and involves a large cost to the community in terms of health care.
- The community in which people live influences their health outcomes.
- The determinants of health include the social, economic and physical environment as well as a person's individual characteristics and behaviours.
- Marginalised groups in society require additional support from government and private groups.
- Connection to community is an important strategy for promoting health in all groups of society, and a sense of belonging.
- Cultural awareness helps to reduce marginalisation of groups in our society.
- The natural environment must be managed and used to promote physical activity and a sustainable lifestyle.
- Natural resource management is the responsibility of all of us. You should understand your carbon footprint and how to live more sustainably.
- The environment includes the natural environment and the built environment created by humans.
- Indigenous Australians' relationship with the land connects to every aspect of their life.
- For Indigenous Australians, community and family are a complex system of extended family relations.
- Governments have introduced strategies for minimising harm and preventing major illnesses. Many non-government bodies also offer support services.
- Immunisation is an important health promotion strategy managed by local governments and monitored through a Medicare registry.
- The Quit campaign is an important strategy in reducing the use of tobacco. The campaign has led to significant reductions in the use of tobacco.
- All permanent residents of Australia are covered by our public health system, called Medicare. Private health insurance is also available and offers coverage for many of the services not covered by Medicare, but at additional cost.
- The federal, state and local government and community support and promote sport, recreation and leisure, which play a vital role in maintaining the good health of our population. Programs include those managed by the Australian Sports Commission, ACHPER and Life. Be in it.
- Health promotion charity organisations have an important role in promoting health and wellbeing.

CHECK

1. What are the determinants of health and how do they influence health?
2. Give an example of how a marginalised group in the community experiences prejudice or harassment.
3. What is the role of communities in health promotion?
4. What is the role that extended family plays in the life of Indigenous Australians?
5. How can you live more sustainably?
6. How do community celebrations help improve the health and wellbeing of a community?
7. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

In a world where connections occur more regularly online, how can you ensure you remain connected physically to your community?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14801

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5404

Try out this interactivity: True/false quiz
Searchlight ID: int-5405

Try out this interactivity: Crossword
Searchlight ID: int-5406

Chapter 9: Personal identity and relationships

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9 Personal identity and relationships



9.1 Overview

9.1.1 Changing relationships

Learning objectives

- Evaluate factors that shape identities and critically analyse how individuals impact the identities of others (ACPP089)
- Evaluate factors that shape identities, and analyse how individuals impact the identities of others (VCHPEP142)
- Examine the impact of changes and transitions on relationships (ACPPS090) (VCHPEP143)
- Investigate how empathy and ethical decision-making contribute to respectful relationships (ACPPS093) (VCHPEP146)
- Evaluate situations and propose appropriate emotional responses and then reflect on possible outcomes of different responses (ACPPS094)
- Evaluate situations and propose appropriate emotional responses and then reflect on possible outcomes of different responses to health and wellbeing (VCHPEP147)

As you grow up, your personal identity will shape who you are, how you see others and how they see you. Your identity will be formed through everyday experiences and through your relationships. The relationships you have now are bound to change, as will the types of relationships you have. How you deal with the ups and downs of life is part of growing up; it is up to you to learn from your experiences and shape the person you want to become.

How do your relationships and communication style shape your identity?



ESSENTIAL QUESTION

Through the ups and downs of teenage life, how do you cope and come out in control?

STARTER QUESTIONS

1. What is personal identity?
2. How do your family and friends influence your identity?
3. How do societal expectations and stereotypes influence you?
4. What are the characteristics of positive, respectful relationships?
5. What role do emotions play in your relationships?

INQUIRY SEQUENCE

9.2 Values, beliefs and independence

9.3 Stereotypes

9.4 Relationships

9.5 Mental health and emotional wellbeing

9.6 Review

Resources

Watch this eLesson: Personal identity and relationships
Searchlight ID: eles-2340

9.2 Values, beliefs and independence

9.2.1 Knowing yourself

Who are you? Why are you important and unique? Where do your values come from and who has the most influence on developing these personality characteristics? In this section you will explore the traits of an individual that help to define their identity, beliefs and personal values.

ENGAGE

Each of us has many unique characteristics. Every person is different, and we all have our own personal identity. This individualism makes interactions with other people exciting and interesting, but also challenging. Our identity is shaped by our values, beliefs, life experience and relationships.

Do you know how you are perceived by others? Try this activity to find out. Take a blank piece of paper and trace your hand print. Clearly print your name so this handprint can be identified as yours. Everyone in the class passes their handprints around. As you receive each classmate's handprint, use positive words to write down one strength or characteristic of that classmate. For example, you might write ‘easy to talk to’ or ‘good listener’.

When your handprint is returned to you, reflect on your classmates’ responses. Circle the three you think best represent you. Why have you chosen those three characteristics? Are there any characteristics listed that you do not agree with? Reflect on why you disagree with them and why you think your classmates see those characteristics in you.

What is your personality?



9.2.2 Personal identity

Our **personal identity** is made up of physical characteristics, skills and attributes, but, more importantly, it is related to the way we feel about ourselves. How we value ourselves, our achievements and our personal goals all affect our future success and happiness in life.

As you get older and your life experience increases, your personal identity is bound to change as a result. The way your identity changes could be influenced by:

- your relationships
- personal experiences
- culture
- gender
- the media

- your sexual identity.

Everyone is different. Each of us has a unique personal identity and life experiences.



9.2.3 Factors that shape identity

Friends, family, the community, social, and cultural influences, body image and self-esteem are all factors that help to shape who we are. Complete the **My identity** worksheet in your Resources section and evaluate the factors that shape and influence your identity.

Societal values

People's common beliefs bind them together as a group and influence their actions. This is true of parents, coaches, teachers, sporting associations, church groups and environmental groups.

Personal identity is who you are.

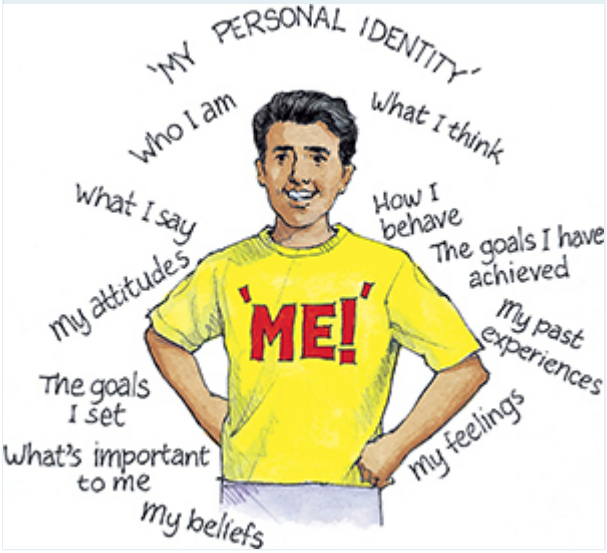


TABLE 9.1: How the values of groups in society may influence you

Groups within society	May influence your beliefs about (but not limited to):
Peers	• clothes • where you go and your use of leisure time • the language you use • your body • types/amount of food you eat.
Parents	• where you can go • what time to be home • family responsibilities • behaviour.
Coach	• fitness • teamwork • commitment • body image.
School teachers	• learning • work ethic • behaviour • uniform and appearance • punctuality.
Community laws	• road rules • vandalism • stealing • trespassing • littering • smoking and drinking in public places.
Activist groups	• issues such as the environment or politics.
Religious groups	• the way you treat others

Groups within society	May influence your beliefs about (but not limited to):
	• social conscience • the role of gender in society • the acceptance of same-sex attraction • pre-marital sex • the meaning of marriage.

DID YOU KNOW?

Sarah Burge, a 49-year-old British woman, holds the world record for cosmetic procedures in an effort to turn herself into a living doll. She has had more than 100 procedures.

on Resources

Complete this digital doc: My identity
Searchlight ID: doc-14802

9.2.4 Who shapes our identity?

What happens in everyday life can affect our sense of self. This is because identity is created and continued in social relationships. Even seemingly unimportant day-to-day contacts have important effects on a person's sense of who they are. So who shapes our identity and what impacts do they have on you?

Complete the **Who affects your identity?** worksheet in your Resources section to explore the influences on your identity.

Family

Family is one of the biggest influences on your identity. How does your family support your individual identity? Families teach you about challenging stereotypes; they role model certain behaviours; they teach you about tolerance and respect; they expose you to diversity and different experiences; families encourage friendships; they teach you to have pride in your own cultural identity and they help you to cope with prejudice. Our families are very influential when we are younger and are more dependent on them. Our parents may provide more traditional **values** about manners, morals and behaviour. They may teach us tolerance, awareness and respect for different **beliefs**.

Friends/peers

Our peers have a greater influence on us as we mature and become more independent. Your choice of fashion, music and language are likely to have been influenced by your friends. Our peers can also influence how we behave and the decisions we make.

on Resources

Complete this digital doc: Who affects your identity?
Searchlight ID: doc-14803

9.2.5 What shapes our identity?

Body image/self-esteem

We live in a world that sends us all sorts of messages about the 'perfect' body. It is not surprising then, that instead of embracing and celebrating diversity in all body types, we often concentrate on what can be physically unattainable perfection. The reality is that both males and females come in different shapes and sizes, so it is unrealistic to represent only one body type as beautiful. With so many physical and emotional changes occurring during puberty, it is normal throughout this time for youth to be more self-aware. How does your body image shape who you are?

Culture and community

The culture a young person grows up in affects the way they see themselves, including how they grow and move into adulthood. Some cultures have formal celebrations to mark the beginning of adulthood, such as the Jewish celebration of Bar Mitzvah, when a boy turns 13 years old. Complete the **Cultural differences** worksheet in your Resources section to investigate how and when other cultures celebrate the transition into adulthood.

A person’s understanding of their own and others’ cultural identity develops from birth and is shaped by the values and attitudes found at home and in the surrounding community. This identity becomes more complex over time as people develop allegiances to different groups within the broader society. Cultures develop and change as the belief systems and ways of life of different groups adapt under other cultural influences, including mass media and popular culture, to create new identities.

In a culturally diverse society like Australia, individuals may have multiple identities through identification with several different sub-cultures. These identities may include identity based on cultural heritage, family or birthplace; religious or social identity; gender identity; and identity as members of Australian society. It is not uncommon to be a part of several communities at the one time. You might be part of a sporting community and at the same time part of a multicultural community, a school community and a rural community. So how might these different communities affect our sense of identity? Being part of these groups means being a part of the culture of the group. This culture could influence factors such as how you act and behave, how you speak or dress, the types of people you associate with, and people you are influenced by. How you fit into these groups decides whether or not you will be accepted. These factors shape and support the creation of each individual’s identity within that community.

Think of a sporting community you are associated with. How could this group influence your identity? Take into account factors such as:

- the types of role models in the group
- the expectations on you as a member of the group
- how you are expected to act
- what is acceptable and unacceptable behaviour
- what types of people are part of the group
- what happens when you don’t comply to the ‘rules’ of that community.

Media influences

As part of our society, the media holds a key role in influencing ideas, behaviours and social norms. It is important to keep in mind that the media's job is to sell something — a story, **attitude** or product. Can you think of a situation when the media has influenced you?

Personal identity is influenced by the media. How are we influenced by headlines such as these?



Very often, the pressures to look or behave like somebody else are very strong. These pressures could be harmful to our physical and emotional health. In contrast, making minor changes to our image — for example, changing our hair style or colour, buying new clothes or starting a fitness regime — can make us feel better about ourselves without being harmful to our health.

Advertising and media representation of sexual behaviour and **gender stereotypes** can have a strong influence on our attitudes towards our own personal identity. Images that are inappropriate or unachievable for most people are portrayed as normal and can make us feel inadequate or unhappy with ourselves.

How do you feel gender is represented in the media? What messages do the media give out about what it means to have a good time and be fun to be around? How can these images be interpreted in respect to personal identity?

It is also important to examine how **diversity** is represented in the media and the influence these representations have on individuals' identities. Is enough being done to portray minorities accurately and fairly on television or within the media? While there has been some improvement, minorities are still not fully represented in the Australian media and as a result are often **stereotyped**. A truly diverse media allows for the voices of minorities — women, seniors, people with disabilities, cultural groups — and all Australians to be heard and accurately depicted.

Investigate how young people are portrayed in the media using the **Media messages** worksheet in your Resources section.

Messages the media send can influence attitudes within the community. Often opinions and stereotypes are formed and communities adopt certain rules and guidelines that we are all expected to abide by. Have you ever considered whether girls should be allowed to play rugby, or is it a game intended only for strong men? Have you ever thought that older Australians should act in a particular way? Is it acceptable to be a stay-at-home dad while the mother is the breadwinner? Can a male be a make-up artist, or is that a job reserved for women?

What happens when someone challenges the community's ideas of gender and diversity? Discuss with your class some ways the communities you are a part of expect you to act, based on factors such as your age, gender and position in the group. How are diversity and gender catered for in the communities you are a part of?

Socialisation

From a young age, we are dressed, spoken to and expected to behave in ways that identify us as girls or boys. This is part of **socialisation**. Traditionally, these boundaries of being feminine or masculine have been well-defined and socially accepted. For example:

- young girls wore dresses, played with dolls, didn't become dirty, and behaved in a gentle and quiet manner
- young boys behaved boisterously, were more adventurous and active, took more physical risks, got dirty and played with toys such as trucks, trains and cars
- adult females were nurturing, were interested in friends and family, liked pretty things and were concerned with domestic duties
- adult males were competitive, were expected to provide for their families, did outdoor chores and did not show emotion in public.

Although such rigid expectations of masculine or feminine behaviour are no longer as common, there are still people who adhere to the traditional stereotypes and expect males and females to behave in particular ways. This can be very confusing for some young people who just want to be 'normal'.

Have you ever considered how children's toys reinforce gender stereotypes? Use the **Not happy about gendered toys** and **Toys and gender** weblinks in your Resources section to analyse how advertising and toys can affect a child's perception of male and female behaviour.

on Resources

Complete this digital doc: Cultural differences
Searchlight ID: doc-14804

Complete this digital doc: Media messages
Searchlight ID: doc-14805

Explore more with these weblinks: Not happy about gendered toys

Explore more with these weblinks: Toys and gender

9.2.6 Personal views, beliefs and values

Children are often socialised into stereotypical behaviours as either ‘boys’ or ‘girls’.



What we feel and believe about a range of issues is part of our personal identity. These issues are diverse and include fashion, music, drugs and alcohol, diet, sexuality, leisure pursuits and politics. Opinions about such issues affect the decisions we make and the way we behave.

Our values, beliefs and attitudes are the products of our own individual circumstances and experiences. They are influenced by a range of people and groups, and reflect our views on morality, respect, loyalty and honesty. As we gain independence and establish an individual identity, we may develop stronger or different values. These may be similar to our peers, because we often choose to be friends with people who have values that complement our own. This allows us to work together to establish common interests. However, as we develop our **independence**, we should also become more open to understanding the values of others.

Conflict can arise when there is disagreement between an individual's personal values and those of society. This happens when different individuals do not place the same level of importance on certain values. For example, conflict occurs at school when an individual student does not value the school's code of behaviour. It may be that the student values socialising more than learning. However, to function effectively in the school community, the student needs to respect the codes of the school. Sometimes when there is conflict, it is important not to give in and accept something with which you do not agree.

Compromise and acceptance of others' opinions is important for building strong relationships.



At times, our personal values can be in conflict. For example, if a person values his or her family's trust but he or she also values having fun with friends, difficulties may arise. Imagine having to make a decision to leave a great party so you are home in time for your curfew. In cases such as this, you need to weigh up the possible consequences of your actions and decide the best approach so that you do not compromise your most deeply held values.

9.2.7 Shaping our personal identity

Personal identity is made up of a number of elements:

- *Past achievements.* The things we have achieved and the success we have had in the past help to form our current view of ourselves. Our perceived abilities affect what we think we can achieve and cope with in the future. These are influenced by our history, heritage and upbringing.
- *Present views.* How we feel about ourselves now is important. We have views, beliefs, attitudes and feelings about all aspects of our lives. This includes how we feel about religion, education and government, as well as how we feel about ourselves and others. These affect our **behaviour patterns** and the decisions we make.
- *Goals for the future.* The goals we set for our future are a way of defining ourselves and who we want to be. These goals may relate to relationships, career pathways, health, sport, education and travel. They affect our present view of ourselves and reflect our values, beliefs and attitudes.
  Making your goals SMARTER can help you achieve success.

Many steps towards independence involve more responsibilities.



  - **S** – Make your goals *specific*; keep them short and to the point.
  - **M** – Goals should be *measured* to allow you to assess how successful you have been.
  - **A** – *Achievable* goals make it easier to be *accountable* for improvement.
  - **R** – A *realistic* goal is something you can achieve and *reduces* the chance of disappointment.
  - **T** – Place a *time frame* on your goals so you have a target to aim for.
  - **E** – Goals that are *exciting* will lead to greater motivation to achieve.
  - **R** – *Record* your goals so they are a permanent reminder of something to work towards.

Goals are personal expectations, so think carefully and choose positive influences to help.

Alana Boyd's belief in herself helped her overcome two failed attempts to take out the gold medal in the women's pole vault at the 2014 Commonwealth Games in Glasgow. She claimed the gold medal on her third and final jump.



ACTIVITIES

1 Goal setting

1. When setting goals, it is a good idea to first consider your past achievements before deciding how you wish to build on them or what new directions you wish to pursue. List some of your past achievements, ensuring you include things that have made you feel good about yourself. Consider the things that you have done for your family, friends, in sport, at school and in the local community.
2. Goal setting gives you control of your future. Complete the **Set your goals** worksheet in your Resources section to set some goals. Make sure they follow the SMARTER guidelines outlined in this lesson.

2 Communicating personal values

1. In small groups, choose a controversial issue about which you all have the same opinion. You may choose a specific issue from one of the following general topics or choose one of your own (check with your teacher first).
    - Underage smoking
    - Literacy levels
    - Dress codes
    - Unemployment
    - Abortion
    - Video games
    - Teenage pregnancy
    - Pornography
    - Stereotypes
    - DVD or CD piracy
2. Write down your group's opinion on this issue.
3. What values underpin your group's chosen point of view? Does gender, culture or your community's values affect your views?
4. Write your issue up on a large sheet of paper and place it on the wall.
5. Walk around the room and add your own opinions and comments to each group's graffiti sheet. You are assisting the other groups to include all points of view and opinions on their chosen issue, and the other groups are helping you in the same way. Consider this your 'local' community view on the issue.
6. Using newspapers, magazines and internet articles, collect public comment and debate about the issue. Describe the types of language the writers use to get their point across. Collect this information before your next lesson. Consider this your 'global' community view on the issue.
7. Think of ways of clearly organising your findings, such as using a mind map or analytical report. Compare your own group view with the local and global community views you have gathered. Discuss whether all the global community views were raised in the graffiti sheets. Why or why not?
8. Present your findings to the class.

3 Responsible or irresponsible?

The following decisions have been made. Discuss whether they are responsible or irresponsible. If you need more information to decide, identify what factors might affect whether the decision was a responsible one or not.

1. To have sexual intercourse
2. To drink alcohol at a party
3. To complete all schoolwork by the due dates
4. To ignore the curfew time set by my parents
5. To never get into a car with a drunk driver
6. To respect my parents' right to expect cooperative behaviour from me
7. To get a part-time job
8. To break up a long-term, intimate relationship via text message

Discuss your justification with a partner and then choose your best response to share with the class.

4 Expectations of teenagers

Design a survey to investigate family and community expectations of teenagers. You could investigate levels and issues of independence, values and attitudes of young people, or specific influences on young people.

1. Record your own answers to the questions you have developed.
2. Choose a range of people to survey, including at least three community members and three family members. To perform the survey, you may use photocopies of a prepared survey form, send the survey by email or record survey responses using a video camera.
3. Using the information gathered from your survey, comment in writing on the following statement: 'Our families and the community have a strong influence on us as we develop personal identity and independence'. Alternatively, you could present your findings to the class in the form of a class debate.

5 Conflict

Identify the personal values that are in conflict in the following scenarios.

1. I have homework due tomorrow but my favourite shows are on television tonight.
2. I know that smoking harms my health but I smoke when I am with my friends.
3. I want to do well at school but I want to be with my friends when they skip classes.
4. I believe in each person's right to be an individual but I do not stop my friends when they are bullying another student.
5. My parents have told me not to drink alcohol when I go out but my friends always expect me to have a drink.

6 Your style at school

Have you ever done a personality or learning style test? Did you agree with the evaluation? Did you find it useful? Use the **Learning styles** weblink in your Resources section to complete a learning style test and then, in groups, discuss why you think it is important to be treated like an individual.

7 Express your opinions

You have views about a lot of things. Choose three issues that you feel strongly about and then complete the **Express yourself** worksheet in your Resources section. Use the list of ideas below to help you choose your topic.

- Children
- Community laws
- Consumer rights and responsibilities
- Drugs
- Families
- Food
- Gender roles
- Money
- Music
- Pets
- Racism
- Relationships
- Right and wrong
- School
- Sex
- Sports
- STIs
- Work
- Your rights and responsibilities

8 Mapping independence

In a small group, your task is to analyse some of the positive and negative health outcomes of becoming independent and having to make decisions. Use the **Mapping independence** worksheet in your Resources section to create a mind map of a ‘choose your own ending’ story.

CHECK & CHALLENGE

Explain

1. What do you think drives or motivates a person to have more than 100 cosmetic surgery procedures to look like a doll?
2. Who or what has the most influence on your life? How and why do they have this influence?

Evaluate

3. With increasing independence comes change. Identify three things that, because of increasing independence, may bring about a change in:
    a. a friendship
    b. a family relationship
    c. an intimate relationship
    d. your sense of self or personal identity.
4. Why is it important to set short-term and long-term goals?

Elaborate

5. When you reflect on a decision you made, do you often congratulate yourself on making a ‘wise’ decision or chastise yourself when you regret the decision? Why?
6. Have you ever been influenced by negative peer group pressure? What were the consequences?
7. Explain why some cultures celebrate the transition to adulthood with a formal event.

on Resources

Complete this digital doc: Set your goals
Searchlight ID: doc-14808

Complete this digital doc: Express yourself
Searchlight ID: doc-14806

Complete this digital doc: Mapping independence
Searchlight ID: doc-14807

Explore more with these weblinks: Learning styles

9.3 Stereotypes

9.3.1 What are stereotypes?

A stereotype is a commonly held belief about a specific group or type of individual. Stereotypes are often based on assumptions rather than facts and can be directly influenced by the values, beliefs and attitudes of a community.

ENGAGE

Social behaviour, employment expectations, notions about child rearing and family responsibilities are all closely related to gender stereotypes in traditionalist societies. Today, all young people in Australia have choices to make regarding their future, such as their career, study, marriage and having children. Although limits are placed on these choices (for example, financial, cultural and religious expectations, and family pressure), the range of possibilities for both men and women has widened considerably since our parents and grandparents were young.

Do all teenagers spend their spare time playing video games?



What are the stereotypes of young people presented in the media? Collect catalogue ads and newspaper reports, or research some blogs, and then classify them under different stereotyped headings (for example, cool jock, digital native or out of control delinquent). What do your categories show about stereotypes? Are young people often shown in the media as carefree, having fun, acting dangerously, lucky or lazy?

9.3.2 Gender roles

Certain personal characteristics have been strongly associated with gender. Historically, females have been expected to behave in a gentle, nurturing and subordinate manner; their main role in life was to be a good wife and mother. Women who strayed outside these expectations to pursue a career or live a single life were regarded as eccentric or lacking in femininity. Conversely, males have traditionally been expected to be strong, domineering, physical and lacking in emotions. Their main role in life was to be the money earner for the family and to provide stability and status. Men who chose to be nurses, dancers or other professions generally considered to be ‘feminine’ were regarded as undesirable by people who adhered to the traditional model of behaviour.

Gender identity can be influenced by society's views and stereotypes.



Gender roles and stereotypes can sometimes cause problems in relationships because there is an imbalance in power. In a healthy relationship, all people involved should have a say in decision making. This includes everything from where to go on a date to whether to start or continue a sexual relationship. As we develop independence and make important decisions, we should think carefully about our role in a relationship.

9.3.3 Gender and sport

In recent years there have been signs that the traditional gender stereotypes and the boundaries they created are breaking down. In sport, there have been changes in the traditional sporting activities pursued by men and women; for example, female weightlifters are now recognised as athletes in their own right.

The barrier between traditional ‘male’ and ‘female’ sporting activities is being broken down, as demonstrated by this female Chinese weightlifter.



However, there continues to be a significant difference in the media coverage of male and female sports. Male-dominated sports, such as Australian Rules football, cricket and V8 supercars, are more frequently broadcast on television. Females can participate in these sports if they are willing to search for them, but often not at the same professional level. Have sporting stereotypes limited the opportunities for women to have careers in sport?

DID YOU KNOW?

‘Sexploitation’ is a word used to describe the marketing or promotion of an athlete by using their sexual attributes, such as their physical appearance. At times, the value of an athlete is judged in terms of their body type and appearance, rather than their sporting ability and skill.

on Resources

Explore more with these weblinks: Sexploitation

9.3.4 Gender and our bodies

Males and females often have different perceptions of their bodies and how they want to look. Females often want to lose weight and be thinner, whereas males want to be taller, stronger and have more muscles. As a result specific genders are often marketed in response to these body image perceptions. One such way gender is stereotyped and marketed is through food. Are there specific foods you eat that the opposite sex wouldn't? Complete the **Food gendering** worksheet in your Resources section to explore typically masculine and feminine foods, and how food gendering came about.

on Resources

Complete this digital doc: Food gendering
Searchlight ID: doc-14809

9.3.5 Teenage stereotypes

Teenagers are not all hormone driven, rude, moody and sullen. Yet, some believe that the typical teenager going through their developmental years demonstrates each of these characteristics regularly. Is this a fair judgement? Are all teenagers the same? The answer is a resounding 'no'. Each individual will develop through the values, beliefs and attitudes they consider most important. However, this is greatly influenced by society's stereotypes. Use the **Teenager stereotypes** weblink in your Resources section to watch a video that debunks common myths about teenagers.

What does it mean to be a teenager?



ACTIVITIES

1 Stereotypical behaviours

Tips to look after your husband (1950)

- *Have dinner ready:* Plan ahead, even the night before, to have a delicious meal on time. This is a way of letting him know that you have been thinking about him and are concerned about his needs. Most men are hungry when they come home and the prospects of a good meal are part of the warm welcome needed.
- *Prepare yourself:* Take 15 minutes to rest so that you will be refreshed when he arrives. Touch up your make-up, put a ribbon in your hair and be fresh looking. He has just been with a lot of work-weary people. Be a little gay and a little more interesting. His boring day may need a lift.

- *Clear away the clutter:* Make one last trip through the main part of the house just before your husband arrives, gathering up school books, toys, papers, etc. Then run a dust cloth over the tables. Your husband will feel he has reached a haven of rest and order, and it will give you a lift too.
- *Prepare the children:* Take a few minutes to wash the children's hands and faces (if they are small) and comb their hair and, if necessary, change their clothes. They are little treasures and he would like to see them playing the part.
- *Minimise all noise:* At the time of arrival, eliminate all noise of washer, dryer, dishwasher or vacuum. Try to encourage the children to be quiet. Be happy to see him. Greet him with a warm smile and be glad to see him.
- *Some don'ts:* Don't greet him with problems or complaints. Don't complain if he's late for dinner. Count this as minor compared with what he might have gone through that day.
- *Make him comfortable:* Have him lean back in a comfortable chair or suggest he lie down in the bedroom. Have a cool or warm drink ready for him. Arrange his pillows and offer to take off his shoes. Speak in a low, soft, soothing and pleasant voice. Allow him to relax — unwind.
- *Listen to him:* You may have a dozen things to tell him but the moment of his arrival is not the time. Let him talk first.
- *Make the evening his:* Never complain if he does not take you out to dinner or to other places of entertainment. Instead, try to understand his world of strain and pressure, his need to be home and relax.
- *The goal: Try to make your home a place of peace and order where your husband can renew himself in body and spirit.*

1. How have things changed in homes since 1950?
2. What has influenced a change in attitudes and expectations within the home?
3. Do you think some people still live by these values and expectations? Why?
4. Develop three tips for looking after your relationship with your partner that are relevant to today's values.

In the 1950s, women were expected to perform only domestic duties.



Women now have the opportunity to pursue careers. However, because of stereotyped gender roles, they are often still expected to take responsibility for raising a family.



2 Famous faces

1. List two famous men and two famous women whom you admire (they may be contemporary or historical figures) from each of the following categories.
    a. Sportsperson
    b. Actor or musician
    c. Inventor, artist or explorer
    d. Politician or statesperson
2. Which categories did you struggle with?
3. Why do you think some categories were more difficult to choose from than others?
4. Why do you admire the people you have listed?

3 Choosing a birthday present

1. Choose a birthday present for:
    a. a newborn girl and boy
    b. a girl and boy turning five
    c. a girl and boy turning 15
    d. a girl and boy turning 21.
2. Do your choices tend to be gender-specific or gender-neutral?
3. Look at a toy catalogue from a major department store or a large toy retailer. Alternatively, you can use the **Toy shop** weblinks in your Resources section to refer to some catalogues online.
4. Is the catalogue helpful in providing a wide range of gifts for boys and girls?
5. Are there many gender-neutral choices?
6. Do the advertised toys reinforce stereotypes about boys and girls?

4 Teen movies

1. List five stereotypes popular in teen movies (for example, geek or jock).
2. Describe what characteristics are common to the stereotypes.
3. As a class, share your descriptions and compare the similarities between the stereotypes.

5 Occupations

1. Compare three occupations you think are dominated by men and three you think are dominated by women. In your comparison, discuss why you think men and women choose to follow these different career paths. Consider some of the following aspects of work.
    - Peer acceptance
    - Nature of the occupation (for example, physical work or highly social)
    - Salaries and status
2. Where do these opinions on careers come from?
3. What effects do these opinions have on a young person's goal setting and career choice?

6 Articles

1. Use the **Teen myths** weblink in your Resources section to read a newspaper article about stereotypes.

2. Write your own article discussing the inaccuracy or truthfulness of stereotypes. Why have you developed these opinions?

CHECK & CHALLENGE

Explain

1. Describe the effects stereotypes can have on people's sense of identity.
2. How can stereotypes influence people's expectations?

Evaluate

3. In what situations can stereotypes be useful or positive?

Elaborate

4. Why do stereotypes exist?
5. Where do stereotypes come from and who do you think has the most influence over them?

on Resources

- **Explore more with these weblinks:** Teenager stereotypes
- **Explore more with these weblinks:** Toy shop
- **Explore more with these weblinks:** Teen myths

9.4 Relationships

9.4.1 What is a relationship?

Relationships are associations or attachments formed either by choice (school friends, neighbours, teammates) or because you are part of a family (siblings, parents, and other relatives). Relationships exist between all sorts of people, such as mother and child, brother and sister, and girlfriend and boyfriend. As we mature, we place different importance on interactions with some people and our relationships change.

ENGAGE

Relationships serve many purposes and may fulfil one or more of our social, intellectual, spiritual, emotional or physical needs. Depending on whether the relationship is with a family member, a partner, a teacher, a neighbour or someone else, these needs will vary. They may include the need for:

- a positive self-image
- safety and security
- trust in a relationship
- respect
- knowledge and learning
- independence
- **commitment**
- hope
- intimacy
- food and shelter.

Are you a good friend? Use the **What kind of friend are you?** and **Making friends** weblinks in your Resources section to take two quizzes and assess what type of friend you are. How accurate do you believe these kinds of quizzes are? What might be a better indication of your friendship skills? Think of ten characteristics you believe a good friend should have.

on Resources

Explore more with these weblinks: What kind of friend are you?
Explore more with these weblinks: Making friends

9.4.2 Relationship expectations

People can have different expectations and needs in a relationship, and can show their feelings in different ways. These expectations may affect their interactions. We need to recognise our different needs, reactions and expectations when in a relationship. **Communication** is essential. Communicating our expectations and feelings allows the relationship to be an effective and supportive one.

How we behave in certain relationships can determine whether we have a healthy, balanced relationship or not. Complete the **Behavioural expectations in relationships** worksheet in your Resources section to explore the behaviours expected by individuals in different relationships.

Everyone needs people they can trust and communicate with.



on Resources

Complete this digital doc: Behavioural expectations in relationships
Searchlight ID: doc-14810

9.4.3 Family

When you are young, getting on with your parents can sometimes be a challenge. As you form your own personal identity, you may think differently from your parents, and have different values and beliefs, which can lead to conflict at home or breakdowns in communication. As a teenager you want to be more independent and think and speak for yourself. This can be hard for parents to get used to. Parents can continue to be protective of you, and want to influence what you do and how you do it. Ultimately this is because they want what is best for you, but this can feel overbearing.

9.4.4 Friendships

Friendships we establish are usually based on common interests, such as hobbies and sports. Similarly, friends may drift apart because their interests and situations change and there is less to talk about or they have less in common. This situation is not necessarily negative; it shows that individuals are maturing and reassessing their interests.

We gain much support and confidence from friendships that are positive, enduring and meaningful. Loyalty, trust, respect, confidentiality, equity, tolerance, empathy and understanding are components of sound and ongoing friendships. We share fun, experiences, humour and memories with our friends. Even when situations occur that challenge the strength of a friendship, there is sufficient depth and support to enable it to survive. We find it easy to defend our friends when the bond of friendship is strong and intact. However, friendships are dynamic, and things change over time or as a result of circumstances. Friendships don't just happen; they must be worked on.

A lack of communication may cause a breakdown in a friendship.



Just as a friendship can be a rewarding part of life, life can also be stressful when the friendship starts to falter. We may feel anxious, guilty, hurt or even jealous at these times. Not all friendships are healthy. Some friendships can be destructive, especially if people have different values or become too dependent on their friends. Negative peer pressure can influence decision making and impact on the lives of all involved.

Anger and resentment are common negative feelings we encounter when friendships unexpectedly fall apart. It is difficult to remain objective and separate the problem from the person in these situations. We need to think carefully about the *reasons* behind the breakdown and work out ways to restore the friendship or, as painlessly as possible, to continue without that person in our life. Often, a lack of communication — the inability to listen to and be honest with friends — causes breakdowns in a friendship.

9.4.5 Peer groups

A **peer group** is a group of people who are roughly the same age as you and are from a similar background. We tend to relate well to our peers because of these two factors and we value their comments and attitudes. A peer group can be an influential and powerful aspect of our lives.

The power of peer groups

Belonging to a peer group has many benefits. We can feel secure and confident in the knowledge that our peers will assist us, tolerate us and support us through thick and thin. We trust the members of the group and receive enjoyment from the activities we have in common and the personal qualities we appreciate in each other.

Sometimes there is a leader who directs the group, perhaps subtly, into ‘acceptable’ activities and behaviours. If this leader is well-respected or asserts power in certain ways, then it is likely that the rest of the group will follow their actions. If members of the group are doubtful about becoming involved in any activity, then tension or conflict may develop within the group. This can become a very difficult and stressful situation, where group members need to make decisions regarding the appropriateness of the activity. Pressure from the leader or other group members may add to the dilemma of individuals trying to make sound decisions.

There are times when you may feel pressured by the peer group into doing something with which you are uncomfortable, but you may also feel the desire to still be accepted and part of the group. The decision about what to do will depend upon the strength of your own convictions, personal confidence and assertiveness. Some of it has to do with the expectations of family and/or culture and some has to do with a moral obligation you feel you must obey. The combination of these factors will lead you to make a decision.

Peer groups exert pressure because belonging is an important human need.



9.4.6 Decision making

How do we make responsible decisions? These can be difficult to make because we often feel we have to sacrifice or compromise things we enjoy in order to be responsible. When facing a difficult decision, ask yourself the following questions.

- What do I need to make a decision about?
- What are the options?
- What other information do I need to help me make the right decision?
- What things are influencing my decision? Are my family, friends, school, culture or religion expecting a particular decision from me?
- What effect will my decision have on me and on other people?
- Who can help me with this decision? Do I have a support network made up of parents/guardians, friends, GPs, school counsellors and teachers who can give me advice or guidance?

9.4.7 Intimate relationships

Your relationship with a very close friend is an **intimate relationship**. There is a high level of sharing, trust, affection, understanding and personal disclosure of information in such a relationship. Sexual attraction may also be a feature. **Sexual activity** or intercourse may form part of an intimate relationship, but you can have intimacy without being physically intimate.

Affection can be shown in many ways.



9.4.8 Characteristics of positive and respectful relationships

Everyone has the right to feel safe, to be treated with fairness, to be valued and to feel accepted for who they are. Respectful relationships are important because they contribute to your growth and sense of self-confidence; they promote healthy self-expression and awareness of yourself and others, and they enable you to feel accepted and free to be yourself. Some characteristics of positive and respectful relationships are respect, trust, honesty, equality, safety, consistency and empathy.

Can you think of someone who you have a healthy, respectful relationship with? How is this person important in your life and how do you feel about yourself when you are with them? What characteristics are essential for you in a respectful relationship?

Being in a respectful relationship doesn't mean that you won't have differences of opinion or disagreements. However, in respectful relationships when differences occur they are dealt with in ways that lead to a resolution or understanding. Conflict or differences occurring in respectful relationships can be worked out and do not have to damage the relationship.

Can you think of a time you sorted out a difference with someone close to you. How did you go about it and how has working things out changed your relationship for the better? What conflict resolution skills did you use?

Communication

Communication involves both talking (clearly conveying a message) and listening (understanding the message). Positive communication shows interest in and respect for others, and is important for positive relationships. Chatting about general events and greeting acquaintances (for example, teachers, friends' parents or classmates) develops positive relationships or goodwill with people in your wider social network.

Effective communication allows you to:

- maintain friendships
- be part of valuable family relationships
- limit the misunderstandings that you have with people
- solve problems.

It is a skill that requires practice. We need to be sure that the words we use convey the messages we intend and express our feelings. Some people find it easier to write down what they would like to say, as this may be less threatening than face-to-face contact. It allows them to make sure that their intended message is conveyed effectively. When you need to talk to someone in person about a difficult topic, it helps to be prepared before you speak to the person.

When communicating, your **body language** conveys non-verbal messages about what you are saying. The way you stand, your gestures, the placement of your arms, the look on your face and the eye contact you make all reinforce the words you use to communicate. Verbal cues such as tone, volume and pitch also contribute meaning to the words you use. Sometimes, your body language can work against you. For example, when you are trying to be open with someone but have your arms crossed, it may give the impression that you are closing yourself off. Body language is also dependent on culture, so what may be okay in your culture may be offensive in another.

Eye contact is an important aspect of communication. Communication involves both talking and listening.



Conflict resolution in relationships

Conflict sometimes occurs when people hold different views. Conflict is an inevitable part of life. People grow, adapt, and clarify their beliefs and values by learning to resolve conflict.

Conflict can make people feel uncomfortable, guilty, frustrated, bitter and frightened. These feelings occur when people believe there is a right and wrong way of looking at things. We need to recognise that we all have different thoughts, feelings and experiences and, therefore, perceive things differently. It is normal for people to hold widely differing points of view. Usually, they simply ‘agree to disagree’.

Many differences of opinion can be accepted to avoid unnecessary conflict. For example, if you do not agree with skateboarding, you may avoid conflict by staying away from designated skateboarding areas. If you find that you are constantly in conflict with a person in your class, you may choose to accept your differences and sit on different sides of the room.

Conflict can be resolved through negotiation that aims to satisfy everyone. Some misunderstandings may be solved through effective communication, that is, by talking and listening to one another. Other conflicts may require some compromise to solve the problem. This may involve adjusting an opinion. Conflict resolution is a learned skill and, like any skill, improves with practice.

When you experience conflict, try to use the following conflict resolution skills:

- Focus on solving the problem, not attacking the people involved.
- Recognise that other people may perceive the problem differently.
- When expressing your view, use only 'I' statements, such as 'I think …', 'I feel … ' and 'I want … ', rather than 'you said …' or 'you did …'.
- Listen to what each person is saying and check that you have understood their point of view.
- Look for a solution that will satisfy everyone — often, compromise is needed.

Practise solving a small conflict in groups of three. One person takes on the role of the observer and can then inform the other two how well they used conflict-resolution skills. For more practice, complete the **Refusal skills** worksheet in your Resources section.

Conflict is inevitable in human relationships so we need to develop strategies to deal with it.



DID YOU KNOW?

Research shows hanging out with friends and family can increase your life expectancy. The more positive relationships a person has, the more likely he or she will enjoy a healthy lifestyle.

Empathy

Empathy is the ability to relate or identify with another person's feelings or situation, or to be able to put yourself 'in someone else's shoes'. Empathy helps strengthen relationships and creates openness between people. When empathy is present, people feel listened to and understood. When empathy is absent, people are less likely to be considerate of others' needs and feelings. Therefore, it is a key tool in relationships.

Negotiating needs in respectful relationships

We all have different needs at different times and, in relationships, it helps to give and take in terms of each other's needs. This is the case in all relationships, including friendships, family relationships and partner relationships. So, how are these needs and differences negotiated in a respectful relationship? Respectful relationships acknowledge and consider everyone's needs, are flexible about individual choice, and acknowledge differences and strive to accommodate them.

When you are in a respectful relationship, one person doesn't need to put their needs aside for the other. It may mean communicating how you feel and being flexible at times, but it also means being true to yourself. It is not about trying to change someone, but rather striving to understand things from their perspective, even if your perspective is different.

Assertiveness

Assertiveness is the ability to state your case without making someone else feel attacked. Generally, this is determined by the way something is said. As discussed previously, using 'I' statements is recommended to show your feelings about an issue. Such statements are not a resolution or the only opinion of a situation. For example, state your opinion in this manner:

'When (*a particular event happens*), I feel (*a certain feeling*). What I'd like is (*possible solution*).'

Complete the **Being assertive** worksheet in your Resources section to look at situations where assertiveness is important, and to explore the difference between being assertive, passive or aggressive in relationships.

This skill takes practice and, with practice, we can focus on:

- allowing both sides to be heard
- not being judgemental
- keeping confidentiality

- moving forward in a positive way
- not taking sides or laying blame
- attempting to achieve an outcome that is acceptable to both parties.

Sometimes it may seem easier to be passive in a conflict; however, if you find yourself being manipulated, bullied or forced into certain behaviour, it may affect your self-esteem and leave you feeling as if you have no control in the situation.

Being aggressive, or having no respect for the feelings of others, can build resentment, and you may find that no-one respects you or your decisions. You may also find that people are frightened of you.

Having a strong sense of self-worth is important for resilience. Keep working on your strengths.



Resilience

Resilience is a flexibility that allows us to bounce back from difficult situations. Generally, the more resilient someone is, the more easily this occurs. Factors that influence our resilience include our ability to:

- feel connected to family, friends, peers, school, spirituality
- maintain a daily routine which provides stability when there is chaos.

Rights and responsibilities in relationships

Positive and respectful relationships are built on equality, respect and accountability. Each individual in a relationship has both rights and responsibilities. In any relationship you have the right to express your feelings and opinions, make decisions about yourself and have equal decision-making power, and feel safe and supported. In any relationship you have the responsibility to respect the other person's values, feelings, and beliefs, communicate clearly and honestly, compromise and be considerate.

Another aspect of being in a respectful relationship is acknowledging individual differences. You might make a decision about something, yet the other person in the relationship makes the decision to act differently. Similarly, you might have someone in a relationship change their mind after they have made a particular decision. Have you had this happen before? How did it make you feel? Have you made a decision and then changed your mind?

Complete the **Relationships — rights and responsibilities** worksheet in your Resources section to explore what rights you have in certain relationships, and the responsibilities you need to deliver to others in those relationships.

on Resources

Complete this digital doc: Refusal skills
Searchlight ID: doc-14813

Complete this digital doc: Being assertive
Searchlight ID: doc-14811

Complete this digital doc: Relationships — rights and responsibilities
Searchlight ID: doc-14812

Complete this digital doc: Challenging or unsafe situations
Searchlight ID: doc-14814

9.4.9 Negative or disrespectful relationships

Sometimes people can treat us disrespectfully no matter what we do. At times, it is not possible to influence how others behave towards us, despite our best efforts. If you feel you are being treated disrespectfully, where possible let the person know how you are feeling, in case they aren't aware of their impact on you. If this doesn't help you can try to remove yourself from them. If you cannot move away from someone who is hurting or disrespecting you, seek help or talk to someone you trust. When you seek help, you are showing respect for yourself.

To practise how to deal with challenging or unsafe situations, complete the **Challenging or unsafe situations** worksheet in your Resources section.

Balance of power

Balance of power means a relationship that is not one-sided: one person does not have more control or power than the other. Communication is the key to staying in balance. Both parties need to talk about what the other person wants, and listen to what the other person has to say. Both of you will have your own opinions, and that means you have to work together to balance what you both want.

You and your friends probably have similar interests, but you are not completely the same. Likewise, you may share common interests with family or your partner, but that doesn't make you the same person. You can certainly do things together, but remember that you can have different interests, too. Make sure you and your partner/friend have time to pursue your own interests as well. If you change in a relationship and adopt all of the other person's favourite things, hobbies and lifestyles, the relationship becomes unbalanced.

Bystander behaviour

We all need help sometimes and part of being in a respectful relationship is to help others when they need it. In particular, when considering **cyber safety** it is important to demonstrate appropriate **bystander** behaviour if you see someone being treated negatively. A bystander is someone who sees or knows about bullying or other forms of violence that is happening to someone else. Bystanders can be either part of the bullying problem or an important part of the solution to stop bullying.

Sometimes people who witness **cyberbullying** choose not to intervene for a number of reasons, including the fear of becoming the next target or not wanting to make the situation worse; this person is called a passive bystander. In situations where cyberbullies face no opposition, they may interpret silence as encouragement to continue behaving badly. It is important for bystanders to judge how they can safely intervene to support a target; this is called being an active bystander or an upstander.

Bystanders can play an important role in influencing the outcome of a cyberbullying situation. Their decision to step in and help someone has a greater chance of stopping the cyberbullying than if they were to do nothing. Not all cyberbullying incidents are the same, and sometimes it can be difficult for bystanders to know how to intervene safely without making the situation worse for themselves and the target.

What can you do?

If you know cyberbullying is occurring, take the following steps to ensure you are being an active bystander/ upstander.

- Don't take part or join in — that means not commenting on posts, photos or videos about other people if it will be hurtful.
- Don't share information online, unless the person gives you permission — no forwarding of images, videos or posts.
- Leave groups or conversations that are negative.
- Tell someone who can help/do something about the situation.
- Support the person being bullied — let them know it is not ok and you are there for them.
- Tell the bullies to stop (if you have the confidence!).

Remember, bystanders have an important role to play in situations of cyberbullying. Their actions can help to stop the behaviour. If you are not part of the solution, you are part of the problem, so let's put cyberbullying to an end.

9.4.10 Responsible use of social media

Social networking sites are a big part of a teenager's social life. Social media is used to interact with peers, form communities and build connections with others who share common interests. Research shows that when teenagers get positive feedback on social networking sites their self-esteem is boosted, but when they get negative feedback, it lowers their self-esteem. So, it is essential to ensure we use social media in positive ways so we are not affecting others negatively. Does your school or sporting club have a social media policy? Why is it important that everyone abides by the guidelines? Discuss with your class the reasons for having policies around the use of social media. What would you include on your policy and why?

ACTIVITIES

1 Friendship strengths

Choose one of your friendships. Use the following questions to describe this relationship and to illustrate its unique nature.

1. What makes the relationship special?
2. What qualities or common interests do you and/or your friend have that make your friendship valuable?
3. What happens when an incident arises that challenges the friendship, such as accusations, jealousies, misinformation or gossip?

2 Group pressure

Describe how you would feel and how you would act if the peer group to which you belong decided to:

1. skip school for the day and meet at the local shopping centre
2. boycott an exam which they think is unfair or unnecessary
3. make up an alibi for a friend who has been accused of shoplifting
4. graffiti a train carriage using spray cans
5. apply some ‘pressure’ on a group member who refuses to hold similar views to the rest of the group
6. wear swimming goggles to a party, just for fun
7. start running every morning
8. give the silent treatment to one of your group members.

3 Role-playing relationships

In pairs, role-play each of the following scenarios, making sure you use open body language and effective communication skills. Practise choosing the right words so you convey the message that you want the other person to receive.

Mother and daughter. The daughter is considering becoming sexually active and would like to use the pill but feels that she needs to discuss this with her mother and seek her advice.

Girlfriend and boyfriend. The time seems to be right to consider sexual activity. You need to talk about the way you are feeling and discuss contraception options with each other.

Teenager and parent. You feel that you have no independence or freedom and are not appreciated at home. You seem always to be in trouble for doing the wrong thing and feel that you can do nothing right. You need to discuss the way you are feeling with your parent.

Two good friends. You have been friends for a long time. You are beginning to feel intimate feelings for the other person, but are not sure what your friend feels. You need to talk to each other about how things have changed and the way you now feel about each other.

Couple in a relationship. You have been going out for a long time but your relationship has deteriorated. You are both unhappy and are unintentionally hurting each other. You need to talk about how you are feeling and find a solution that is best for everyone involved.

Girlfriends or mates. You have been friends for a long time and know each other very well. However, you feel that you are drifting apart as you begin to mix with different peer groups and reassess your values. You are feeling isolated and guilty. You need to tell your friend how you are feeling.

Same-sex partners. You have been going out for a short time but you are happy about your relationship and want to talk to your friends about it. Your partner, however, does not want others to know about the relationship, for various reasons. You need to talk to your partner about what you are going to do.

4 Friendship breakdowns

1. Discuss some reasons why you think some friendships break down.
2. What strategies have you employed to try to maintain a friendship after a crisis?
3. Which strategies worked for you and which did not? Why?
4. Create guidelines on how to end a friendship with which you do not feel comfortable. Ensure your guidelines show respect for everyone involved.

5 Relationship networks

1. Try listing all the relationships in your life. It may help to categorise them using a tree diagram or mind map.
2. Analyse how your personality, behaviour and role changes in each of these relationships.

6 Cyberbullying

Think about a time when you may have seen instances of cyberbullying online. What is something positive you could do, or the option that you would feel safest in doing, if you witness:

- someone repeatedly sending abusive text messages to another person

- an inappropriately tagged photo of someone in your year group — the photo is humiliating and has attracted many hurtful comments
- a friend excluding a member of your friendship group from a party posted online.

List any of the tips you have used yourself in a cyberbullying situation. If you haven't been involved in a cyberbullying situation, what do you think you would do? What steps would you take?

Have you ever been a passive bystander — you knew cyberbullying was occurring but you did nothing about it? If so, what were your reasons for keeping it to yourself?

Who would you talk to in the following situations?

- You tagged a photo of someone else without permission and now you regret it.
- You received a 'sext message' from someone at another school.
- You hear a group discussing some explicit content they shared on Facebook about another class mate.
- Someone tagged you in a photo and you did not give permission, and you know who it was.
- Two students in your year level have been sexting each other.

7 Healthy relationships

1. With a partner, discuss how you create and maintain healthy relationships, then answer the following questions.
    a. Which of your current relationships would you say are the healthiest?
    b. Why is this?
    c. What characteristics make these relationships healthy?

2. Refer to the **Healthy relationships** weblink in your Resources section and read the ABCs of healthy relationships, then answer the following questions.
    a. What does A stand for? What does this mean?
    b. What does B stand for? What does this mean?
    c. What does C stand for? What does this mean?

3. In order to be aware, balanced and make healthy choices, you need the building blocks of the ABCs: communication, trust and respect. These are the keys to a healthy relationship and are at the base of the ABCs. What can you do if a relationship you are in is not respectful?

CHECK & CHALLENGE

Explain

1. List five ways you can express your feelings in a relationship without words.
2. What personal characteristics do you think are important for both people to possess in an intimate relationship? Why?
3. What elements are important in fostering positive and respectful relationships?
4. What is the difference between rights and responsibilities in relationships? Give an example of each.
5. Explain the difference between a passive bystander and an active bystander.

Evaluate

6. What skills do you need to possess to maintain a friendship?
7. How can you tell if you have outgrown a friendship?
8. What should the balance of power be in relationships? What should you do if there is an uneven balance of power?
9. In what circumstances might you need to enlist refusal skills?

Elaborate

10. Why is communication so important in a relationship?
11. Provide examples of key features in a rewarding, meaningful and positive relationship.
12. Why is it important to be an active bystander?
13. In what ways do negative emotions help us?

on Resources

Explore more with these weblinks: Healthy relationships

9.5 Mental health and emotional wellbeing

9.5.1 Effects of good mental health

Mental health affects our thinking processes, the way we behave and the way we feel. Good mental health means we are generally confident, positive, rational, decisive and calm. We are able to cope with general day-to-day events and challenges, work toward personal goals and function as effective members of the community.

ENGAGE

When we experience difficulties with our mental health, it can affect the way that we normally behave, think, feel, deal with stress, make decisions and interact with others. Everyone sometimes feels sad, anxious, guilty, stressed, down, paranoid or worried; however, when these feelings are constant, strong, and affecting your daily life and your perception of your ability to cope, it is possible you have a mental health disorder.

There are many types of mental health disorders. Some of these predominantly affect emotions (such as depression), thoughts (such as obsessive–compulsive disorder) or behaviour (such as self-harm). Mental health disorders can include depression, anxiety, insomnia, eating disorders, addictions, substance abuse, paranoia and schizophrenia.

Use the **Professor Patrick McGorry** weblink in your Resources section to learn more about the Australian of the Year in 2010. How has he changed the way people think about mental illness and its treatment?

Australian of the Year in 2010, Professor Patrick McGorry has dedicated his career to the mental health issues in youth.



on Resources

Explore more with these weblinks: Professor Patrick McGorry

9.5.2 Dealing with mental illness

Just as physical illnesses can be diagnosed and healed, so too can mental illnesses be treated. Early prevention and support can assist most people to fully recover. Some people may only have one episode of mental illness in their lifetime; others are affected occasionally, with long periods of good mental health in between. For those with a more severe illness, periods of illness may occur regularly; however, with effective management of medications and other treatments, many can have a full recovery and live full and productive lives. Not all forms of mental illness are curable, however, and some people experience significant disability as a result of a mental illness.

9.5.3 Young people and mental health

The most recent National Survey of Mental Health and Wellbeing found that:

- approximately half the total population experience a mental health disorder at some point in their lifetime
- one in five, or 20 per cent, of the Australian population aged 16–85 years experienced mental disorders in the 12 months prior to the survey
- seventy-five per cent of mental illnesses first occur in people aged 15 to 24; however, only one in four young people with mental health problems receives professional help
- the prevalence of mental disorders declines with age: from 1 in 4 young people (aged 16–24) to 1 in 20 in older people (75–85 years)
- only one-third of people with a mental health disorder used health services for their mental health problem
- among young Australians aged 12–25 years, depression is the most common mental health problem
- anyone can experience mental illness, regardless of their exposure to risk factors. While social stresses are key risk factors to depression, increasingly we know more about the genetic, biochemical, physical health and medical factors that increase the chances of developing mental illness.

9.5.4 Types of mental illness

Mental health is important throughout our lives, but especially during adolescence. This is because adolescence is a developmental stage where many changes take place and a lot of skills and habits are being learned. These include the biological changes of puberty and sexual maturation, the social changes, the psychological changes of self-esteem and dealing with the independence that comes with emotional maturity.

Mental illness is more common in adolescence and this can have a big impact on an adolescent's life. Mental illness is most likely to present between the ages of 15 and 24 — the time when young people are practising and developing their relationship skills. For someone managing a mental illness, this task becomes even more daunting, and his or her mental health issues may take precedence over other important issues.

Mental illness can disrupt school work and social life.



Mental illness can have a very disruptive influence on school and family life. Sometimes the ignorance surrounding mental disorders leads to intolerance or misunderstanding in friends and family, and the person can feel isolated. Support and understanding is important, and there are a number of services available for friends and family.

Anxiety disorders

Anxiety disorders involve feelings of excessive nervousness, tension or distress and include the following conditions.

- Obsessive–compulsive disorder
- Panic disorder
- Agoraphobia (fear of open spaces)
- Post-traumatic stress disorder (PTSD)
- Social phobia (fear of social interaction, including talking on the phone, going to parties etc.)

Affective disorders

Affective disorders are typified by mood changes and mood swings, and include depression and mania. Most people with affective disorder suffer from **depression**, which is typified by a loss of enjoyment of life, lack of energy and concentration, sleep disturbance and a change in eating habits. Depression is a common mental health concern affecting many teenagers.

Substance-use disorders

Substance-use disorders involve harmful use of and **addiction** to drugs, including alcohol and illegal or prescription drugs. Alcohol-use disorders are about three times as common as drug-use disorders.

9.5.5 Getting help

Unfortunately, not all people with mental illness seek help. However, people with more than one mental disorder are more likely to seek medical assistance. There is a need to increase community awareness of mental health. Even though the number of people suffering with a mental illness is large, there is still a stigma or feeling of shame attached. This may be the reason that some people don't get help when they need it. This stigma can make people feel embarrassed about what is happening to them, or feel like they are alone and no-one else would understand how they are feeling. It is important to get help before things escalate. Being able to talk to someone you trust can be a relief.

Talking to someone else about your feelings and problems can help you release the tension you feel, because it's no longer just you knowing how you feel. It can help in putting your thoughts together so that you can see the issues more clearly for yourself, and that can make you feel as if you have some control again. Sometimes our thoughts and feelings can almost overwhelm us and the situation can become bigger than it needs to be. Talking to someone else can put things into perspective for us.

Supporting a friend or family member

You may find yourself in a position where you are supporting someone with mental health needs. Consider the following ways you can help.

- Be conscious of the embarrassment or shame they may feel and respect your friend or family member's right to privacy.
- Let them talk about their problems to make them feel heard.
- Try not to judge them. Understand that having a mental illness is like having a physical illness — it has created a chemical imbalance in their body. Let them know that you don't think any less of them because of it.
- Have faith in them. They are probably trying to get better even though they may be feeling as if it's never going to happen.
- Compliment them when they do the things that will help them get better. To know what those things are, research as much as you can about their illness. This will also show them you care about them.
- Encourage them to stay on any medication that they have been prescribed.
- Look after yourself. Ensure you don't get so involved in their illness that you stop doing all the things you enjoy — that will make them feel worse.

Just spending time with a friend can help them to not feel isolated.



- Without belittling their concerns (which are important to them), help them get some perspective by putting the problem into context.
- Remember to keep the lines of communication open, because it is helpful for them to know they have someone who is willing to talk and to listen.
- It could be a good idea to have the telephone numbers of their doctor, psychologist or other health professional, so that you can contact them if a situation seems to get out of control.
- Often, just spending time with a person suffering a mental illness is the most helpful thing you can do, so they don't feel socially isolated.

Centre for Adolescent Health

The Centre for Adolescent Health is a national centre for excellence. Based at the Royal Children's Hospital in Melbourne, it aims to improve the health and wellbeing of people in Victoria aged 10–24.

The centre undertakes:

- research into health risk behaviours
- education and training
- provision of clinical services for young people

- community peer support programs for parents, young people and their peers
- health promotion programs relevant to young people.

The centre actively works toward influencing the development of policy at the local, state, national and international levels, as they relate to young people's health.

Services offered by the Centre for Adolescent Health include:

- clinical services, such as medical, psychiatric and counselling services
- peer support programs for young people
- peer support programs for parents.

Support services

There are people and services available within the community that can provide support to young people in a range of areas, including assistance with emotional, physical and mental health issues. Support may be accessed through the student services area at your school. Most schools offer a wide range of support people and programs, and are able to provide access to community support services.

Community support services may include, but are not limited to:

- your local GP
- your local community health centre
- the Centre for Adolescent Health (discussed above)
- support groups that are funded by a range of organisations, such as not-for-profit, local government or religious centres
- local government programs
- maternal and child health centres
- Lifeline
- Kids Helpline.

You can obtain information about health services from various sources.



There are many great websites out there that can help you to deal with mental illness. For example, ReachOut is an organisation designed to improve young people's mental health, and they supply information and referral services that young people can access. Use the weblinks in your Resources section to check out this and other useful websites.

Resources

- **Explore more with these weblinks:** beyondblue
- **Explore more with these weblinks:** depressioNet
- **Explore more with these weblinks:** Headspace
- **Explore more with these weblinks:** It's all right
- **Explore more with these weblinks:** ReachOut
- **Explore more with these weblinks:** Sane

9.5.6 Some tips for positive mental health

There are many things you can do to keep yourself mentally fit, healthy and happy. It is important to remember that all aspects of your health — physical, mental and emotional — are connected, so changes in one area can affect others. Below are some suggestions that may assist you to feel good and stay in control of your life. Can you think of any others?

- Eat well.
- Sleep well.
- Exercise.
- Find a hobby.
- Spend time with friends and family.
- Talk about your feelings.
- Take time to chill out and relax.
- Set goals.
- Reward yourself.
- Ask for help if you feel like you need it.

Problems are different from mental illness, but you can take positive steps to improve your wellbeing.



DID YOU KNOW?

To build and maintain your mental health there are three things you can do:

Act Strive to keep yourself as active as possible, physically, socially and mentally — walk, swim, read …

Belong Connect to your community — join a group, chat to a neighbour, meet a friend …

Commit Look to the future and have a go — take a challenge, get involved, volunteer …

Source: Mental Health Council of Australia.

9.5.7 Emotions

Every human being feels emotion and experiences both positive and negative emotions. How we manage our responses to emotions can determine the impact those emotions have on our relationships. If we didn't experience negative emotions, we would not be able to recognise or value positive emotions. What we need to ensure, however, is that the number of positive emotions outweigh the negative ones.

How emotions help us

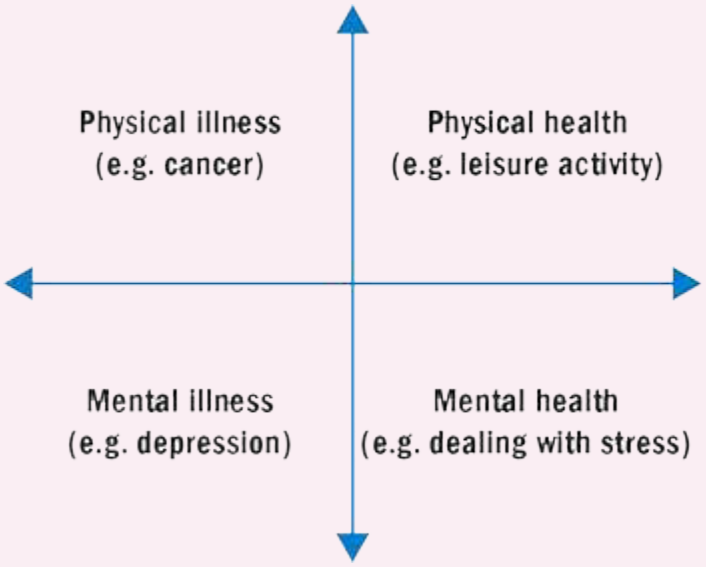
What are you feeling right now? Are you curious? Are you happy you are in Health class discussing your emotions? Perhaps you had a fight with your best friend at recess and you are nervous to see them at lunchtime? Emotions give us information about our experiences and help us know how to react. As we get older, we learn how to deal with our emotions better and learn how to keep control of them. We also become more knowledgeable about understanding emotions and why people react the way they do to certain experiences, and what we are feeling and why.

To build better relationships we need to be able to determine what we need and want. Being aware of our emotions can help us talk about our feelings more clearly, avoid or resolve conflicts better, and move past difficult feelings more easily.

Can you identify a time where you reacted a certain way, but in hindsight you let your emotions get the better of you and so could have reacted differently? Now identify a time where you kept your emotions in check, but things could have turned out very differently if you had reacted in a different way (and with different emotions). How do the outcomes differ and which one was more positive in building better relationships?

ACTIVITIES

1 Physical and mental health awareness



1. Copy the figure above.
2. In each quadrant, describe the category and list as many examples as you can.
3. Was there a particular topic you found difficult to describe? Why?
4. Share your results with your peers in a class discussion.

2 Mental health considerations

In small groups, discuss the following questions. Note that it is important to consider confidentiality where necessary. You should use an alias or avoid naming specific people.

1. What is the general community's attitude toward people with mental illnesses?
2. List some of the stereotypes associated with people with mental illnesses. Are these stereotypes accurate?
3. Do you know anyone with a mental illness? If so, how has it affected his or her life, and how does he or she deal with it?
4. Research and list three key strategies the Centre for Adolescent Health uses to assist in the area of mental health.
5. How important is community education for the promotion of mental health? Explain your answer.

3 Information poster

Create a poster informing the students of your school where they can get help or advice about mental and emotional issues, including mental illness. Remember, you are trying to reduce the stigma surrounding mental illness, so choose your words carefully.

4 How would you help?

Write a paragraph describing how you would help a close friend who told you they were suffering from depression.

5 Myths and stereotypes

Use the **Mental health myths** weblink in your Resources section to watch a clip about mental illness. As a class, discuss the myths and stereotypes surrounding mental health and associated illnesses.

6 Help!

1. Use the **headspace videos**, **beyondblue** and **Youth support** weblinks in your Resources section to watch some advertisements about mental health.
2. Have you seen any of these advertisements before?
3. Discuss the effectiveness of these advertisements in highlighting support services for young people.
4. Would you recommend the Headspace website to a friend in need? Why or why not?

7 Researching mental illnesses

Using the internet and other resources, undertake an in-depth study of one form of mental illness (for example, depression, anxiety, social phobia, mania or addiction) and then present your findings to the class. Include information such as:

- characteristics of the illness
- prevalence of the illness in the community
- age group most affected
- treatment
- contact details for support groups and agencies
- websites that are helpful and user-friendly.

8 Emotions

Complete the **Emotional responses** worksheet in your Resources section to explore a range of situations and how your emotional responses might affect your interactions with others in those situations.

CHECK & CHALLENGE

Explain

1. Describe and give an example for each of the following types of mental disorder.
    a. Anxiety disorder
    b. Affective disorder
    c. Substance abuse disorder
2. Explain how sense of self, health and wellbeing are related.
3. Explain how emotions can positively or negatively affect relationships.

Evaluate

4. How would you rate your mental health? What things could you do to improve your mental health?
5. If you were struggling with depression, what strategies or resources could you use? In what ways would you like your friends to support you?
6. Why is mental health just as important as physical health?
7. Are negative emotions important? What do you think would happen if you experienced more negative emotions than positive ones?
8. How can awareness for all health problems be increased?

Elaborate

9. Do you believe there is a stigma attached to mental disorders? Why? How can you influence community attitudes to address this?
10. How do you distinguish between a mental health problem and a mental illness?
11. Reflect on a situation where you reacted with negative emotion. How could you have changed your response to the situation to ensure a positive outcome?

on Resources

Explore more with these weblinks: Mental health myths
Explore more with these weblinks: headspace videos
Explore more with these weblinks: beyondblue
Explore more with these weblinks: Youth support
Complete this digital doc: Emotional responses
Searchlight ID: doc-14815

9.6 Review

9.6.1 What have I learned?

- Every person is different; each of us has our own personal identity.
- Our personal identity is made up of our past achievements, our present views and our goals for the future.
- Our identity is shaped by our family, friends, culture and community.
- Cultural influences have a major impact on shaping personal identity.
- Stereotypes can limit a person's ability to express themselves comfortably in society.
- Gender stereotypes can cause an imbalance of power in some relationships.
- Communicating our expectations and feelings allows a relationship to be positive and respectful.
- Relationships serve many purposes and may fulfil our social, intellectual, spiritual, physical or emotional needs.
- Relationships have rights and responsibilities.
- Everyone in a relationship has the right to feel safe, valued and respected.
- Balance of power in relationships means that a relationship is not one-sided.
- Friendships we establish are usually initially based on common interests; however, they are dynamic and constantly changing, are crucial to our wellbeing and essential for forming our identity.
- A peer group is a group of people of similar age and background, and can be influential in our lives.
- Intimate relationships involve strong emotions and may involve sexual intercourse.
- With increased independence comes more responsibility; making your own decisions requires you to be responsible for the choices you make.
- Conflict resolution involves successful negotiation to solve a problem and, like any skill, benefits from practice.

- Communication and cooperation skills are necessary to cope effectively with changes in relationships.
- Communication involves talking (clearly conveying a message) and listening (understanding the message that is intended).
- Being an active bystander/upstander in bullying situations helps stop the behaviour.
- It is important for everyone to practise responsible use of social media.
- Mental illness affects many Australians, including young people. Mental disorders include anxiety disorders, affective disorders and substance-use disorders.
- There are many print, web-based, telephone and face-to-face support services available for young people.

CHECK

1. Describe how taking responsibility can make others respect you more.
2. Who do you think has the most influence on your values and attitude? Why?
3. Think of a stereotype you have heard of regarding teenagers. Is this stereotype typical of all teenagers? If not, how did it come about?
4. How can positive peer pressure be beneficial in an adolescent's life?
5. How do people deal with conflict? Which strategies are most effective in leading to a mutual understanding?
6. What makes a relationship positive and respectful?
7. On average, how many adolescents are affected by mental illness?
8. Where could you find help dealing with a mental illness?
9. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

Through the ups and downs of teenage life, how do you cope and come out in control?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14816

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5407

Try out this interactivity: True/false quiz
Searchlight ID: int-5408

Try out this interactivity: Crossword
Searchlight ID: int-5409

Chapter 10: Sexuality and sexual relationships

Contents

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10 Sexuality and sexual relationships



10.1 Overview

10.1.1 Sexuality and sexual relationships

Learning objectives

- Propose, practise and evaluate responses in situations where external influences may impact on their ability to make healthy and safe choices (ACPPS092)
- Identify and critique the accessibility and effectiveness of support services based in the community that impact on the ability to make healthy and safe choices (VCHPEP145)
- Critique behaviours and contextual factors that influence the health and wellbeing of their diverse communities (ACPPS098)

- Critique behaviours and contextual factors that influence the health and wellbeing of their communities (VCHPEP151)

As you grow and mature you will begin to explore your sexuality. You will find yourself experiencing sexual relations that you may not have encountered before. It is important for you to be in control of your own sexual health, attitudes and behaviours, in order to keep yourself safe and healthy. You will discover the characteristics that are important to you in sexual relationships, such as trust, respect and communication.

People refer to relationships as their ‘private life’ because of the intimate connections between two people.



ESSENTIAL QUESTION

Why are trust, respect and communication so important in a relationship?

STARTER QUESTIONS

1. What do you think sexuality encompasses?
2. Is your sexual identity an important part of who you are?
3. Do you know how to protect yourself in sexual relationships?
4. How do you prevent pregnancy?
5. How do you know if you are ready to start a sexual relationship?

INQUIRY SEQUENCE

10.2 Sexuality

10.3 Sexual relationships — rights, responsibilities and choices

10.4 Conception and contraception

10.5 Sexually transmissible infections (STIs)

10.6 Project: Health services

10.7 Review

on Resources

Watch this eLesson: Sexuality and sexual relationships
Searchlight ID: eles-2341

10.2 Sexuality

10.2.1 Exploring your values

In this section you will explore sexuality, including the differences between **sexual orientation**, sexual behaviour and sexual identity; the views and assumptions that are made about young people and sexuality; and the stereotypes that arise from these views and preconceptions. You will have the opportunity to consider and discuss your own views, assumptions and values about sexuality.

ENGAGE

Sexuality is more than just whether you are male or female, or whether you are attracted to males or females. It reflects personal identity, feelings and emotions, and how we think about ourselves and about relationships. Sexuality is about more than just sex. It is something that changes and develops as we mature. It can be a confusing and wonderful part of life, and is something that everyone experiences. Personal background, support systems, culture, experience and personality all contribute to how we deal with our sexuality.

How can we help change community attitudes toward sexuality? Suggest some things that communities can do to help young people through adolescence and, more specifically, allow discussions about sexuality in an open, yet safe, arena. Use the **Community attitudes** worksheet in your Resources section for ideas and to record your suggestions.

Many people worry about their appearance. However, it is only one part of attraction.



Resources

Complete this digital doc: Community attitudes
Searchlight ID: doc-14817

10.2.2 What sexuality means

The **World Health Organization (WHO)** says that the sexual development of a person is directly linked to one's gender identity, and it unfolds within specific personal contexts. **Sexual identity** comprises physical, psychological, emotional, social and cultural dimensions. In many communities, young people are exposed to and form opinions based on several sources of information (for example, their parents, teachers and peers, and the media). These can present them with alternative or even conflicting values about gender and sexuality.

10.2.3 Influences on sexuality and sexual health behaviours

Many factors could influence your sexuality and sexual health behaviours. Understanding these factors helps us understand people's unique sexual responses and sexual health behaviours. Decisions you make now in regards to your sexual health and wellbeing could have an impact on the decisions you make and actions you take in the future.

- *Education/knowledge* — the more informed you are about sexual health matters (such as STIs and keeping yourself safe), the more confident you can be in making the right decisions for yourself. You don't need to do what everyone else is doing, you need to do what is best for you.
  Are you confident in talking to your parents about sexual health? Does your school provide you with adequate education in order for you to make informed choices about your sexuality? How have you been educated about your sexual health?
- *Cultural factors* — sexuality can be influenced by cultural heritage, sociocultural factors (including peer behaviour, your personal beliefs about sexual health behaviours and the behaviours of others), religious beliefs and parental approval.
  Do you have any pressures on you (in regards to sexual health) as a result of cultural factors? What would happen if you didn't abide by these cultural pressures? Have your parents put any expectations on you? Do your friends/peers pressure you in any way?
- *Biological/health-related factors* — hormones affect an individual's sexual behaviours and sexuality. Contraception, fear of pregnancy and fear of catching an STI can all influence your sexual health behaviours.
  Are you confident that if you were to become sexually active now, that you would be able to keep yourself safe/healthy? How do hormones influence sexual behaviours?

- *Psychological factors* — your body image and self-esteem can influence your sexuality and sexual behaviours. How you feel about yourself plays an important role in forming your sexual identity.
  Do you think people with a higher self-esteem have more of a sense of control over their own sexuality? How might someone's sexual behaviours be influenced if they have a negative body image and low self-esteem?
- *Sexual orientation* — it can be a confusing time when you have to deal with sexuality as part of defining your personal identity. Who you are attracted to, or who you think you are attracted to, can have a huge influence on your sexuality and sexual health behaviours. Research shows that an increasing number of young people are prepared to come out as experiencing same-sex attraction.
  Do you think it is easy for a young person to determine their sexual orientation? How would someone who is same-sex attracted approach their sexuality around their peers? Do you think it is more acceptable to be same-sex attracted today, compared to 10 years ago?
- *Gender and gender inequalities* — are there expectations on males and females to act in certain ways when it comes to sexual behaviours? What happens when you don't 'live up' to these gender expectations? Where do these gender pressures come from?

10.2.4 Community attitudes towards young people and sexuality

Many attitudes in our community are unhelpful or confusing for young people exploring their sexuality. Statements such as 'all young people are having sex', 'teenagers are promiscuous and don't use contraception' or 'being gay or lesbian is just a phase' only add to the confusion of this important part of adolescence. It is refreshing to note that more and more adults are prepared to open up and assist young people to sift through the conflicting information about sexuality. The internet has contributed to the confusion, but has also allowed for the development of support networks, so that young people feel less alone when talking about the issues (see section 10.2).

on Resources

Explore more with these weblinks: WHO sexual health advice

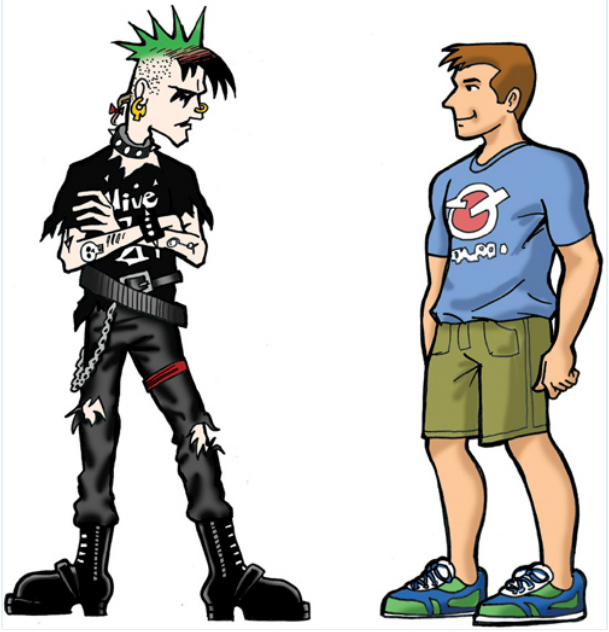
10.2.5 Stereotypes

Stereotypes are also unhelpful for young people sorting out their sexuality. Stereotypes often contain outdated ideas about what a male or female young person should be like. Such ideas limit people to an ideal and do not allow any space to explore individual differences. This becomes increasingly difficult when peers adhere to 'norms' and demand that individuals within the group follow suit. As an individual, you then need to decide how to deal with this situation without ostracising yourself from the group or being coerced into behaving in a manner that conflicts with your own values or feelings.

Sexuality is a broad concept; no-one should be stereotyped into a category. People should not be stereotyped based on:

- how they dress, their hairstyle or their brand of clothes
- their body type
- any disability they may have
- their personality
- the way they talk or walk
- where they hang out
- who they hang out with
- their religion, culture or family background.

What would be your first impression of each person?



10.2.6 Assumptions and myths

There are many myths and misconceptions about young people and sexuality. These often stem from stereotypes and generalisations. Some misconceptions are listed below.

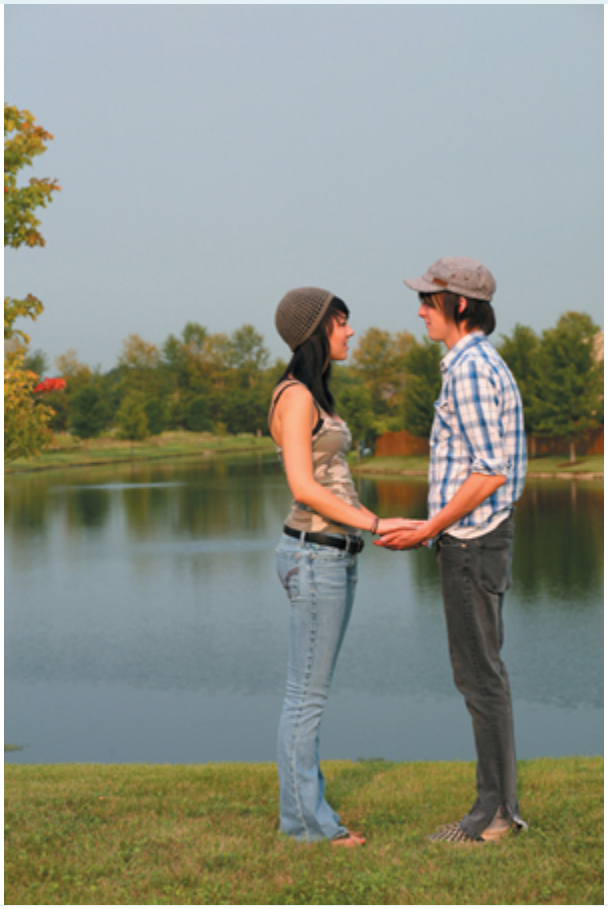
- 'Young people aren't mature enough to learn about sexuality.'
- 'Homosexuality is not normal.'
- 'All young people are doing it.'
- '**Homosexuals** can become **heterosexual** if they really want to.'
- 'The media is responsible for young people becoming sexually active.'
- 'Gay and lesbian people can easily be identified by the way they look and act.'

10.2.7 Intimacy

Intimate relationships usually involve strong emotions. Love and infatuation are feelings that are common in such relationships. The desire to be with a particular person constantly and to pursue the relationship past a **platonic** stage is quite usual.

Becoming intimate relies on two people making a decision that will affect their relationship in many ways. Each person has his or her own idea of what intimacy means; for example, some define it as a physical closeness, and so feel activities such as talking on the phone are not very intimate, as the couple are far away from each other. Some consider intimacy as an emotional or spiritual closeness, and so spending time with each other, without talking, could be very intimate. But if two people feel very differently about intimacy, how do they work it out in a relationship? They need good communication within the relationship and an acknowledgement that each person is different, with differing ideas about intimacy.

Is it love? Trust, respect and communication are important foundations of all relationships.



10.2.8 Same-sex attraction

A same-sex relationship is like a heterosexual relationship, in that each partner needs to take responsibility for himself or herself. The same rules apply and good communication is still vital. Other people are not always accepting of **same-sex attraction** or bisexual sexuality and may display homophobic feelings. Many people get caught up in the myths and misconceptions, or are influenced by culture, religion, stereotypes and peers, and are unable to understand or acknowledge that people have the right to same-sex attraction.

It is not always easy to tell people about your sexual preferences or to **come out**. Many same-sex attracted young people fear the reaction they will get from anyone they tell. There are various support groups and websites that can help with the coming out process, and that offer insight and ideas (see section 10.2).

If a friend or family member came to you and told you that he or she was attracted to someone of the same sex, you should be supportive, even if you are surprised or do not agree with this choice.

Consider if one of your friends told you he or she was gay or lesbian. What would be your initial reaction? How could you support your friend?



DID YOU KNOW?

Most violence and harassment experienced by young homosexual people happens in school.

Implications of homophobia

Homophobia is the fear of, or intolerance towards, and discrimination against, homosexual people. Homophobia can have profoundly negative effects on homosexual people, especially when they are young, or at school. Young people often find themselves in an environment where they are surrounded by negative messages about being homosexual. This can be very overwhelming and isolating. In extreme cases, some young people can react to this marginalisation by turning to drugs or self-harm as a way of coping, or to escape the prejudice and discrimination they experience. However, there are many support groups that can assist to get through these times (see section 10.2).

Complete the **Homophobia** worksheet in your Resources section.

DID YOU KNOW?

In some countries, it is legal for homosexual couples to marry. Australia is not one of those countries; however, there is much lobbying in Australia to change the law in this area.

ACTIVITIES

1 Alphabet key

1. Use the **Alphabet gender** worksheet in your Resources section to complete an alphabet key. Individually, use a word for each letter of the alphabet to describe characteristics of males and females.
2. In groups, compare your results. Are there any patterns? Do these word lists reinforce or challenge traditional gender stereotypes?

2 Gender jobs

1. List three tasks or careers stereotypically associated with males.
2. List three tasks or careers stereotypically associated with females.
3. Share your responses with the class. Are there any disagreements about what is a typical male and female activity? If not, consider why this unanimous agreement exists.

3 Relationship rights

There have been changes to legislation which allow same-sex couples some of the same legal rights as heterosexual couples. However, same-sex couples still cannot be legally married in Australia. Use the internet and other sources to research the issue and then write three or four paragraphs discussing it. In particular, address the following questions.

1. Do you think same-sex marriage should be legalised? Why or why not?
2. What changes (if any) would you recommend to current legislation?
3. How would you justify your opinion to someone opposed to your argument?

4 Dating dos and don’ts

In pairs, create some guidelines for dating. Decide:

1. the best way to ask someone out
2. who should decide on what you do on the date
3. who should pay
4. how the date should end
5. what should happen the next day.

5 Attitudes about young people and sexuality

1. Using the assumptions and myths mentioned in this lesson (or come up with some of your own), develop a creative way to allow participants to think about how young people are regarded by society. Complete the Young **people and sexuality** worksheet in your Resources section to help you. Some examples of creative forums include:
    - creating a game that the rest of your class or another small group can play
    - designing an interactive website (this could be done individually or in pairs)
    - performing a play in front of your class
    - organising a debate
    - writing a poem
    - designing a poster (this could be done individually or in pairs).

    Your activity should encourage discussion or consideration of the following questions.

    a. What are some of the assumptions, community attitudes and stereotypes about young people and sexuality that exist in today's society?
    b. Where do myths and misconceptions about sexuality come from?
    c. Who spreads them or keeps them alive?
    d. How do we work against them in our society and at a global level?

    Ensure that your activity includes full instructions (if needed) and an evaluation sheet for the rest of the class.

2. Allow the class or another group to participate in or view your activity.

3. Have your audience or participants evaluate the activity. They should evaluate:
    a. how the major assumptions, community attitudes and stereotypes were covered
    b. whether they learnt more about other people's viewpoints
    c. how freely they were encouraged to discuss or think about their own viewpoints.

4. When the evaluations have been handed back, in your groups, discuss the following questions.
    a. How did the group feel the activity went?
    b. Was there anything that surprised you about people's responses?
    c. What aspects of the activity went as you expected? What aspects went differently?
    d. Was something suggested that could be taken up at a whole year or school level? What further actions could be taken as a result of this activity?

6 Movie-inspired debate

Watch the movie *Philadelphia* starring Tom Hanks and Denzel Washington. Topics for class debate and discussion include:

- discrimination
- myths and misconceptions about HIV
- physical effects of HIV/AIDS
- community attitudes toward homosexual relationships
- comparisons between community attitudes in the 1980s and in the twenty-first century
- communication in a relationship.

7. Safe places

Use the **Safe Place Program** weblink in your Resources section to explore acon's Safe Place Program.

1. Why was the Safe Place Program instigated?
2. Why is it necessary to have 'safe places' for homosexual people in the community?
3. Why would a homosexual person feel safe in one of these places? What do they offer?

Every Safe Place displays a charter, which is a set of principles/beliefs they are committed to. Use the **Safe Place Charter** weblink in your Resources section to see a sample Safe Place Charter.

4. As a class, create a Safe Place Charter for your health class or school. You must include at least five principles/values on your charter. The class group should agree on the principles included, so discussions/mini debates are encouraged to explore why that particular principle should be included on your charter.

CHECK & CHALLENGE

Evaluate

1. Apart from physical differences, how are males and females different?
2. Was your answer to question 1 affected by stereotypes? How can you influence the stereotypes that exist about gender roles?

Explain

3. Who should decide what you do on a date?

Elaborate

4. What is important to you in a relationship?
5. Using examples, describe any conflicting expectations placed on you in a relationship. Who sets these expectations?

on Resources

Complete this digital doc: Homophobia
Searchlight ID: doc-14820

Complete this digital doc: Alphabet gender
Searchlight ID: doc-14818

Complete this digital doc: Young people and sexuality
Searchlight ID: doc-14819

Explore more with these weblinks: Safe Place Program

Explore more with these weblinks: Safe Place Charter

10.3 Sexual relationships — rights, responsibilities and choices

10.3.1 Independence and responsibility

Adolescence is a time of substantial growth and development. During this stage of your life, there are more opportunities to develop your independence; however, with these opportunities comes greater responsibility for your own actions, particularly with regard to sexual activity and relationships.

ENGAGE

During adolescence, you may need to consider whether or not to become involved in a relationship and then decide what type of relationship you would like (friendship, emotional or sexual). There are emotional, mental and physical decisions you need to make, no matter which type of relationship you choose. In a relationship, there may be pressure to take the relationship 'to the next level'. Whether or not to participate in an intimate relationship is a decision only you can make for yourself. Your values and beliefs, and not external pressure, should form the basis of your decision.

In a group, discuss and define the phrase 'intimacy in a relationship'. You might like to do a word association activity using the **Creating word art** weblink in your Resources section to facilitate the process.

Communication is a key factor in the development of an intimate relationship.



on Resources

Explore more with these weblinks: Creating word art

10.3.2 Sexual relationships

After childhood, we make the transition to adulthood via **adolescence**. Parts of this process are the very public stages of puberty, with our physical maturing visible to the outside world. But while our bodies are maturing, our minds are also developing. As we grow, we develop a sense of independence and start to form relationships based on our own values and ideals. This is also the case with **sexual relationships**; however, there seems to be an added pressure on a relationship when we are participating in sexual activity for the first time. Some of these pressures stem from society having strongly defined views about how we should think and behave. The stereotypical pressures males feel are often linked to getting their first sexual experience over with and losing their **virginity** as soon as possible. Equally, for girls, the pressures lie with saying 'no' and making sure their first sexual experience is special and with someone they really love.

10.3.3 Sexual behaviour

Often, there is a belief that most young people are having sex. For young people, there is often pressure to keep up and be 'normal'. However, research from the *5th National Survey of Australian Secondary Students and Sexual Health 2013* shows that more than half of all young people are not having sex. The survey addressed students from Years 10, 11 and 12 from across Australia, with results showing that if you haven't had sexual intercourse by Year 12, you are in the majority (see table 5.1). There are other sexual activities in which people participate; some carry more risk than others, for example, deep kissing, genital touching and oral sex. These risks need to be considered when making decisions about any form of sexual behaviour.

TABLE 10.1: Students' reported sexual activities

Activity	Males (n = 827)		Females (n = 1309)		Total (n = 2136)	
	%	(n)	%	(n)	%	(n)
Deep kissing	68.6	(555/809)	67.3	(877/1303)	67.8	(1432/2112)
Touching a partner's genitals	54.8	(441/805)	49.6	(640/1291)	51.6	(1081/2096)
Been touched on genitals	53.5	(432/808)	51.3	(663/1293)	52.1	(1095/2101)
Giving oral sex	39.2	(315/804)	38.4	(498/1297)	38.7	(813/2101)

Activity	Males (n = 827)		Females (n = 1309)		Total (n = 2136)	
Receiving oral sex	42.5	(341/803)	36.9	(476/1290)	39.0	(817/2093)
Anal sex	11.6	(93/802)	7.0	(90/1295)	8.7	(183/2097)
Sex without a condom	23.6	(189/802)	24.3	(314/1295)	24.0	(503/2097)
Sex with a condom	34.8	(280/805)	32.5	(421/1295)	33.4	(701/2100)

DID YOU KNOW?

Of students that report having unwanted sex, 49 per cent state being too drunk as a reason for their unwanted sex. Other reasons include being influenced by their partner (53 per cent) and being frightened (28 per cent).

10.3.4 Technology and sexual behaviours

Unfortunately, many people think sharing images or videos by **sexting** is a normal part of a relationship. Even if you are happy to send or receive a message from someone, once you have sent it, your control over it has gone. You are not only risking the chance of someone you don't want to see the images potentially seeing them, you are also making yourself vulnerable to online predators. Sexting occurs not only on mobile phones, but on Skype and social media sites such as Facebook, Twitter, Instagram, Flickr, Tumblr and Snapchat.

If you have sent an image or text and you regret doing it, and worry about what might happen next, there are some strategies to follow to make sure your texts do not get passed on.

- Ask the person to whom you sent the images to delete them.
- If the image is posted online, untag yourself then report the image so it can be removed.
- Talk to an adult, such as an older sibling, parent or teacher, to seek advice about what to do next.

If someone else posts sexual or naked photos of you or one of your friends online, report them to the service they posted it on. If you go to school with them, tell a teacher or talk to your school counsellor. It is not okay for anyone to share your images without your permission.

If someone sends you an image of a sexual nature, think about how you will deal with the situation.

- Do not forward the image to anyone else.
- Tell that person you don't want to receive such images and ask them to stop.

- If they continue, block or unfriend them from social networking sites and block their number on your phone.
- If they continue, speak to a trusted adult to seek advice about what to do next.

Some alarming statistics from the *5th National Survey of Australian Secondary Students and Sexual Health 2013* in regards to technology and sexual behaviour include:

- half of all students surveyed reported having received a sexually explicit text message
- over a quarter of students reported that they had sent a sexually explicit photo of themselves (see table 10.2)
- half of all sexually active students reported sending a sexually explicit nude or nearly nude photo or video of themselves, while 70 per cent reported having received such a photo or video.

TABLE 10.2 Students' sexual experiences using new technologies

		Males (n = 827)		Females (n = 1309)		Total (n = 2136)	
		%	(n)	%	(n)	%	(n)
Sent a sexually explicit written text message	Yes	45.5	(368/809)	41.2	(537/1303)	42.9	(905/2112)
	No	47.3	(363/809)	55.3	(721/1303)	52.3	(1104/2112)
	Don't know	7.2	(58/809)	3.5	(45/1303)	4.9	(103/2112)
Received a sexually explicit written text message	Yes	54.5	(439/806)	54.1	(701/1296)	54.2	(1140/2102)
	No	39.6	(319/806)	43.7	(566/1296)	42.1	(885/2102)
	Don't know	6.0	(48/806)	2.2	(29/1296)	3.7	(77/2102)

		Males (n = 827)		Females (n = 1309)		Total (n = 2136)	
Sent a sexually explicit nude or nearly nude photo or video of yourself	Yes	27.2	(219/805)	25.1	(327/1302)	25.9	(546/2107)
	No	68.9	(555/805)	73.1	(952/1302)	71.5	(1507/2107)
	Don't know	3.9	(31/805)	1.8	(23/1302)	2.6	(54/2107)
Sent a sexually explicit nude or nearly nude photo or video of someone else	Yes	13.8	(111/804)	5.4	(70/1296)	8.6	(181/2100)
	No	51.2	(412/805)	58.6	(761/1298)	55.8	(1173/2103)
	Don't know	3.7	(30/805)	1.5	(19/1298)	2.3	(49/2103)
Received a sexually explicit nude photo or video of someone else	Yes	45.1	(363/805)	39.9	(518/1298)	41.9	(881/2103)
	No	51.2	(412/805)	58.6	(761/1298)	55.8	(1173/2103)
	Don't know	3.7	(30/805)	1.5	(19/1298)	2.3	(49/2103)
Used a social media site for sexual reasons	Yes	30.6	(247/808)	15.9	(207/1300)	21.5	(454/2108)
	No	63.7	(515/808)	80.9	(1051/1300)	74.3	(1566/2108)
	Don't know	5.7	(46/808)	3.2	(42/1300)	4.2	(88/2108)

If you ever feel pressured to take part in sharing sexual images in a relationship, remember you have the right to say no. If it makes you feel uncomfortable, do not do it.

Sexting and the law

The *Commonwealth Criminal Code Act* 1995 makes it an offence to access, transmit, publish, possess, control, supply, or obtain child pornography. Australian state and Commonwealth child pornography laws don't recognise whether both parties are the same age or if a sexual image was willingly sent. If the images or video in question are in relation to someone under the age of 18, the individual who possesses or distributes the material might be in breach of the law. This puts them at risk of being charged with child pornography offences and being placed on the sex offenders register.

What do you think the future implications will be for a young person who is charged with child pornography offences? Do you think it is fair to be charged with this offence when you are under 18?

Some states in Australia are working to change the laws and looking to create new 'sexting' consequences for offenders. The changes will see people who receive or send non-exploitative sexts being spared from child pornography offences and will stop them being placed on the sex offenders register. Young people under 18 who create, possess or distribute a sext of themselves or another child who is less than two years younger will not be guilty of a child pornography offence.

Use the **Sexting laws** weblink in your Resources section to read an article about the laws introduced by the Victorian Government in 2014. As a class, discuss the new legislation. Do you agree with the changes? Why have these changes come about? What will be the implications of the new laws for youths?

In relationships, individuals need to independently decide what sort of sexual activity they want and then, together, agree on how to manage their decisions.



on Resources

Explore more with these weblinks: Sexting laws

10.3.5 Responsibility and choice

Deciding when, how and if to become sexually active requires decision-making skills. You have choices when it comes to deciding whether or not to have sex — and what sort of sexual activity you want. Others might try to make the decision for you or force you into deciding faster than you would like. However, sex is an individual choice, and those who make it at the right time and for the right reasons usually find they have few regrets.

When is the right time for someone to have sexual intercourse? The answer is 'when it feels right'. But what does that really mean? To weigh up when is the right time for you, you need to consider the following.

- *Legal age*. This varies in each state. More information can be accessed from the legal aid services for your state.
- *Consent*. Both partners need to have discussed and given **consent** (said 'yes') to sex. There should be no pressure on either partner to say yes.
- *Maturity.* You should be physically and emotionally ready to participate in sexual activity.
- *Values*. Does sex, now, fit in with the values you have? This varies between individuals.
- *Communication*. Before having sex, you should discuss with your partner all your concerns, for example, contraception, STIs, how you will feel afterwards about yourself and your partner, and so on.
- *Information*. Do you know how to keep yourself safe? Are you aware of the emotional and physical health implications if you are sexually active when you are not fully ready, or prepared?

Young women are more likely to be the victims of date violence.



Consent

It is against the law to participate in any sexual activity without first gaining the other person's consent. Consent must be given by both partners. There is no reason for someone to pressure a partner because the desired response was not received. When someone says ‘no’, he or she does not mean ‘yes’, ‘try harder’ or ‘maybe’. ‘No’ *always* means ‘no’.

Regardless of whether you are male or female, ‘no’ means ‘no’.



How does someone gain consent from their partner? The best way is simply to ask the question: ‘Do you want to have sex (or participate in a sexual activity) with me?’ A clear ‘yes’ or ‘no’ answer gives all the information needed. In reality, it is not always that easy. As long as both individuals are honest with themselves and their partners about what they are willing and not willing to do in the relationship, no-one will end up getting hurt. However, even if you get or give consent, it is everyone's right to change their mind at any time about the level of physical intimacy.

If consent is withdrawn at any time and you proceed to have sex, you have broken the law. There are times when someone is unable to give consent and, therefore, any sexual activity is also against the law. This might be because the person is affected by alcohol or other drugs, has an intellectual disability or is too young.

Knowing your rights and responsibilities in a relationship makes it easier to do the right thing for yourself and your partner.

DID YOU KNOW?

It is a person's right to say no to sexual activity at any time, even within marriage. If consent is withdrawn at any time and you proceed to have sex, you have broken the law.

Alcohol and other drugs

Alcohol and other drugs can impair judgement and make communication difficult, and so can lead to unwanted sexual activity. You may not be able to negotiate effectively as to whether or not you will participate in sexual activity, and this may lead to someone pressuring you into doing something against your will (**coercion**).

Research from the *4th National Survey of Australian Secondary Students, HIV/AIDS and Sexual Health* showed that:

- just under one-third of the secondary students surveyed reported having experienced unwanted sex
- young women were more likely than young men to have experienced sex when they did not want to
- alcohol and pressure from their partner were the most common reasons for students having sex when they did not want to.

10.3.6 Support for young people

There are many support organisations in the community for young people; many are free or provide services at a reduced rate. The following organisations can provide assistance with relationship issues and sexual and reproductive health.

- Family Planning in your state
- Reach out
- Centres Against Sexual Assault
- Relationships Australia
- Australian Drug Foundation
- AIDS Council in your state
- Royal Women's Hospital
- National Legal Aid
- Australian Indigenous Health Promotion Network
- Women's Information (WIRE)
- Somazone
- World Health Organization (WHO)
- UNAIDS

- Australian Bureau of Statistics
- Kids Helpline
- Lifeline
- AIDSLine
- Multicultural health services
- Your local or metropolitan same-sex attracted support group
- Your local community health centre
- Your local nurse/doctor

Friends can be supportive, but sometimes you need support from professionals with more experience.



Family planning clinics and most community health centres provide clinical services and education on sexual and reproductive health matters. These services include STI testing and treatment, contraception advice, pregnancy testing and Pap smears.

The *Sex Discrimination Act* makes it unlawful for a person to sexually harass another person in a number of areas, including education. It defines sexual harassment as 'any unwanted or uninvited sexual behaviour that is offensive, intimidating or humiliating. It has nothing to do with mutual attraction or friendship.'

Under the *Sex Discrimination Act* it is unlawful for:

- a teacher or a student over the age of 16 to sexually harass a student
- a student over the age of 16 to sexually harass a teacher.

All schools should provide a safe and supportive environment for the whole school community. This should be done by developing a code of conduct with policies and procedures to protect each member of the school community. These policies and codes have been put in place because of the real-life experience of young people in schools and in the workplace.

Rights and responsibilities of the school community

It is the responsibility of each member of the school community to take on the challenge of ridding the community of discrimination and harassment. This can take many forms. Students can act by:

- refusing to use the word ‘gay’ to describe something that is uncool
- standing up for someone who may not be able to do so for themselves (as long as this does not put either student in any danger)
- avoiding sexual comments or jokes.

Teachers can act by:

- participating in specific evidence-based comprehensive sexuality education professional development workshops
- introducing relevant videos or books into the curriculum that have positive characters that affirm equal opportunity.

Staff (for example, administration, library, cleaners) can act by:

- displaying books, pamphlets and posters to create a safer environment
- using appropriate language; for example, ‘partner’ instead of ‘boyfriend’ or ‘girlfriend’.

Parents can act by:

- ensuring or advocating development of library resources
- sitting on or talking with the school council so that the views of the parent body can be heard.

Unwanted sexual commentary in any medium is considered sexual harassment and is against the law.



ACTIVITIES

1 Finding local support services

1. Find a map of your local area and mark the positions of all the support agencies available to help you with issues related to relationships, sexuality and family.
2. Identify the most suitable route for getting to one of the agencies from your home.
3. Visit an agency and collect information about the services it offers, including information on access, cost, confidentiality and the type of issues for which it offers assistance. (*Note*: It may be easier to organise a class visit to a range of support agencies or to invite members of an agency to visit the class.)
4. During your contact with the agency and its staff, collect any pamphlets that describe the work that it does. Be prepared to share this information with the class, reporting the details of your visit and the type of support that is available to young people from this support service.

2 Sexual health information

With a partner, create a comprehensive list of sources where information can be accessed by young people to gather information about their sexuality and sexual health. Once your list is compiled, consider the following.

1. How can the information be accessed?
2. How reliable is each source?
3. How do you determine what is a reliable or valid source?
4. How likely is it that young people will access each of these sources for information?

3 Rights and responsibilities

As a class, create a code of conduct that clearly outlines your rights and responsibilities to ensure that everyone's sexuality is protected.

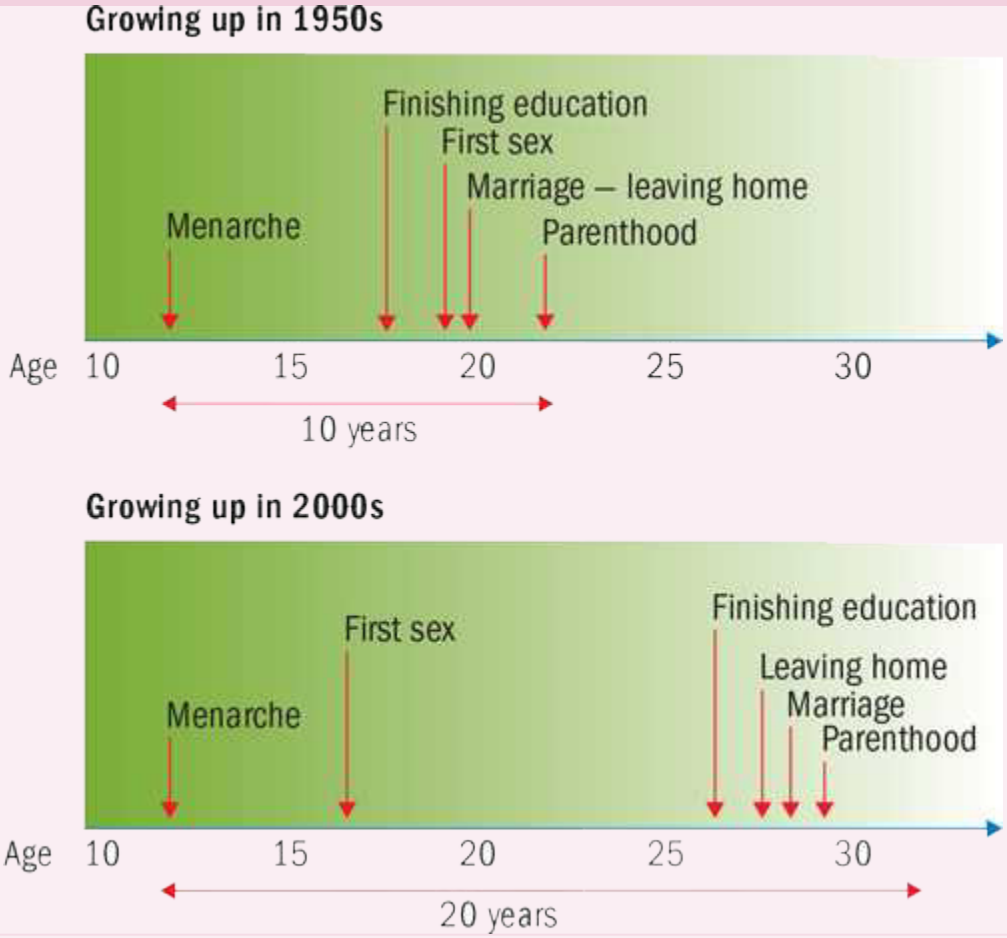
4 How do you make a decision?

Use the **Decision-making processes** weblink in your Resources section and follow the steps needed to make an informed and reflective personal decision.

5 How times have changed!

1. Use the graphs below to compare growing up in the 1950s with growing up in the 2000s. What are the biggest changes?
2. Do you think these changes have a positive effect on the health and wellbeing of young people? Why or why not?

Social changes spanning 50 years



6 Research

1. Does your school have a sexual harassment policy? Where can it be found and what does it say? How could it be improved?

2. Use the internet to research laws and support programs for sexual harassment. How can you protect yourself from sexual harassment?
3. If you became aware of sexual harassment, what could you do?

CHECK & CHALLENGE

Explain

1. What does mutual consent mean?
2. What dangers can be present when combining alcohol or other drug use with a sexual relationship?
3. How could you reduce the risk or protect against the dangers identified in question 2?

Evaluate

4. Outline the factors that can affect young people's decisions about sexual health.

Elaborate

5. How have each of the following groups contributed to the prevention of sexual harassment?
    a. The federal government
    b. The media
    c. Schools
    d. Peer groups
    e. Parents
    f. Workplaces

on Resources

Explore more with these weblinks: Decision-making processes

10.4 Conception and contraception

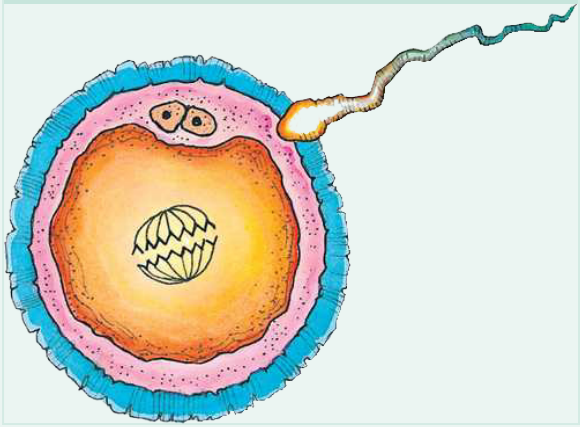
10.4.1 Protecting yourself

In a heterosexual relationship, there is a risk of unplanned pregnancy. Therefore, it is the responsibility of both partners to take the necessary precautions for preventing an unwanted pregnancy. In any sexual relationship, you must also protect against STIs.

ENGAGE

Conception is the term used to describe the moment when an ovum (egg) from a female and a sperm from a male meet. This is the first stage of a pregnancy and is a possible result of having sex. There are times when it is not ideal for you or your partner to become pregnant. Most young people are focused on completing their education, enjoying their youth, and learning more about the world and themselves.

Conception occurs when the male reproductive cell (sperm) and the female reproductive cell (ovum) unite.



Contraception is the term given to preventing conception, that is, preventing the egg and sperm from meeting. Strictly speaking, contraception *does not* necessarily include the prevention of sexually transmissible infections (STIs); this means that you can still catch an STI even if you cannot become pregnant. However, there are some methods of contraception that prevent both.

Do you want to be a young parent? Are you responsible enough to start your own family? If you are choosing to be sexually active, you need to consider conception and contraception. Use the **Young mums** weblink in your Resources section to learn about young mothers who finished school. Then use the **Condoms** weblink to learn the steps to putting on a condom.

on Resources

Explore more with these weblinks: Young mums
Explore more with these weblinks: Condoms

10.4.2 Contraceptive choices

There can be many pressures related to the use of **contraception**. However, if you and your partner have made the decision to have sexual intercourse, it is your responsibility to protect yourself. It is a woman's right to decide when or if she wants to have a baby. Equally, it is a man's right not to have a woman deliberately become pregnant with his child when he has expressed his desire not to have children. It is important to note that some contraception will also help protect you against STIs (see table 10.3).

The contraceptive pill



The condom is the most common form of contraception used by adolescents



TABLE 10.3: Contraceptive choices most relevant to young people

Name	How it works	Side effects	Success rate	STI protection	How it can be obtained
Abstinence	• Couple agrees not to participate in sexual activity • Couple needs to define 'sexual activity'. Do they mean they won't participate in *any* sexual activity or abstain only from penetrative sex?		• Depends on the couple and their dedication	• If no sexual activity takes place, there is no chance of conception or transmission of STIs.	• Requires commitment
Male condom	• Latex rubber sheath worn over the fully erect penis • Works by collecting the semen to prevent sperm entering vagina/uterus • Single use only	• Rarely, there can be an allergy to latex. • Non-latex condoms available	• 95–97% if used correctly	• Best protection available • Works by stopping bodily fluids being shared between partners • Must be in place before any genital-to-genital touching	• Family planning clinics • Supermarkets • Chemists • Petrol stations • Vending machines

Name	How it works	Side effects	Success rate	STI protection	How it can be obtained
Female condom	• Tube of polyurethane placed inside the vagina prior to sexual intercourse • Works by collecting semen to prevent sperm entering vagina/uterus • Single use only	• No known side effects	• 95–97% if used correctly	• Works by stopping bodily fluids being shared between partners • Must be in place before any genital-to-genital touching	• Family planning clinics • Some pharmacies
Combined pill	• Contains a synthetic hormone (progestogen) and oestrogen • Stops ovulation • Changes lining of uterus so fertilised egg cannot implant	• May cause mood changes, headaches, nausea, mild fluid retention, breast tenderness and skin changes, but these usually settle over time.	• 98–99% when taken as instructed	• No	• Prescription from a doctor

Name	How it works	Side effects	Success rate	STI protection	How it can be obtained
Mini pill	• Contains a synthetic hormone (progestogen) • Thickens cervical mucus so sperm can't get through • Changes lining of uterus so fertilised egg cannot implant	• May cause irregular bleeding, mild fluid retention, breast tenderness and skin changes	• 96–99% when taken as instructed	• No	• Prescription from a doctor
Emergency contraception	• Contains a synthetic hormone (progestogen) at higher doses than the combined pill • Works by delaying ovulation and changes the lining of the uterus	• May cause irregular bleeding • Most women have their period within six days of normal. • Rarely, nausea or vomiting	• Most effective if taken as soon as possible; should be taken within 120 hours after unprotected sexual intercourse	• No	• Chemist • Emergency department of some hospitals • No prescription required
Contraceptive implant such as Implanon	• Contains a synthetic hormone (progestogen)	• May cause irregular bleeding	• Greater than 99%	• No	• Prescription from a doctor

Name	How it works	Side effects	Success rate	STI protection	How it can be obtained
	• 4 cm rod is implanted below the skin under the upper arm • Slowly releases hormones for three years • Can usually be removed at any time • Works by stopping ovulation	• Some women stop menstruating altogether.			• Must be inserted and removed by a qualified doctor
Vaginal ring	• Contains a synthetic hormone (progestogen) and oestrogen • Flexible rubber ring is placed in vagina • Hormones absorbed through vaginal walls • Stops ovulation	• May cause mood changes, headaches, mild fluid retention, breast tenderness and skin changes, but these usually settle over time.	• 98–99% when used as instructed	• No	• Prescription from a doctor

Name	How it works	Side effects	Success rate	STI protection	How it can be obtained
	• Changes lining of uterus so fertilised egg cannot implant				

If you are considering having sex, you must talk with your partner about contraception.



DID YOU KNOW?

Among Australians, the condom is the most popular form of contraception, with 52 per cent using it as their main contraceptive method.

ACTIVITIES

1 Methods of contraception

In small groups, choose a method of contraception. Your group is now an authority on this method and will make a presentation to the rest of the class about it. You could include some of the following information in your presentation.

- How the method works
- How it is used
- Its effectiveness
- Possible side effects
- How much it costs
- Where it can be obtained
- Whether it protects against STIs
- Whether it is a suitable method for young people
- Whether it is culturally suitable
- Its popularity; reasons for using it or not using it
- How long it has been a recommended method

As your group presents to the class, be prepared to answer any questions posed. If you cannot answer immediately, ensure you find out.

2 Excuses, excuses!

Think of three reasons why someone might not want to use a condom as a method of contraception. Discuss these reasons as a class. You may want to role-play someone pressuring another person to have sex without a condom and use some of your responses.

3 Conception myths

1. In small groups, share some myths about conception you have heard.
2. Use the internet and other sources to research more myths and then find the evidence to either substantiate or debunk them.
3. Share your findings with the class.

4 Choosing a contraceptive

Different contraceptives suit different people, depending on their situation, age and values. Read each of the following scenarios and imagine that you are one of the people involved. What would you decide to do in each situation? Use the **Contraceptive choice** worksheet in your Resources section to record your responses.

Sally and Tom are getting married next month and want to save some money before having any children. They are not sure about which type of contraceptive to use.

Sarah has had sexual intercourse before without a contraceptive and now realises that she should take precautions to ensure she does not get pregnant or catch an STI. She is not sure whether to use the pill or condoms in the future.

Mary and Sam always use a condom when they have sex. Tonight, they have forgotten to bring one. They are both feeling sexually aroused and think that maybe they can take the risk, just this once.

Michael and Stephanie agreed months ago to use condoms and spermicide when they have sex. Michael has now told Stephanie that he doesn't like condoms and doesn't want to use them.

Jack and Sophie didn't use any contraception last night when they had sex. What should they do now?

CHECK & CHALLENGE

Explain

1. Which contraceptive method do you think is the most effective for reducing the transmission rate of STIs?
2. What is the most effective contraceptive method for reducing the chance of an unwanted pregnancy?

Evaluate

3. In a relationship, who should be in control of choosing contraception? Why?
4. What are the advantages of delaying sexual intercourse until you are older?

Elaborate

5. Research two natural methods of contraception. How do they work? Why might a couple decide to use these methods?
6. What contraceptive do you think is most suitable for young people who have decided to have sexual intercourse?

on Resources

Try out this interactivity: Types of contraception
Searchlight ID: int-5512

Complete this digital doc: Contraceptive choice
Searchlight ID: doc-14821

10.5 Sexually transmissible infections (STIs)

10.5.1 Chlamydia and HIV/AIDS

There are many types of STIs; however, two are of particular concern for young Australians. These are chlamydia, because of its prevalence in young people, and HIV/AIDS, which once again has an increasing infection rate despite some years in decline.

ENGAGE

Sexually transmissible infections (STIs) are infections that can be passed on through sexual activity and are mainly carried in bodily fluids. STIs can be caused by viruses such as human immunodeficiency virus (HIV), herpes and human papillomavirus (HPV); bacteria, such as chlamydia and gonorrhoea; or parasites, such as pubic lice.

Can you tell by looking at someone whether they have an STI? Many STIs have no visible symptoms, so a person does not necessarily know they have one.



STIs are not passed on through just penetration. Sexual behaviour such as mutual masturbation, oral sex and anal sex are also activities that carry risk of transmittal. For example, a bacterial infection such as chlamydia can be passed on during oral sex. You can never be certain of your partner's history; therefore, if you are participating in this sexual activity, it is important that you protect yourself by using a condom or dental dam.

Use the **Living with HIV** worksheet in your Resources section to read and answer questions about athlete Marianne Peisl.

Marianne Peisl has shown that people with HIV can still live full and rewarding lives.



Resources

Complete this digital doc: Living with HIV
Searchlight ID: doc-14822

10.5.2 Responsibilities regarding STIs

When you were younger, your parents or carers kept you safe. Now that you have become more independent, it is your responsibility to protect yourself and others from the consequences of your behaviour. In a sexual relationship, it is your responsibility to protect yourself and your partner from contracting a **sexually transmissible infection (STI)**. There can be many pressures related to the misuse of contraception; however, to act responsibly, you need to consider your protection. It is important to note that some contraception will also help protect you against STIs (see table 10.3).

There is often a stigma attached to having an STI, along with fear or embarrassment. This can cause people to avoid the issue and not seek treatment. But it's important to remember there are treatments for most STIs, and it is in your best interests to seek advice or treatment as soon as possible.

It is important to remember the following about STIs.

- Anyone who is sexually active can get an STI.
- Many STIs are asymptomatic (don't have any symptoms).
- Most STIs are treatable.
- If you plan to have sex using contraception that prevents only pregnancy, you should have an STI check and ask your sexual partner to do the same prior to having intercourse.
- If you have unprotected sex with someone whose sexual history you don't know, you should have an STI check.
- Condoms help to significantly reduce the risk of contracting an STI.

Being honest with your doctor shows you are taking responsibility for your health and will ensure you get the best health advice.



DID YOU KNOW?

At the end of 2014, the number of people in the world living with HIV was estimated to be 36.9 million.

10.5.3 Access to information about STIs

Where you live (environmental factors) can have a huge impact on the information young people have access to in relation to STI information. In urban/city areas many face-to-face resources are available for young people, such as local health centres, family planning clinics, bulk-billing doctors, hospitals and counsellors. If you live in a country or more rural area, your access can be much more limited. Depending on your location, you might be forced to rely on family members or the internet as your main sources of information. You may be less willing to seek out face-to-face medical advice if you or your family knows the local health practitioners. It may feel embarrassing or worrying to discussing STI information with someone you know — but remember they are professionals who are there to help, whoever you are.

Family values and cultural pressures can also affect how you approach STIs. Some young people have certain expectations placed on them about their sexuality and sexual health. These expectations can come from religious beliefs, family expectations and cultural pressures. These cultural and family factors can limit your access to information, as you may not feel comfortable in discussing STIs or your sexual health due to feelings of shame or a belief you have gone against the expectations placed on you. Use the **STIs** interactivity and the **ReachOut** weblinks in your Resources section to explore further.

Resources

Try out this interactivity: STIs
Searchlight ID: int-5513

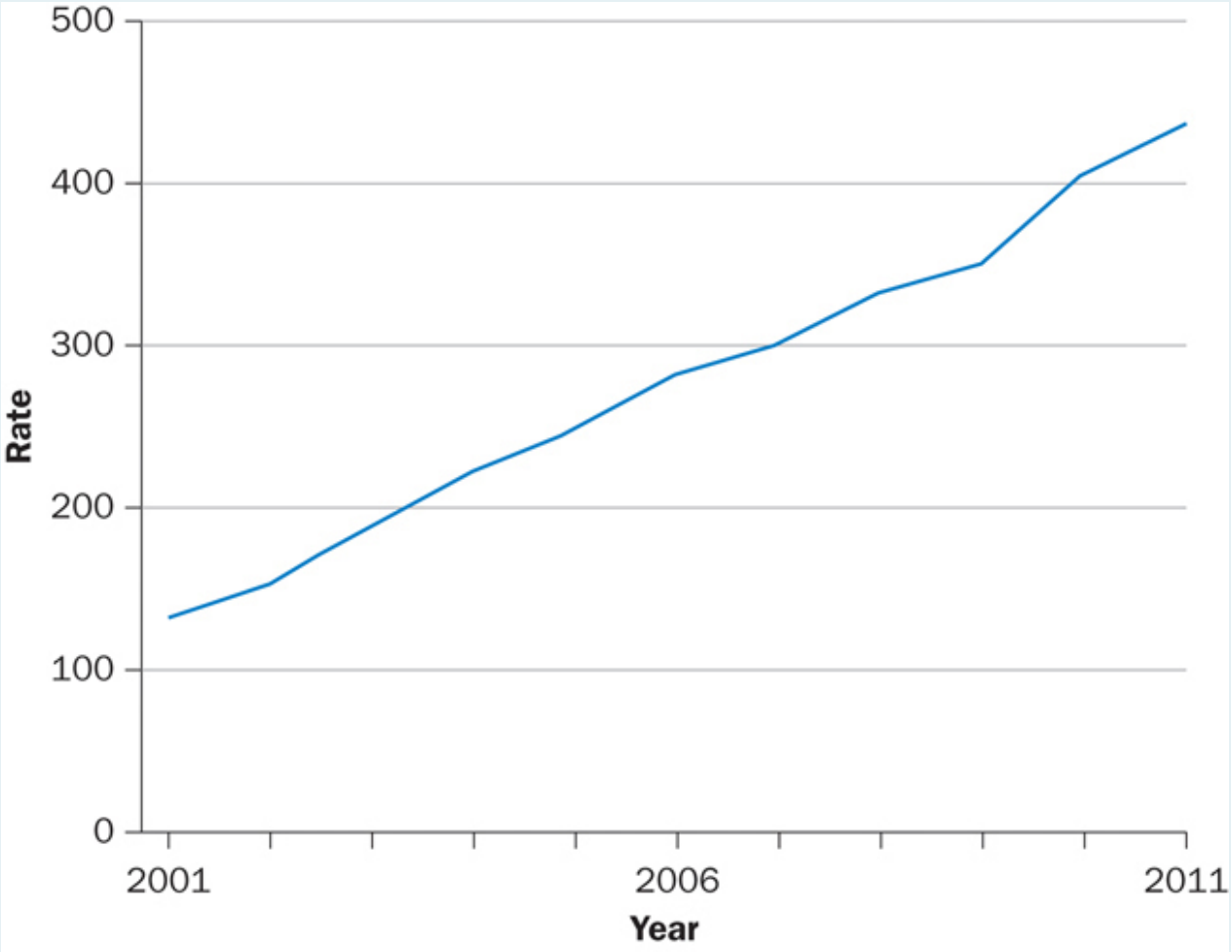
Explore more with these weblinks: ReachOut

10.5.4 Chlamydia

Chlamydia is a common bacterial infection, especially in young people. Most people don't get symptoms and so often don't get tested. Even though you may not feel it, the chlamydia bacterium is still affecting your body. If chlamydia is left untreated in women, it can lead to **infertility**. This occurs when the inflammation in the uterus spreads to a female's fallopian tubes. The body develops scar tissue in these tiny tubes, which can lead to blockages. If this occurs, sperm is unable to travel through the blockage to the egg, and vice versa; therefore, conception cannot take place naturally.

Chlamydia in the reproductive organs is transmitted via sexual activity. Treatment for chlamydia involves the infected person taking antibiotics and then informing his or her partner, who should also get tested and/or treated.

Chlamydia notifications, Australia 2001–11 (rate per 100 000 population aged 15 years and over)



DID YOU KNOW?

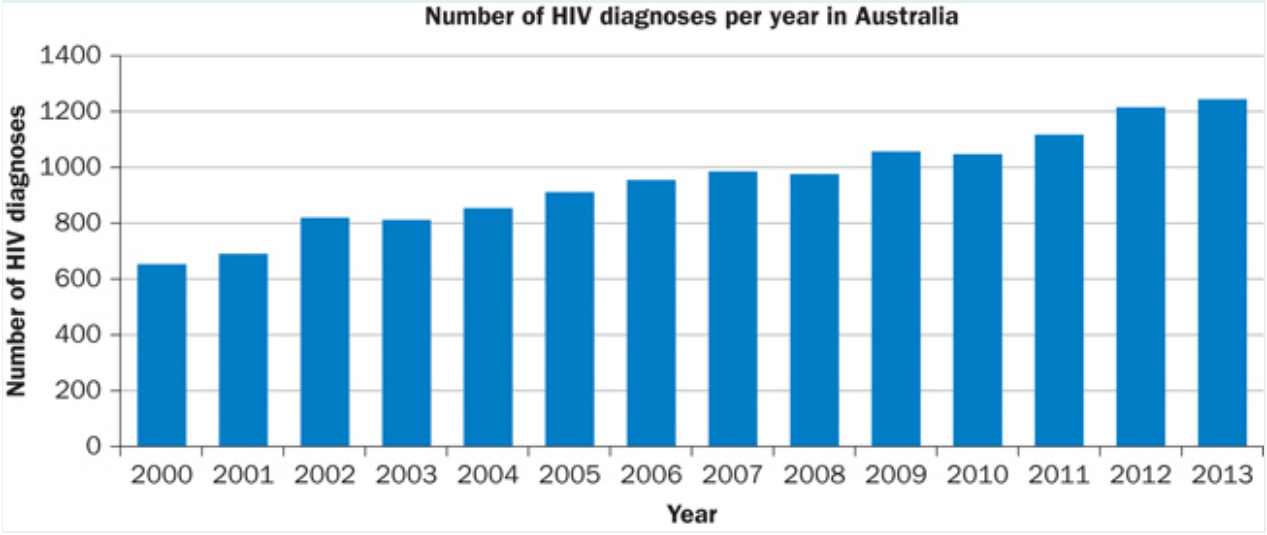
Chlamydia is a very common STI. Seventy per cent of women and 40 per cent of men who have it have no symptoms; yet with unprotected sex, they can pass it on to an uninfected partner about 50 per cent of the time.

10.5.5 HIV/AIDS

Human immunodeficiency virus (HIV) is the virus that can lead to **acquired immunodeficiency syndrome (AIDS)**. HIV can be passed on via sexual contact, from mother to baby during birth and breastfeeding, and by sharing intravenous drug paraphernalia. There is no cure for HIV; it remains in the blood for the rest of the person's life. However, some treatments have significantly increased the life span of those infected with the virus. These treatments come at a significant cost, and have financial, physical and emotional consequences. Often, there is also a stigma attached to people infected with HIV, which makes it more difficult for them to access the services they require.

In Australia, due to community awareness programs and advancements in treatment, the incidence of HIV infection did, for a time, significantly decline from its original high levels. However, we are now seeing an increase in numbers again, as shown in the figure below.

Why is Australia seeing an increase in the number of HIV cases?



In other parts of the world, the **prevalence** of HIV is still increasing and affecting millions of people. There is a misconception that HIV and AIDS is only contracted through same-sex intercourse between males; however, worldwide, approximately 50 per cent of the incidences of HIV are female, and the virus is mainly spread through heterosexual contact.

ACTIVITIES

1 Hypothesis development and testing

Using the **STI research** worksheet in your Resources section, identify a research question regarding STIs and then develop a hypothesis. You will research your topic using a variety of sources to appreciate different perspectives. Record your research, analyse it and then decide whether the hypothesis was correct by providing a comprehensive conclusion.

2 Role-plays

Form groups of three and select an STI to discuss. Designate the roles of doctor, patient and concerned partner. Research the questions below and then role-play a scenario to teach the class about your chosen STI. Be creative and keep the role-play informative.

1. Is the STI treatable, and what does the treatment involve?
2. What will happen if the patient decides not to go ahead with the treatment?
3. How is the STI contracted?
4. Does the patient have to tell anyone else they have it?
5. Can the patient still be sexually active?
6. Does the patient have to change the way they live?

3 Categorising STIs

Using the internet and other sources, research the following STIs and then copy and complete the table below. The first two entries have been completed for you. Use the **STI research** worksheet in your Resources section to help you.

STI	Bacteria	Virus	Parasite	Fungi	Cure?
Chlamydia	✓				Yes
HIV		✓			No
Crabs					
Gonorrhoea					
Syphilis					
Genital herpes					
Pubic lice					
Genital warts (HPV)					
Hepatitis B					

4 Catchy slogans

Create three catchy and engaging slogans to encourage young people to use protection.

5 HIV

Use the **Worldwide HIV research** worksheet and the **WHO sexual health advice**, **UNIAIDS**, **Australian Bureau of Statistics** and **AIDS stats** weblinks in your Resources section to research the HIV impact and prevention programs in Australia and another country of your choice.

6 Inquiry

Use the **STI matrix** worksheet in your Resources section to construct a question matrix and investigate STIs. You should have at least one ‘what’, ‘where’, ‘when’, ‘who’, ‘why’ and ‘how’ question.

CHECK & CHALLENGE

Elaborate

1. Distinguish between HIV and AIDS.
2. What can you do to prevent the spread of STIs?
3. What impact could lack of access to STI information have on a young person when making decisions about their sexual activity?

Evaluate

4. The prevalence of chlamydia is rising in Australia. Why do you think this is? What could be the long-term impact of chlamydia on our society?
5. Why have HIV notifications increased over the past five years? What type of awareness program could help to protect people against the spread of this virus in Australia?

on Resources

Explore more with these weblinks: UNAIDS
Explore more with these weblinks: WHO sexual health advice
Explore more with these weblinks: Australian Bureau of Statistics
Explore more with these weblinks: AIDS stats
Complete this digital doc: STI research
Searchlight ID: doc-14824
Complete this digital doc: Worldwide HIV research
Searchlight ID: doc-14825
Complete this digital doc: STI matrix
Searchlight ID: doc-14823

10.6 Project: Health services

projectsplus

10.6.1 Scenario

You volunteer at Youthworks. People come to Youthworks looking for services and advice about self, relations and sex. The committee is making a fact folder so information and answers are always available for volunteers to read.



10.6.2 Your task

As a committee your task is to create a fact folder about different relationship problems young people might face. For each topic, you will need to develop a list of statements of advice that a volunteer might offer a person seeking help. You will also need to locate health services available to support young people with various issues within the community.

10.6.3 Process

- Open the ProjectsPLUS application for this chapter in your Resources section. Watch the introductory video lesson, click the ‘Start Project’ button and then set up your project group. You can complete this project individually or invite other members of your class to form a group. Save your settings and the project will be launched.

- Navigate to your Research Forum. Here you will find a number of pre-loaded topics that you may need to research. The issues could include an individual seeking advice on STIs, a victim of sexual assault, a couple wanting to get pregnant, a young girl wanting to avoid pregnancy, an individual questioning their sexual identity, or an individual contemplating self-harm. You may also add other research topics that you think may help you in your task.
- Enter the information that you find as articles under your topics in the Research Forum. You should find at least two sources (other than the textbook) to help you discover information about the different relationship problems young people might face. You can view and comment on other group members' articles and rate the information that they have entered. Make notes of good advice your research suggests. Facts to include are health consequences and considerations. You may also like to provide advice on the myths and misconceptions associated with the problem.You should also mention any relevant government or school policies surrounding the problem. When your research is complete, print your research report to hand in to your teacher.



- Visit your Media Centre to find images you may like to incorporate into your fact folder. You can watch the various case studies of typical people coming to Youthworks looking for advice.
- As a group, write all the fact folders for all likely problems that young people might visit Youthworks with. Use Photoshop, Microsoft Word or Microsoft Publisher to develop your fact folder. Your mission is to make people aware of the health services available and outline supportive advice.



- To complete your project, the group must hand in all the fact folders along with the research report from your ProjectsPLUS Research Forum.

SUGGESTED SOFTWARE

- ProjectsPLUS
- Microsoft Word
- Photoshop
- Microsoft Publisher

MEDIA CENTRE

Your Media Centre contains:

- health statistics and problems facing young Australians
- a bank of images suggesting different health problems
- weblinks to other support services
- a template for your fact folder
- an assessment rubric.



on Resources

Watch this eLesson:
Searchlight ID: pro-0085

10.7 Review

10.7.1 What have I learned?

- Sexuality is more than just whether a person is attracted to males or females; it reflects who we are as people, is influenced by external factors and is subject to change throughout our lives.
- There are attitudes, myths, misconceptions and stereotypes in our communities that can make life difficult. Some of these relate directly to young people. They can have an impact on a young person who is formulating his or her own ideas and values about a range of issues, including sexuality.
- Sexual intercourse or sexual activity in a relationship may bring a couple closer together, as long as there is good communication involved.
- There are pressures on young people to be sexually active. The right time is when you feel ready — not when you are feeling pressured into doing it.
- The majority of young people have not had sexual intercourse by Year 12.
- Becoming independent involves being able to make choices based on the range of possible consequences, and taking responsibility for your own decisions and actions.
- You must obtain verbal consent from your partner before participating in a sexual activity — not to do so is illegal.

- Think carefully before sharing images or videos by sexting; once they have been sent, you lose all control over them. Half of all secondary school students report having received sexually explicit messages.
- Alcohol and other drugs can make it difficult to communicate effectively with your partner or potential partner, particularly about sexual decisions.
- Schools and workplaces have policies that they must adhere to in order to wipe out sexual harassment and discrimination, and allow people to feel safe.
- There are a range of support services and people available to provide assistance with relationship issues and support young people's sexual and reproductive health needs.
- Contraception and the prevention of sexually transmissible infections are the responsibility of both people in a relationship.
- To make responsible decisions regarding protection, all options should be considered.
- You can't tell by looking at someone whether they have an STI; the person might not necessarily know themselves. So, protect yourself!

CHECK

1. What does sexuality mean?
2. Why might it be difficult for a person to openly express that they are homosexual?
3. How might young people feel about having unwanted sexual activity?
4. How might unwanted sexual activity affect young people's lives?
5. From where can you get support about sexual issues?
6. Who is the most important person to protect in a sexual relationship?
7. How can adolescents protect themselves against unwanted pregnancy and STIs?
8. What does it mean to have unsafe sex?
9. Using contraception is one method you can use to reduce the risk of contracting an STI. What else can you do?
10. What are the most common STIs reported in adolescents?
11. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

Why are trust, respect and communication so important in a relationship?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-14826

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5410

Try out this interactivity: True/false quiz
Searchlight ID: int-5411

Try out this interactivity: Crossword
Searchlight ID: int-5412

Chapter 11: Nutrition for good health

Contents

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11 Nutrition for good health



11.1 Overview

11.1.1 The importance of diet

Learning objectives

- Propose, practise and evaluate responses in situations where external influences may impact on their ability to make healthy and safe choices (ACPPS092)
- Identify and critique the accessibility and effectiveness of support services based in the community that impact on the ability to make healthy and safe choices (VCHPEP145)

Why do you choose the foods that you eat and what is their effect on your body?



ESSENTIAL QUESTION

What are healthy nutrition decisions and how can I ensure I make these?

STARTER QUESTIONS

1. What is good nutrition?
2. What do healthy food decisions look like?
3. What influences the nutrition decisions you make?
4. What are the implications of your food decisions?

INQUIRY SEQUENCE

11.2 Food nutrients

11.3 Daily energy needs and expenditure

11.4 Factors influencing food choice

11.5 Food models for good health

11.6 Preventing diet-related diseases

11.7 Nutrition for sport and other special dietary needs

11.8 Review

on Resources

Watch this eLesson: Nutrition for good health
Searchlight ID: eles-2342

11.2 Food nutrients

11.2.1 Balancing our nutrients

There are seven types of nutrients that we need for optimum physical and mental health. Most foods contain a combination of some or all of the nutrients in varying amounts. Eating a balanced diet means obtaining the right amount of each nutrient.

ENGAGE

The seven types of nutrients derived from food are:

- carbohydrates
- fats
- vitamins
- protein
- minerals
- dietary fibre
- water.

All of these nutrients, in varying amounts, are necessary for good health, and each of them has a different function to perform. Daily energy needs are supplied by two of these nutrients: carbohydrates and fats. Generally, the balance between the energy we expend and the carbohydrates and fats we eat is what determines our body weight.

How much do you know about nutrition? For each letter of the alphabet, choose a food, and discuss what you know about that food and which nutrients it provides. Test your knowledge both before and after the lesson to see how much you have improved.

Sensible shopping is an important precursor for a nutritious diet.



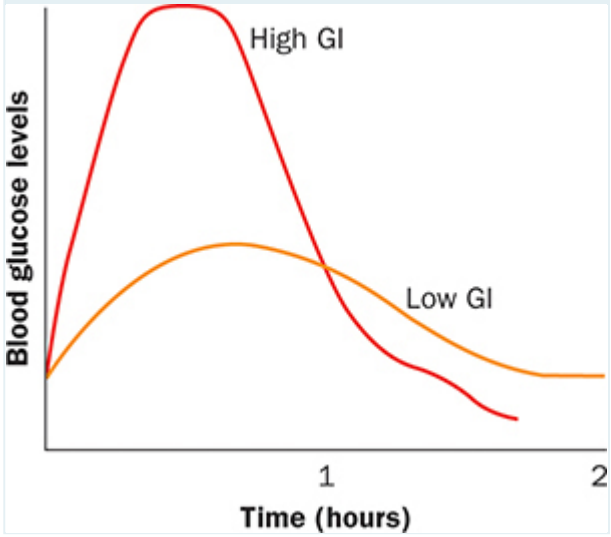
on Resources

Try out this interactivity: A healthy diet
Searchlight ID: int-5515

11.2.2 Carbohydrates

The main job of **carbohydrates** is to provide a prime source of energy for the body to work. Carbohydrates include all the **starches** and **sugars** we consume. Starch is found primarily in foods such as bread, cereals, pasta and rice. Sugars include table sugar, honey and **fructose**. Unfortunately, many Australians consume the wrong types of carbohydrates daily.

Comparing the effects on blood sugar of low and high GI foods



Carbohydrates are now often classified according to the **GI index**. The GI index gives an indication of the rate at which carbohydrates are broken down and absorbed into the bloodstream. Foods are ranked from 0−100. **High GI foods** are broken down and absorbed quickly and have an immediate effect on blood glucose levels. Examples of high GI foods include dates, lollies, potatoes and white bread.

Low GI foods are broken down and absorbed slowly, therefore having a more gradual and sustained effect on blood glucose levels. Examples of low GI foods include milk, porridge, lentils, grainy breads, apples and low fat yoghurt.

For good health a vast majority of our carbohydrate intake should be from low GI foods. An excessive intake of high GI foods is closely linked to increased risk of obesity and type 2 diabetes.

Carbohydrates are stored as **glycogen** in the body (muscles and liver). The muscles would not be able to perform without glycogen, so it is important that it is replenished after strenuous exercise.

Carbohydrates (particularly the low GI variety) should constitute 55–60 per cent of your total food intake.

11.2.3 Fat

There are two types of fat that need to be clearly distinguished: **dietary fat** and **body fat**.

Dietary fat is fat that is eaten, and can be found in foods such as butter, margarine, olive oil and cream. We need a small amount of dietary fat for good health. Some fatty acids cannot be made in the body and some contain fat-soluble vitamins. However, most Australians eat far too much dietary fat.

Unfortunately much of our dietary fat comes from ‘bad fats’ — saturated and trans fats. These are found in high amounts in many processed foods, fast foods, cakes and meats. Excessive intake of these fats is linked to increased risk of obesity, high blood pressure and heart disease.

However, there are ‘good fats’ — mono and polyunsaturated fats. These are found in plant-based oils, nuts, avocados and some fish. These fats can be protective against high blood pressure and heart disease.

Body fat is the body's way of storing excess dietary fat, carbohydrates or protein. Therefore, if we eat too much of these nutrients, they will be stored as body fat.

The primary function of dietary fat is to provide energy. However, dietary fat requires more oxygen to burn than carbohydrates, so it is a far less efficient fuel.

Australians must reduce their intake of dietary fat, in particular saturated and trans fats, to the recommended 25−30 per cent of total daily food intake. The 2011−2012 National Nutrition and Physical Activity Survey (NNPAS) showed that it currently makes up 31 per cent of the typical Australian’s daily intake and is predicted to continue increasing.

There are four different types of dietary fats. Choosing the ‘good fats’ is essential to good health.



11.2.4 Protein

Protein is essential for life and is the basis of our body; it accounts for muscles, hair, skin and blood cells. Enzymes and hormones are made of protein. Protein is also essential for the formation of antibodies — the disease fighters.

Protein is made up of amino acids. Some protein comes from our dietary intake and some is put together by the body. The human body requires eight essential amino acids that must be consumed as food.

Complete proteins contain all the essential amino acids needed by the body, and are found in animal protein — meat, eggs, dairy products, fish and poultry. However, **incomplete proteins** are so named because they lack one or more of the essential amino acids. They are plant proteins, and include those obtained from foods such as beans, peas, nuts and cereals. This has implications for vegetarians, who need to eat a wide variety of food to ensure they receive all essential amino acids. This problem is discussed further later in this chapter (see *Special dietary needs* in section 11.6). Excess protein is not stored as protein and is largely converted to body fat. For most people, protein should make up 10 to 15 per cent of their total daily intake of food.

11.2.5 Vitamins and minerals

Vitamins are organic compounds needed in small quantities to promote growth and maintain life. **Minerals** are inorganic elements that very often work alongside vitamins to help the body function and ensure body structures are maintained. Both vitamins and minerals must be eaten as part of our diet and cannot be made by the body.

Some of the vitamins and minerals that are important for sportspeople are:

- *niacin* — one of the B complex vitamins that combines with other chemicals to extract energy from carbohydrates and fats. The body needs niacin for energy.
- *vitamin D* — cooperates with the mineral **calcium** to ensure that calcium is extracted from the small intestine into the bloodstream. This is an example of vitamins and minerals working together. No vitamin D, no calcium absorption.
- *calcium* — vital for muscle contractions, blood clotting and strong bones. All of these functions are critical for the optimum performance of the body.
- **iron** — a mineral essential to the transport and utilisation of oxygen in the body.

Storage

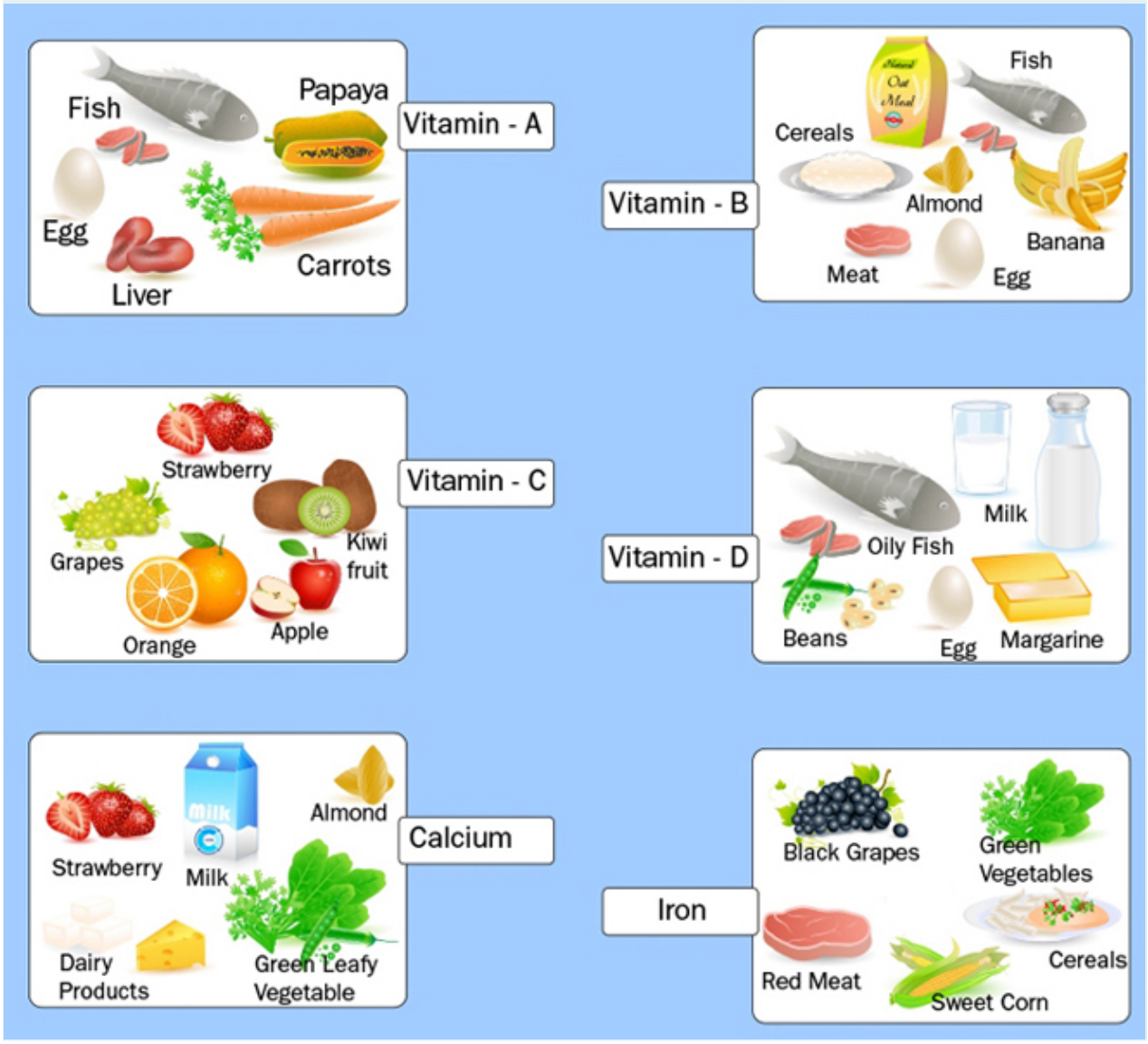
Vitamins are either fat soluble or water soluble. Fat-soluble vitamins can be stored in the body, so a diet should not have too much of them. The fat-soluble vitamins are vitamins A, D, E and K.

Water-soluble vitamins must be consumed daily. They are vitamin C and the B complex (which includes vitamins B, B_2, niacin, B_6, B_{12}, folic acid, pantothenic acid and biotin).

Minerals, on the other hand, cannot be stored for long periods. They are excreted daily, so sportspeople in particular should ensure an adequate daily intake. Excessive intake of minerals can lead to toxicity problems, but this is unlikely to occur through dietary intake.

For all people, including sportspeople, a well-balanced diet will ensure that all the vitamins and minerals necessary for good health and optimum performance are provided for the body.

Adequate levels of most vitamins and minerals can be obtained by consuming a balanced diet.



DID YOU KNOW?

Thiamine and folic acid (both B vitamins) are so important to good health that they are mandated additives to wheat flour in both Australia and New Zealand. Thiamine has been an additive since 1991, and folic acid was mandated in 2009.

11.2.6 Dietary fibre

Dietary fibre is the part of a plant that cannot be digested by the body. It is found in fruits, vegetables, nuts, and wholegrain cereals and their products. Foods rich in dietary fibre are also usually rich in other nutrients, thus being of two-fold benefit.

- Dietary fibre assists in the passage of food through the small and large intestines, aids absorption of nutrients and is important for the efficient excretion of waste products.
- Dietary fibre slows the release of sugars from food, giving a more sustained and even release of energy.
- Dietary fibre adds bulk to your diet without adding extra **kilojoules**, which provides a feeling of **satiety** or fullness. This is vital in helping maintain a healthy weight and avoiding obesity.

There are many different sources of fibre.



11.2.7 Water

Water is an essential nutrient that is often underestimated and underconsumed. Water is vital for the efficient functioning of our blood, muscles, bones, digestive system and temperature regulation. Approximately 50−75 per cent of the body is made up of water. However, the body cannot store sufficient water and therefore requires daily supplies. The amount required differs for everyone and depends on the weather, what we eat, our body size, our metabolism and our activity levels. For adolescent girls the recommended intake is 6 cups (1.6 L) and for males 7−8 cups (1.9 L), which increases to 8 cups for women (2.1 L) and 9−10 cups for men (2.6 L). About 20 per cent of our daily water intake comes from our food intake.

Adequate water intake allows our systems to function efficiently and also leads to increased concentration and sporting performance.

Water is an essential, and often underrated, nutrient.



ACTIVITIES

1 Sorting

Create a table showing the major nutrients, their primary function(s) and typical food sources for each nutrient.

2 Label reading

1. Bring the packaging from two different foods (for example, tomato soup or a meat pie) to your next lesson.
2. Look for the nutrition information panel on the packaging.
3. Complete a table to help compare the two products. Use the **Food label guidelines** weblink in your Resources section to help.
4. State which product is healthier and give your reasons in writing.

3 Analysing data

Use the **Analysing data** worksheet in your Resources section to create graphs that demonstrate Australian food habits.

4 Inquiry-based learning

Use the **Y and how chart** worksheet in your Resources section to reflect on your learning about nutrition.

5 Vitamin deficiency

A lack or deficiency of various vitamins can lead to the development of certain diseases and conditions. Research the following vitamins to find out:

- what role they play in the functioning of the body
- the food sources from which they can be obtained
- what diseases or conditions may develop when they are lacking in the diet.

1. Vitamin A
2. Vitamin B_2 (riboflavin)
3. Vitamin B_6 (nicotinic acid)
4. Vitamin B_{12}
5. Vitamin C

CHECK & CHALLENGE

Explain

1. Give examples of the foods you could eat to obtain each of the seven types of nutrients.
2. Describe the differences between low GI and high GI carbohydrates.
3. If fibre cannot be digested by the body, why should you eat it?

Evaluate

4. At what meal would you be likely to eat the most fibre? Why?
5. Consider your typical daily food intake. Rank the nutrients in your diet from most eaten to least eaten. Discuss any implications of this.

Elaborate

6. Why would people eat a diet high in protein?
7. Is there such a thing as ‘bad’ food?

on Resources

Explore more with these weblinks: Food label guidelines

Complete this digital doc: Analysing data
Searchlight ID: doc-14842

Complete this digital doc: Y and how chart
Searchlight ID: doc-14843

11.3 Daily energy needs and expenditure

11.3.1 Why we need energy

Our bodies convert the food we eat into energy by using digestion and other chemical reactions that are part of human metabolism. Energy is required for basic functions such as breathing, keeping the heart beating and digesting food. It is also required for the performance of work and physical activity.

ENGAGE

We get our energy from the food we eat. In order to maintain a healthy weight, we should consume about the same amount of energy as we use in our daily life.

List all the activities you perform daily that require energy, and then rank the activities in terms of the amount of energy required. Also consider your daily energy intake. In pairs discuss if you think your daily energy intake is equal to, greater than or less than daily energy requirements from activity.

Our bodies are constantly using energy, even for basic functions.



11.3.2 The kilojoule

The kilojoule is a measure of energy. It can be used to tell us how much energy is contained in food and drink, and can also measure the amount of energy used in physical activities and exercise. It is the standard metric measurement of energy. Table 11.1 gives the kilojoule measures for carbohydrates, fat and protein.

TABLE 11.1: Kilojoule measure of the various energy nutrients

Nutrient	Kilojoules per gram
Carbohydrates	16
Fat	37
Protein	17

11.3.3 Energy systems

The body converts the food we eat into a form which can be used to produce muscle contraction and create movement. There are two basic energy systems: the anaerobic system (which can be broken down into the ATP–CP system and the anaerobic glycolysis system) and the aerobic system. The main principle is that different physical activities rely on different energy systems. For example, the 100-metre sprint uses the anaerobic energy system, while the 5000-metre distance event uses the aerobic energy system. One event is completed very quickly and the other takes a lot longer; therefore, the energy is delivered differently. Longer, slower activities such as jogging, cycling and swimming use the aerobic energy system which draws on fats and carbohydrates for energy production.

TABLE 11.2: Energy systems and physical activity

Energy system	Component of fitness	Intensity	Activities or sports
Anaerobic	• Muscular strength • Power • Agility • Speed • Reaction time	High (greater than 85 per cent)	• 100-metre sprint • Shot-put • High jump • Long jump • Weightlifting • Baseball bat swing • Tennis serve • Soccer (goalie)
Aerobic	• Local muscular endurance • Cardiorespiratory endurance	Sub-maximal (less than 85 per cent)	• Distance running • Road cycling • Distance swimming • AFL midfield

Anaerobic energy

The anaerobic energy system uses fuel stored in the muscle cells and liver. The fuel comes from carbohydrates and sugars that are broken down into stored glycogen.

Jana Pittman winning a hurdle event. This requires anaerobic energy.



Aerobic energy system

The aerobic energy system uses carbohydrates and fats to produce the energy that muscles need to perform sub-maximal exercise over a long duration. Carbohydrates are the preferred fuel source in aerobic activity that is 65 per cent or more of maximal intensity. Low GI carbohydrates such as cereals, breads and pasta are broken down and stored as glycogen for the best source of fuel for energy production.

A long-distance runner such as Benita Johnson will use a different energy system to a sprinter. She has a well-trained aerobic energy system.



DID YOU KNOW?

The body can store only a certain amount of glycogen, around 60−90 minutes' worth. After this the body requires more glycogen to maintain efforts or it will increase its use of fats.

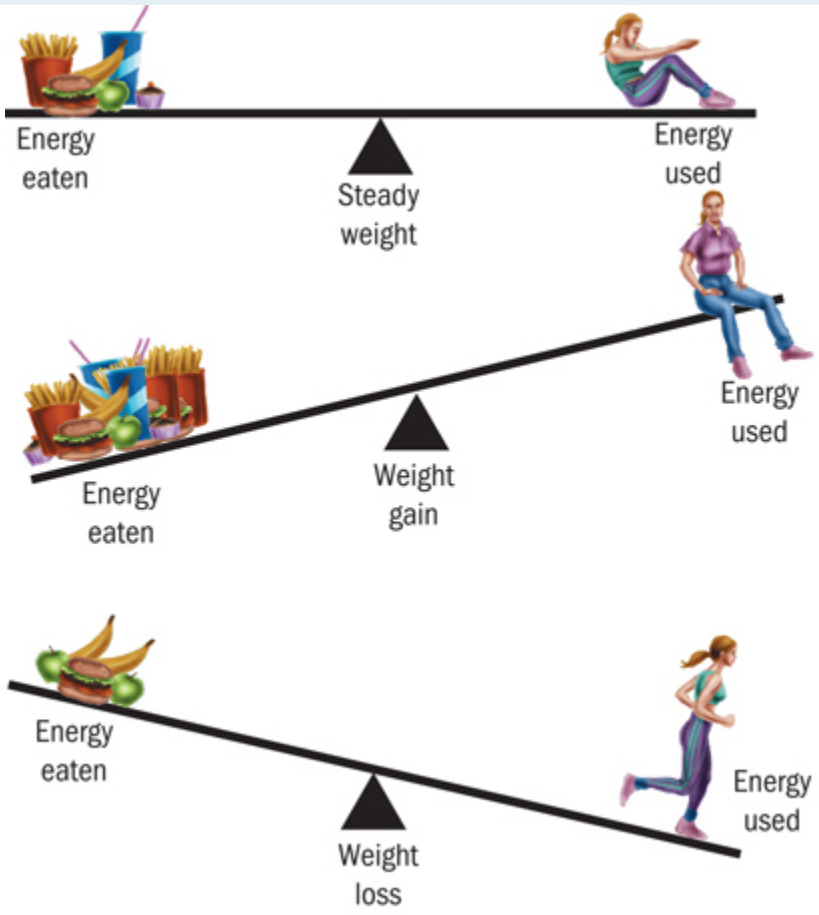
11.3.4 Energy balance

Energy balance refers to balancing our energy input (the food we eat) and our energy output (exercise and general living). In order to maintain weight, we need to balance this input and output, as shown in the figure below.

When more food (energy) is consumed than is used or required, the extra energy is stored as body fat and weight increases. This is referred to as a **positive energy balance**. If less food (energy) is consumed than is used or required, the body converts body fat to energy and weight decreases. This is known as a **negative energy balance**.

Various problems are associated with the positive energy balance that occurs when kilojoule input is greater than kilojoule output over a long period of time. These include being overweight and obese.

In order to maintain weight, there must be a balance between input and output.



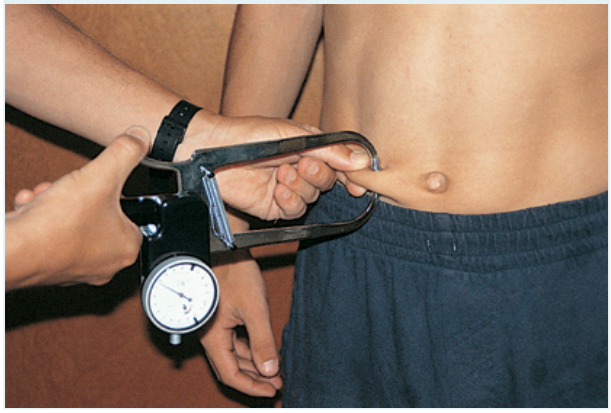
11.3.5 Healthy weight range

There are a range of tests or measurements used to calculate ‘ideal’ weight. One of the most well-known methods is measuring your **body mass index (BMI)**.

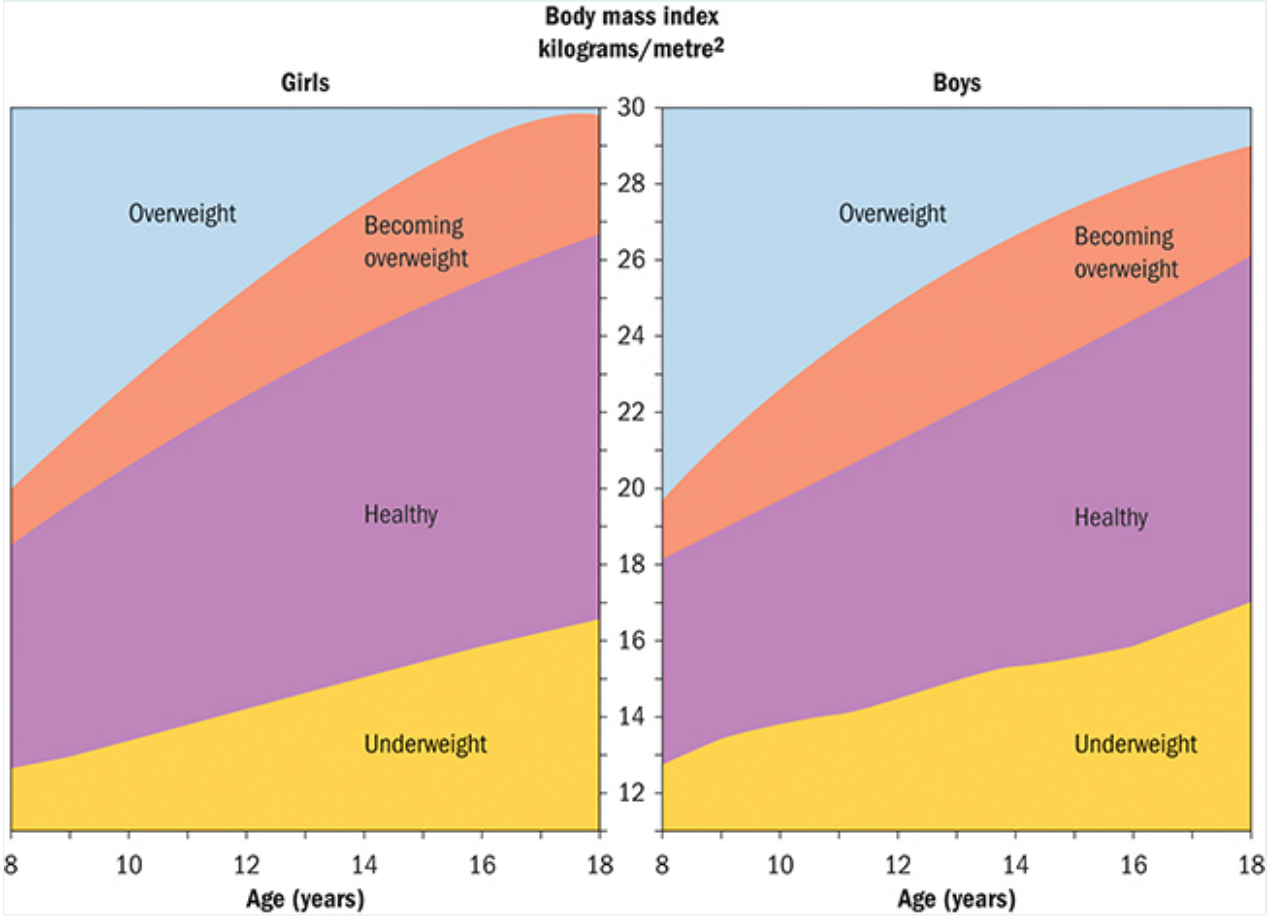
It's important to remember that height/weight charts and body mass index (BMI) tables are not the only indicator of your healthy weight range; in fact, sometimes they can be misleading. Height/weight charts and BMI tables are based on the average weight of a sample of the population; they are not ideal weights for every situation and every person. For athletes particularly, these tables may inform them that they are overweight when in fact they are not. The tables don’t measure fat specifically. They weigh everything we are — water, bone, muscle and fat. Athletes usually have a higher percentage of muscle than the average population, and because muscle weighs more than fat, the tables can incorrectly tell them they are overweight. Therefore, athletes need to have their levels of fat measured by other means. The skinfold test, as shown, is probably the most common.

Some body fat is essential to help insulate the body and protect its vital organs. For males an acceptable body fat percentage would be 13–15 per cent, and for females 20–25 per cent. World-class athletes would generally have much lower percentages of body fat (depending on the sport) and still be a healthy weight; for example, a long-distance runner would have 5–7.5 per cent body fat.

Skinfold calipers are used to measure the skinfolds of athletes.



Body mass index charts for females and males aged 8–18



on Resources

Explore more with these weblinks: Using BMI to determine body fat

11.3.6 Energy requirements and expenditure

To achieve the energy balance represented by the perfectly balanced see-saw shown above, it is essential that you know the kilojoule value of the food you eat and also the amount of energy you use. How much energy you use when exercising depends on a number of factors including your weight, how long you exercise for, the intensity of that exercise, which energy system you are using and how efficiently you use that system. The amount of energy used in team sports is even harder to estimate, because each position may use a different amount of energy. Therefore, sports scientists have devised general guides as to how much energy is used for particular activities, as shown in table 11.3.

Table 11.3 explains the energy requirements of various activities. We need to understand these requirements so that we can estimate our energy output and thereby balance the see-saw. The sporting activities in the table give a range of kilojoules expended; for example, netball uses 1680–2940 kJ per hour. This will depend on the intensity of the exercise — a centre player will do more running in an hour than the goal shooter.

Walking and running have been omitted from the table because there is a more accurate way to determine kilojoules used:

Distance travelled (km) × body weight (kg) = energy expenditure (calories)

Multiply the answer by 4.2 to convert to kilojoules.

For example, a person weighing 50 kg who ran/walked for 6 km would use:

50 × 6 = 300 calories
300 × 4.2 = 1260 kJ

DID YOU KNOW?

Chicken is healthier if it is eaten without the skin because that is where most of the fat is contained.

TABLE 11.3: Kilojoules (kJ) used per hour in particular activities

Activity	kJ expended per hour
Sleeping	273
Sitting, watching TV	378
Eating, drinking	420
Writing, sewing	420
Secretarial, office duties	546
Standing, light activity	588
Dressing, showering	672
Preparing meals, washing dishes	735
Sweeping, cleaning, vacuuming	777
Hanging out laundry, making bed	1008
Scrubbing floors, cleaning windows	1260
Weeding	945
Mowing	1890
Fishing, snooker	735–1050
Golf, yoga	1050–1470
Yachting, horseriding, cricket	1260–2100
Skipping, karate	1470–2310
Swimming, dancing, aerobics, tennis, cycling	1470–2310
Basketball, netball, surfing	1680–2940
Squash, badminton	2100–3360
Rugby, soccer, football, hockey	2100–3360

Activity	kJ expended per hour
Skiing, sprinting, rowing	2940–5250

Note: These figures are for a 64 kg person. Add or subtract 10 per cent for each 6 kg above or below. This applies to running on all ground surfaces except for sand, which would use almost double the energy.

Table 11.4 shows the amount of time necessary to burn off particular foods and highlights the need to combine exercise with a healthy diet. Those people wishing to burn fat should undertake continuous aerobic exercise at low to medium intensities. Activities such as power walking, cycling and swimming are excellent for this. Test your knowledge of energy input and output using the **Killer kilojoules** and **Snacking on kilojoules** interactivities in your Resources section.

TABLE 11.4: Minutes of activity needed to burn off particular foods

	Kilojoules	Walking	Riding bicycle	Swimming	Running	Reclining
Apple, large	424	19	12	9	5	78
Bacon, 2 strips	403	18	12	9	5	74
Banana, small	397	17	11	8	4	68
Beans, green, 1 serve	113	5	3	2	1	21
Beer, 1 glass	479	22	14	10	6	88
Bread and butter	319	15	10	7	4	60
Biscuit, plain	63	3	2	1	1	12
Biscuit, chocolate chip	214	10	6	5	3	39
Cake, 1 slice	1495	68	43	32	18	274
Carrot, raw	176	8	5	4	2	32
Cereal, $\frac{1}{2}$ cup with milk, sugar	840	38	24	18	10	154

	Kilojoules	Walking	Riding bicycle	Swimming	Running	Reclining
Cheese, cottage, 1 tbsp.	113	5	3	2	1	21
Cheese, Cheddar 30 g	466	21	14	10	6	85
Chicken, fried, $\frac{1}{2}$ breast	974	45	28	21	12	178
Chicken dinner	2276	104	66	48	28	417
Doughnut	634	29	18	13	8	116
Drink, fizzy	445	20	13	9	5	82
Egg, fried	462	21	13	10	6	85
Egg, boiled	323	15	9	7	4	59
Fish steak, 110 g	861	39	25	18	11	158
French dressing, 1 tbsp.	248	11	7	5	3	45
Ham, 2 slices	701	32	20	15	9	128
Ice-cream, 1 serve	811	37	24	17	10	148
Malted milkshake	2108	97	61	45	26	386
Mayonnaise, 1 tbsp.	386	18	11	8	5	71
Milk, 1 glass	697	32	20	15	9	128
Milk, skim, 1 glass	340	16	10	7	4	62
Milkshake	1768	81	51	38	22	324
Orange, medium	286	13	8	6	4	52
Orange juice, 1 glass	504	23	15	11	6	92
Pancake with syrup	521	24	15	11	6	95

	Kilojoules	Walking	Riding bicycle	Swimming	Running	Reclining
Peach, medium	193	9	6	4	2	35
Peas, green, 1 serve	235	11	7	5	3	43
Pie, apple, $\frac{1}{6}$	1584	73	46	34	19	290
Pizza, cheese, $\frac{1}{4}$	1512	70	44	32	18	276
Pork chop, loin	1319	60	38	28	16	242
Potato chips, 1 serve	454	21	13	10	6	83
Sandwiches: three rounds	2478	113	72	53	30	454
Hamburger	1470	67	43	31	18	269
Roast beef	1806	83	52	38	22	331
Tuna fish salad	1168	53	34	25	14	214
Shrimp, fried	756	35	22	16	9	138
Spaghetti, 1 serving	1663	76	48	35	20	305
Steak, T-bone	987	45	29	21	12	181
Strawberry shortcake	1680	77	49	36	21	306

Source: P. Russo, *Aussie Robics*, Summit Books, Sydney, 1978.

ACTIVITIES

1 Case studies

Read the **Case studies** worksheet in your Resources section and answer the questions.

2 Skipping challenge

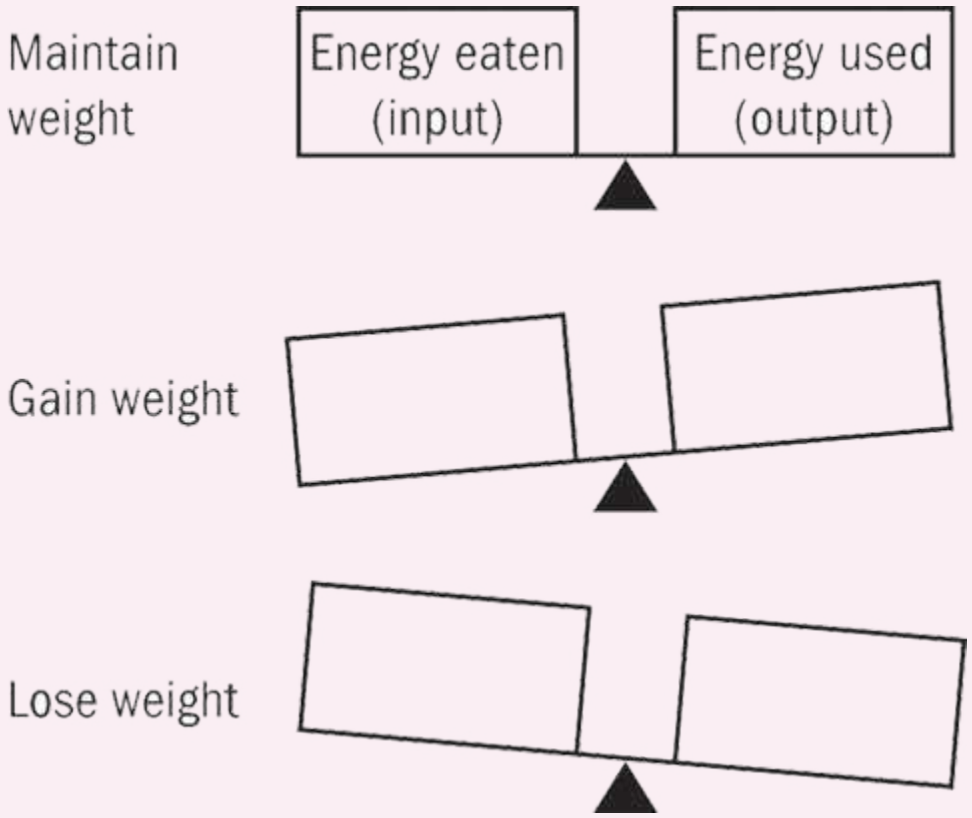
1. Using a skipping rope, complete as many skips as you can in one minute.
2. Record how you felt after you'd skipped for one minute.
3. Using a skipping rope, skip continuously for three minutes.
4. Record how you felt after three minutes of skipping.
5. Repeat steps 1−4, but run instead of skipping.
6. Using table 11.4 and your experiences, predict how many minutes of skipping would be required to burn off the kilojoules in a large apple, a hamburger and a milkshake.

3 Energy cost

1. Choose two of the activities from table 11.3 with significantly different energy costs and perform each for five minutes.
2. At the end of each activity, write a few sentences about how you felt, including:
    a. how hard you were breathing
    b. your pulse rate.
3. Discuss whether you think this table is an accurate measurement of energy cost. What does the table not take into account?

4 Scales

Complete the following diagrams by drawing the correct box on either side of the scales.



5 Your energy input and output

Use the **Input/output** worksheet in your Resources section to assist you to record your energy input and output over a 24-hour period.

CHECK & CHALLENGE

Explain

1. List three functions of the body which require energy.
2. Explain why skinfold measurements are a more accurate measure of body fat than BMI.

Evaluate

3. Review your daily energy input and output. Explain which of these, input or output, could be improved the most and suggest two ways in which you could make a change to ensure a healthy balance.

Elaborate

4. Suggest two ways, other than simply decreasing food intake, to address a positive energy balance.
5. In what order are nutrients used as energy sources within the body?
6. Which nutrients, if consumed in excess quantities, are converted to body fat? Where is body fat stored in the body?
7. Waist circumference is relatively new way of indicating healthy body weight. Discuss an advantage and disadvantage of this measurement.

on Resources

Try out this interactivity: Killer kilojoules
Searchlight ID: int-5516

Try out this interactivity: Snacking on kilojoules
Searchlight ID: int-5517

Complete this digital doc: Case studies
Searchlight ID: doc-14844

Complete this digital doc: Input/output
Searchlight ID: doc-14845

11.4 Factors influencing food choice

11.4.1 The foods we choose to eat are the result of many influences

The foods we choose to eat are the result of many influences. Some of these influences, such as advertising or culture, are easy to identify. Others, however, are more subtle. How do technological or socioeconomic factors affect your food choice?

ENGAGE

We all need to eat food in order to satisfy our hunger and sustain our bodies. The foods we choose depend considerably on our family, our personal likes and dislikes, and the way in which certain foods make us feel. Other factors, such as time, social activity and routine, also influence our personal choices.

Personal food requirements also differ according to age, gender and special circumstances. For example, children, pregnant women, the elderly and athletes all have special food needs. These needs are discussed in greater detail later in this chapter.

In small groups, discuss each of the following advertising slogans:

- Subway, eat fresh
- Red Bull gives you wings.

Think of as many food and drink slogans as you can. As a class, compile a list. Then discuss the types of foods being advertised, the intended market, and suggestions for disclaimers or additional messages needed in the advertisements to give a more balanced view of the products.

Many factors influence our choice of food.



DID YOU KNOW?

On average, Australians eat restaurant food four times a week.

11.4.2 What Australians are eating

Data from the 2011−13 National Nutrition and Physical Activity Survey (NNPAS) found the following:

- just 6.8 per cent of the population meet the recommended usual intake of vegetables
- 54 per cent meet the recommendations for usual serves of fruit
- more than one-third (35 per cent) of total energy consumed is from ‘discretionary foods’; that is, foods considered to be of little nutritional value and that tend to be high in saturated fats, sugars, salt and/or alcohol
- the proportion of energy from discretionary foods is highest among 14−18-year-olds (41 per cent)
- 31 per cent of our daily energy supply comes from fat, 18 per cent from protein and 45 per cent from carbohydrates.

11.4.3 Food habits of adolescents

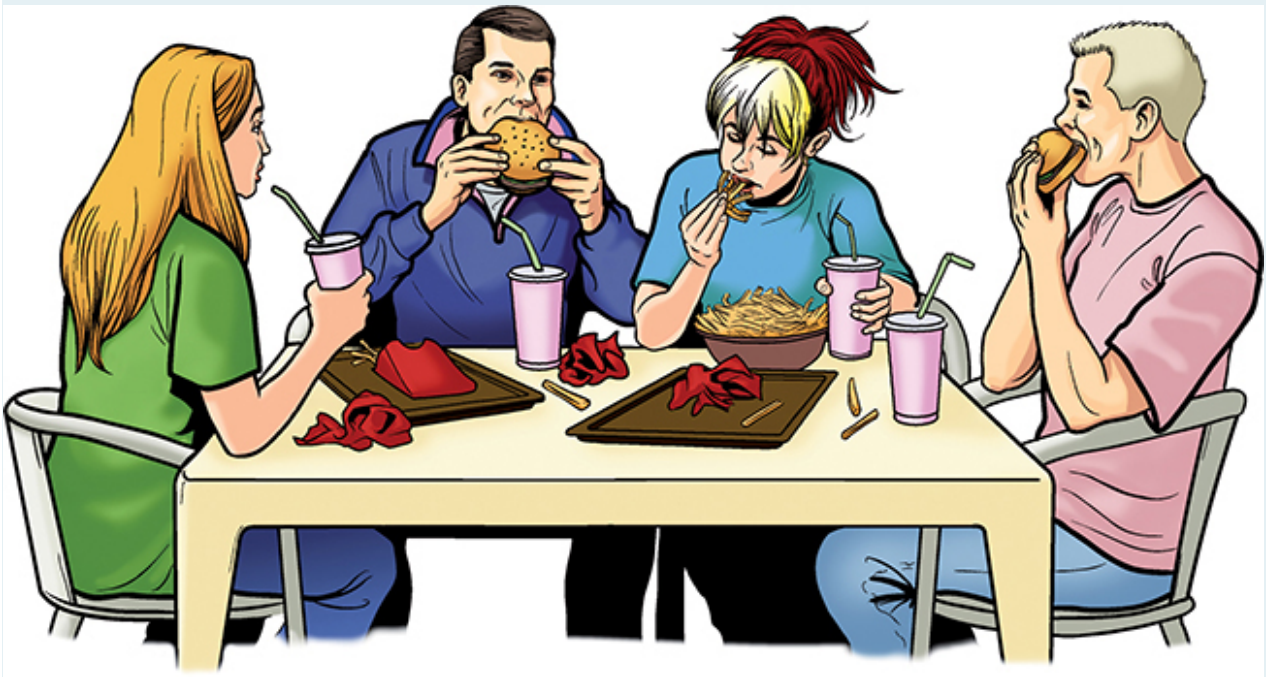
Some adolescent food intake facts are listed below.

- 15 per cent of males and 25 per cent of females regularly skip breakfast.
- Snacks provide approximately 25 per cent of total energy intake.
- Most snacks are high in fat or sugar.
- 25 per cent of the energy intake of Australian adolescents comes from sources such as soft drinks, takeaway foods, cakes and biscuits.
- 40 per cent of males and 47 per cent of females have a calcium intake of less than the **recommended dietary intake (RDI)**.
- 29 per cent of females have a daily iron intake of less than the RDI.
- 34 per cent of females and 13 per cent of males diet to lose weight.

TABLE 11.5: Factors affecting the food habits of adolescents

Sociocultural	Physical	Psychological	Political	Economic
• Customs • Social norms • Family habits • Food taboos • Peer group pressure • Advertising • Lifestyle • Educational level • Religious beliefs	• Appetite (hunger, thirst) • Tastes • Availability of foods • New technology • Seasonality of foods • Physical demands placed on the body (e.g. illness, growth)	• Comfort eating • Eating as a way of dealing with boredom and mood changes • Asserting independence, personal dislikes and likes • Self-image • Body image	• Pricing policies (e.g. government taxes on alcohol) • Marketing	• Income • Price • Time costs

Adolescent food choices are not always healthy, especially if they form a regular part of the diet.



11.4.4 Sociocultural factors influencing food habits

Educational levels

Knowledge is a very powerful tool in terms of changing behaviour, including maintaining a healthy diet. Many studies have linked lower levels of education to poor diet and many diet-related diseases. Basic knowledge about the vital nutrients (see section 11.1) and the ways in which they are measured are essential in attaining healthy food habits. Having knowledge about nutrients and kilojoules may allow you to understand food labelling better and thus make healthier choices.

Fast food outlets must display nutritional information about their products. This increased insight into the foods available should allow consumers to make better choices, but only if they can understand the measurements and what is recommended for a healthy diet. Increased educational levels can also lead to greater chance of employment and therefore greater income. Unfortunately, processed and fast foods are often considered cheaper options than fresh and healthier foods. Higher education levels have a high correlation with greater income, which is also linked to greater accessibility to healthier food options.

Peer group pressure

During your teenage years your peers are possibly most influential on the decisions you make. If you are surrounded by peers who engage in positive food habits it makes it easier for you to choose healthy choices. For example, if your friends carry a drink bottle around and regularly fill it up with water it makes it easier for you to do the same. If your friends enjoy fresh fruit for snacks you may share these with them. Similarly if your peers engage in negative food habits it can make it more difficult for you to make healthier choices; for example, meeting your friends at a fast food restaurant for lunch.

Family and cultural influences

Family and cultural background significantly influence the type and quantity of food we eat. Our families influence our food intake from the very beginning. In fact, eating and meal times often become a focus for family life.

Changes in family lifestyle over the last two to three decades have changed the eating patterns of Australians. These changes include:

- a decrease in the time spent preparing and eating meals as women and teenagers enter the paid workforce
- loss of cooking skills traditionally passed from mother to daughter
- the introduction of microwave ovens
- improvements in food technology to create food and meals with longer shelf lives; for example, frozen meals, dehydrated foods, simmer sauces, and canned and prepacked side dishes
- extension of shopping hours, allowing working people more access to food shopping
- an increase in the number of people eating out at fast food outlets and restaurants
- greater range and choice of food products as a result of our multicultural society.

Cultural background significantly shapes food choices and eating habits. People of different cultures eat different staple foods (for example, people of Asian background use rice in many meals), prepare foods differently and eat some foods that other cultural groups would consider strange.

Epidemiological studies have found that death rates from heart disease, some cancers and diabetes are significantly lower in populations with a Mediterranean diet than for those with other westernised dietary patterns So, what is a Mediterranean diet?

It has eight components:

Culture and gender influence our eating habits.



- lower intakes of saturated fats — these are found in meat and dairy foods
- moderate alcohol intake
- high consumption of legumes, such as chickpeas
- high consumption of plain cereal foods
- high consumption of fruits
- high consumption of vegetables
- low consumption of meat and meat products
- moderate consumption of dairy foods.

Research also emphasises the importance of nuts, seeds and fish in the Mediterranean diet.

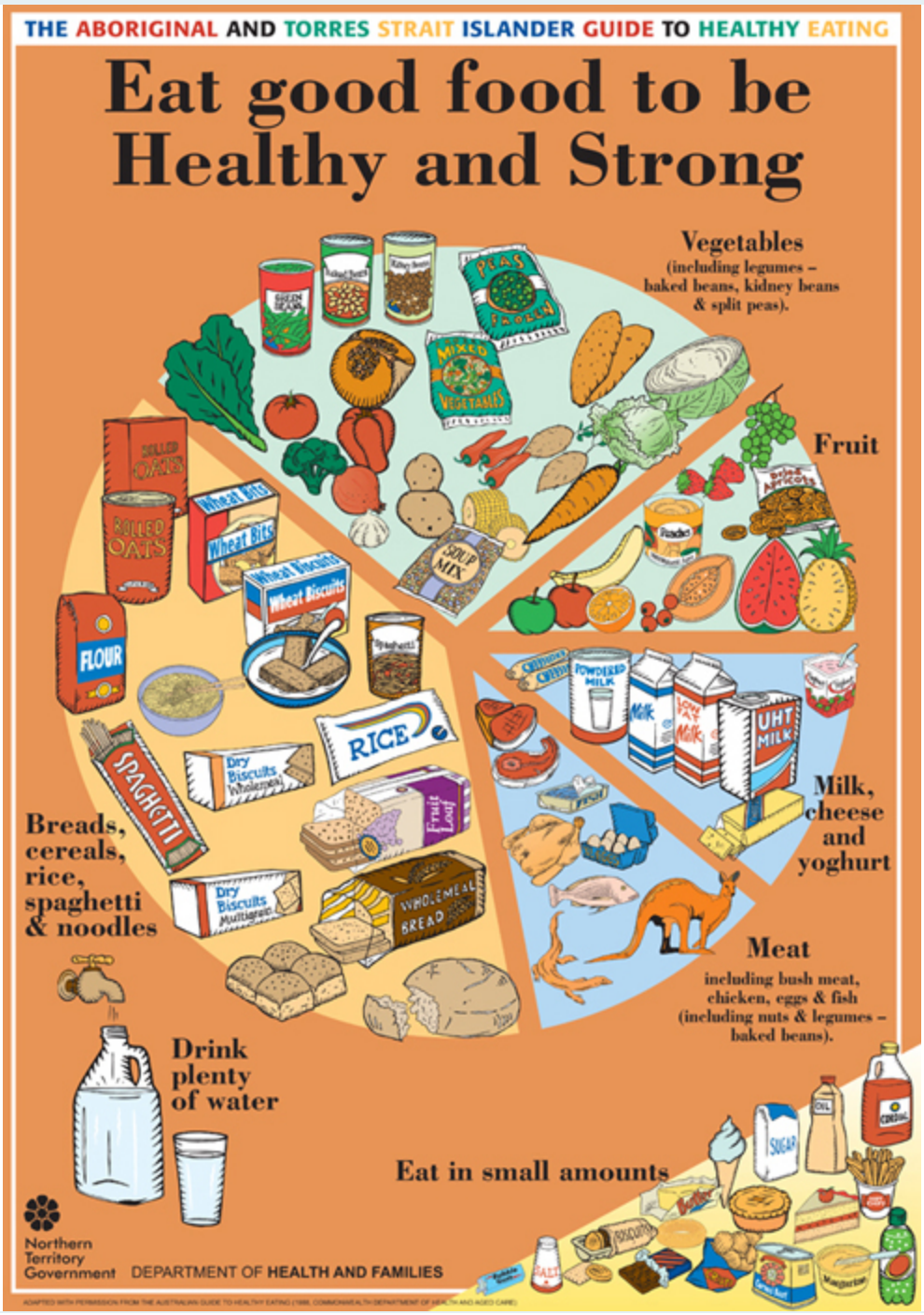
As Australia's diversity continues to expand, so does our understanding of an 'everyday Australian diet'. Many cultures have strong beliefs about foods that should be eaten in large amounts and foods that should be avoided. For example:

- people of Asian backgrounds often rely heavily on plant-based foods
- many Aboriginal peoples living traditional lifestyles value foods that can be hunted
- traditional African cooking uses many spices and herbs with a high intake of white meat and fish.

It can be challenging to both adhere to your cultural beliefs and achieve a healthy diet. One of the biggest challenges can be obtaining specific foods in Australia. This can lead to the use of substitutes, which are often processed or packaged and can be less nutrient-dense than the traditional fresh foods.

The Australian Government has recognised this, in particular the challenges faced by Aboriginal and Torres Strait Islanders, and has therefore released specific dietary requirements for these groups. An example of this can be seen in the poster shown below.

What is unique about these food recommendations?



Technological factors

Technological developments in the ways foods are processed, stored, packaged, transported and prepared have greatly influenced the type and variety of food that we eat.

Many foods can be purchased fresh, bottled, canned, frozen or dehydrated. Improvements in food processing and packaging, and transportation methods mean that food can now be transported over long distances and still retain its freshness and flavour. Foods that could once be purchased only when in season can now be bought year-round because of improved storage facilities and processes. The development of home appliances such as freezers, food processors and microwave ovens has also made meal preparation quicker and easier.

Physical factors

Availability of food

The availability of food significantly affects the choices you have and the choices you make. ‘Easy’ choices are often the quickest and cheapest. This can be a barrier to making healthy choices. For example, not many fruit and vegetables are readily available all year round. When they are out of season they can be harder to source and more expensive. Fast food outlets aim to make their food an easy option by being cheaper, faster and often available 24 hours a day.

Healthy choices are possible if you are prepared and knowledgeable.



Media advertising

Through both the electronic (television, radio, internet) and print (newspapers, magazines, billboards) media, we are subjected constantly to advertising that aims to influence our choice of food. The Australian food industry spends more than $1 million a day on advertising.

Food companies produce food and advertising aimed at particular demographics, often children and adolescents, who can be easily influenced by strong media campaigns. Special promotions and gimmicks are often part of a media campaign to promote particular products; for example, fast food promotion of meals that come with toys for children. Companies and products also often align themselves with special events or sports programs, such as sponsorship of professional sports teams.

These influences over our food choices do not always result in the adoption of healthy eating habits. For more information, use the **Junk food promoted through sports programs** weblink in your Resources section.

Psychological factors

Mood eating

Bored, tired or upset? Often the first thing you think you need is food. This is often referred to as comfort eating. Unfortunately in many cases your body does not need food, let alone foods high in sugar or fat. It is important that you understand your body and its needs to avoid ‘mood eating’ and the excessive kilojoules usually associated with this.

Economic factors

Price

As mentioned above, the availability of food influences many of our food choices. Unfortunately it can be cheaper to buy a large chocolate bar than an apple. Bottled water is often more expensive than soft drinks. However, if you plan ahead you can avoid price being a barrier to achieving good nutrition. Buying in bulk, bringing snacks from home and budgeting wisely can help ensure you can always access healthier options.

Time costs

Faster is not better. While eating regularly is healthier than skipping meals, choosing foods just because they are quick and easy is not always the best guide to healthy choices.

Again, being prepared and planning ahead may increase your choices of snacks and meals.

DID YOU KNOW?

Melbourne, in conjunction with Nutrition Australia, has implemented a program to promote healthy food choices. The program, known as Green Light, Eat Right, is a traffic light system that separates food and drinks into three categories:

- *Green* — healthier choice foods or everyday foods
- *Amber* — OK choice, these are 'select carefully' foods to be eaten only occasionally as they are mainly processed foods with added fats, sugar and salt
- *Red* — less-healthy foods, not to be actively promoted and to be eaten very rarely as they are not consistent with the Dietary Guidelines for Australians.

Resources

Explore more with these weblinks: Junk food promoted through sports programs

11.4.5 Making healthy choices the easier choice

There are a number of ways to make the healthy choice the easier choice and avoid the temptation of last-minute, 'there was nothing else' situations. Some simple suggestions include:

- carrying a drink bottle for water
- having healthy snacks available
- educating and informing those people around you about healthy food habits
- planning ahead so you have the time and money to access the healthier options
- knowing your body; for example, knowing when your body needs sleep and not food.

Healthier fast food options

While avoiding fast foods altogether is the best case scenario, it's important to know that you can make healthier options when eating out and about.

- **Keep your eye on portion size.** Any fries with that?
  Avoid supersized and value-sized items, no matter how much of a bargain they may seem. Go for the smallest size when it comes to burgers, fries and drinks. You can also find more reasonable portions on the children's menu.

- **Focus on grilled or roasted lean meats.** Grilled or fried?
  Avoid fried items, such as crispy chicken. Ask for grilled; many fast food outlets will cater for this. Choose turkey, chicken breast, lean ham, or lean roast beef instead.
- **Pay attention to the descriptions on the menu.** Knowledge is the key.
  Foods labelled as deep-fried, pan-fried, creamy and crispy are usually high in calories, saturated fats and sodium.
- **Don't assume that healthy-sounding dishes are always your best option.** Salads can be bad.
  For example, many fast food salads are smothered in high-fat dressing. Choose your condiments wisely. This is where reading the nutrition facts before you order can make a huge difference.
- **Choose your drinks wisely.** Juices are not always the healthier option.
  Where possible, the best option is water. Soft drinks are full of kilojoules, as are fruit juices and milkshakes.

Other practical diet ideas for teenagers — a checklist

Do you follow each of these suggestions?

- Trim visible fat from meat.
- Spread butter or margarine thinly.
- Drink low-fat milk that is high in calcium.
- Eat fast foods only occasionally.
- Select high-fibre foods containing complex carbohydrates for main meals and snacks (for example, fresh fruit, vegetables, pasta, rice, cereals and bread).
- Exercise regularly.
- Do not diet, especially fad or crash diets.
- Do not skip meals, especially breakfast.
- Keep iron levels up by eating lean meat, chicken, fish, dark green vegetables, iron-enriched breakfast cereals, lentils and beans.
- Ensure adequate calcium intake by eating yoghurt, cheese, nuts, seeds, dark green vegetables and calcium-enriched breakfast cereals.

ACTIVITIES

1 Advertise

1. Survey the television advertisements on a weeknight over a three-hour period. List all the advertisements that relate to food and drink.
2. For each advertisement, identify:
    a. the product being advertised
    b. the target market
    c. the main selling point (for example, good for your health).
3. Categorise the type of food or drink advertised into the following groups: health food, sweets and confectionery, fresh food and takeaway food.
4. Present your results as a graph.
5. What types of food or drink are most advertised? What types are least advertised? Give possible reasons for this.

2 It's your turn

1. With a partner, plan and design an effective advertisement to promote a healthy snack available from your school canteen.
2. Your advertisement may be for a magazine or newspaper, billboard, radio or television.
3. Design a food label for your product. You may need to research professional food labels and identify the elements or components of an effective label.

3 Snacking

1. Use the **My weekly food intake** worksheet in your Resources section to keep a record of all the snacks you have over two days. Note when you snacked and what you ate or drank. Using the information in this chapter, describe:
    a. the foods you should eat more as snacks
    b. the foods you should eat less as snacks. Suggest an alternate healthier snack for any snacks that would be considered 'poorer' options (for example, any food/drinks high in saturated fat, sugar and salts).
2. How could you adjust your snacking habits?
3. Outline three ways in which you could adjust your snacking habits.

4 Case studies

Explain the significance of each of the following factors on the nutrition and eating habits of young people today. Describe both the positive and negative aspects in each case.

- Cultural or ethnic group
- Families where both parents work
- Pre-packaged foods
- 24-hour shopping
- Restaurants and fast food outlets
- The media

5 Food influences

Use the **Food influences** worksheet in your Resources section to investigate your eating habits and influences.

6 Healthy canteen

1. Evaluate your school canteen's menu using the **Green light, eat right** weblink in your Resources section.
2. Create a poster or prepare a speech for assembly to educate your school community about the healthier choices available at your canteen.

7 Teen tips

1. Refer to the practical dietary checklist for teenagers and pick five suggestions that would assist you to improve your diet.
2. Use these ideas to create a poster advising teenagers on how to eat healthily.

CHECK & CHALLENGE

Explain

1. List five factors affecting adolescent food choice.
2. How many of the characteristics of adolescent food habits are common to you?

Evaluate

3. When are you most likely to make poor nutritional decisions? Why? How could you avoid these in the future?

Elaborate

4. Outline three instances when you have purchased a food item or drink because of the influence of media advertising. In each case, name the food or drink, and outline the advertisement that influenced you.
5. How can you make healthy takeaway choices?
6. How can schools encourage students to not skip breakfast? Why should they do this?

on Resources

Complete this digital doc: My weekly food intake
Searchlight ID: doc-15346

Complete this digital doc: Food influences
Searchlight ID: doc-14846

Explore more with these weblinks: Green light, eat right

11.5 Food models for good health

11.5.1 Knowledge for health

Having knowledge about the different nutrients and their food sources will take you one step closer to having a healthy diet. The next challenge is understanding how much of these nutrients your body needs daily. Fortunately, a number of food models provide guides for nutrients and their sources.

ENGAGE

The Australian Guide to Healthy Eating (AGHE) provides the benchmark for a healthy diet. The AGHE recommends the daily selection of a specific number of serves from the five core or healthy food groups. These are:

- fruit
- vegetables
- plain bread and cereals
- milk and dairy
- meat and meat alternatives.

Do you eat food from each of the five food groups? How many serves do you have from each of the five food groups each day?

The AGHE recommends that intake of non-core or unhealthy foods that are high in salt, fat, sugar and kilojoules, and low in essential nutrients, should be limited. This will help you maintain a healthy body weight, prevents high levels of blood fats and reduces blood pressure.

Use the **Healthy eating pyramid** weblink in your Resources section to access the Nutrition Australia website. What is the purpose of the healthy living pyramid, and what does it encourage people to do? Make a list of the limitations of the healthy living pyramid; what does it not do or not explain?

Following recommended dietary guidelines is good for both your mental and physical wellbeing.



on Resources

Explore more with these weblinks: Healthy eating pyramid

11.5.2 The dietary guidelines

The Australian Dietary Guidelines were updated in 2013 and provide a very comprehensive guide to achieving good nutrition. The guidelines are based on significant research and not only outline general tips for a better diet, but also specific information regarding serving numbers and size.

There are five general guidelines, as described below.

Guideline 1

To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.

- Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.

Guideline 2

Enjoy a wide variety of nutritious foods from these five food groups every day.

- Plenty of vegetables of different types and colours, and legumes/beans
- Fruit
- Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of 2 years)

And drink plenty of water.

Guideline 3

Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.

a. Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crips and savoury snacks.
    - Replace high-fat foods which contain predominately saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominately polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.
    - Low-fat diets are not suitable for children under the age of 2 years.

A good strategy to limit consumption of foods low in essential nutrients is to think of them as treats.



b. Limit intake of foods and drinks containing added salt.
    - Read labels to choose lower sodium options among similar foods.
    - Do not add salt to foods in cooking or at the table.

c. Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

Guideline 4

Encourage, support and promote breastfeeding.

Guideline 5

Care for your food; prepare and store it safely.

These guidelines are very general and targeted at the whole population, particularly adults.

DID YOU KNOW?

In 2011−12, 48.5 per cent of Australians aged 18 years and over reported that they usually ate two or more serves of fruit per day (meeting the guidelines), while 8.2 per cent usually ate five or more serves of vegetables per day (meeting the guidelines).

In order to help all Australians, including teenagers, achieve better nutrition, very specific information about how many serves of each of the major food groups are recommended for good health have also been released. This information includes different guidelines for males and females and for different age groups.

TABLE 11.6: Dietary guidelines — serving sizes for adolescents

Recommended average daily number of serves from each of the five food groups*						Additional serves for more active, taller or older children and adolescents
	Vegetables & legumes/ beans	Fruit	Grain (cereal) foods, mostly wholegrain	Lean meat and poultry, fish, eggs, nuts and seeds, and legumes/ beans	Milk, yoghurt, cheese and/or alternatives (mostly reduced fat)	Approx. number of additional serves from the five food groups or discretionary choices
Toddlers**						
1–2	2–3	½	4	1	1–1½	
Boys						
2–3	2½	1	4	1	1½	0–1
4–8	4½	1½	4	1½	2	0–2½
9–11	5	2	5	2½	2½	0–3
12–13	5½	2	6	2½	3½	0–3
14–18	5½	2	7	2½	3½	0–5
Girls						
2–3	2½	1	4	1	1½	0–1
4–8	4½	1½	4	1½	1½	0–1
9–11	5	2	4	2½	3	0–3
12–13	5	2	5	2½	3½	0–2½
14–18	5	2	7	2½	3½	0–2½

Recommended average daily number of serves from each of the five food groups*						Additional serves for more active, taller or older children and adolescents
	Vegetables & legumes/ beans	Fruit	Grain (cereal) foods, mostly wholegrain	Lean meat and poultry, fish, eggs, nuts and seeds, and legumes/ beans	Milk, yoghurt, cheese and/or alternatives (mostly reduced fat)	Approx. number of additional serves from the five food groups or discretionary choices
Pregnant	5	2	8	3½	3½	0–3
Breastfeeding	5½	2	9	2½	4	0–3

*Includes an allowance for unsaturated spreads or oils, nuts or seeds (½ serve [4.5 g] per day for children 2–3 years of age, 1 serve [7–10 g] per day for children 3–12 years of age; 1½ serves [11–15 g] per day for children 12–13 years, and 2 serves [14–20 g] per day for adolescents 14–18 years of age and for pregnant and breastfeeding girls).

**An allowance for unsaturated spreads or oils or nut/seed paste of 1 serve (7–10 g) per day is included. Whole nuts and seeds are not recommended for children of this age because of the potential choking risk.

Having knowledge empowers people to make healthy choices. While the general guidelines and table 11.6 provide some insight into how many serves of each food group you should consume each day, many people do not gain the full benefits of following this guide as they do not understand what is meant by a serve. This is by far the biggest challenge in terms of understanding the food you are eating as it changes for each food, will depend on how it is cooked and can be difficult to measure.

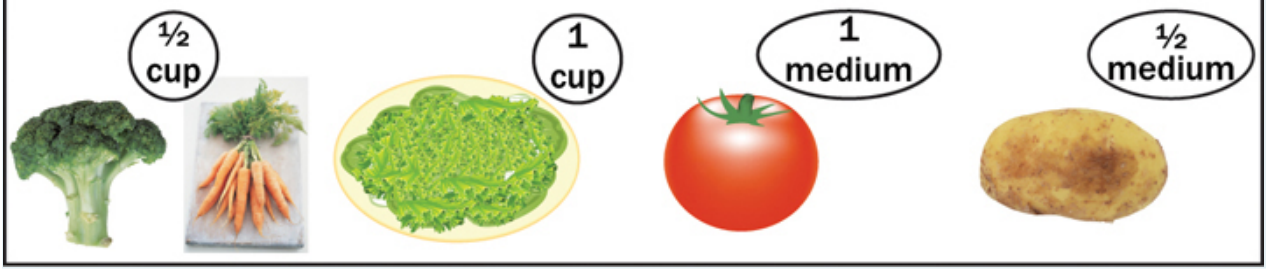
In order to ensure that all Australians have access to information to allow them to make healthy choices, the Australian Dietary Guidelines group have also produced a guide on what makes up a serve for each food group, as shown below.

What makes a serve?

How much is a serve of vegetables?

A standard serve is about 75 g (100–350 kJ) or:

½ cup	cooked green or orange vegetables (e.g. broccoli, spinach, carrots or pumpkin)
½ cup	cooked dried or canned beans, peas or lentils
1 cup	green leafy or raw salad vegetables
½ cup	sweetcorn
½ medium	potato or other starchy vegetables (sweet potato, taro or cassava)
1 medium	tomato



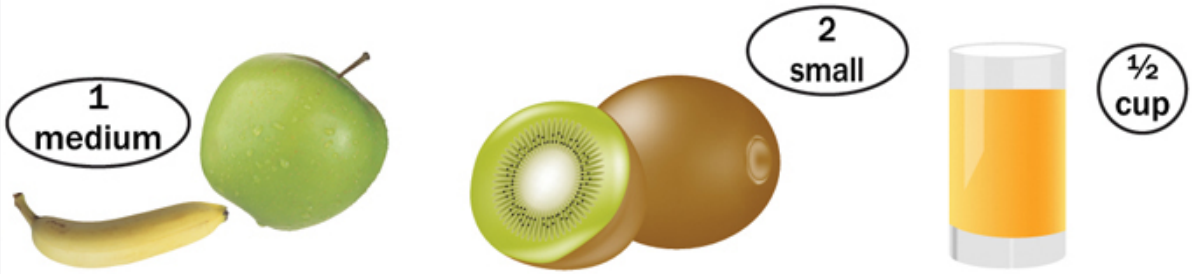
How much is a serve of fruit?

A standard serve is about 150 g (350 kJ) or:

1 medium	apple, banana, orange or pear
2 small	apricots, kiwi fruits or plums
1 cup	diced or canned fruit (no added sugar)

Or occasionally:

125 mL (½ cup)	fruit juice (no added sugar)
30 g	dried fruit (e.g. 4 dried apricot halves or 1½ tablespoons of sultanas)

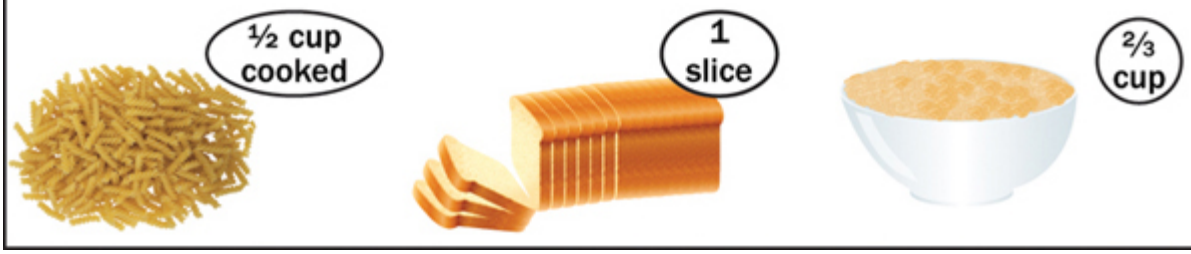


How much is a serve of grain (cereal) food*?

A standard serve is about 500 kJ or:

1 slice (40 g)	bread
½ medium (40 g)	roll or flat bread
½ cup (75–120 g)	cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa
½ cup (120 g)	cooked porridge
2/3 cup (30 g)	wheat cereal flakes
¼ cup (30 g)	muesli
3 (35 g)	crispbreads
1 (60 g)	crumpet
1 small (35 g)	English muffin or scone

**Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties*



How much is a serve of lean meat and poultry, fish, eggs, nuts and seeds, and legumes/beans*?

A standard serve is about 500–600 kJ or:

65 g	cooked lean red meats such as beef, lamb, veal, pork, goat or kangaroo (about 90–100 g raw)
80 g	cooked lean poultry such as chicken or turkey (100 g raw)
100 g	cooked fish fillet (about 115 g raw) or 1 small can of fish
2 large (120 g)	eggs
1 cup (150 g)	cooked or canned legumes/beans such as lentils, chickpeas or split peas*
170 g	tofu
30 g	nuts, seeds, peanut or almond butter, tahini or other nut or seed paste*^

**Choose those with no added salt. ^Only to be used occasionally as a substitute for other foods in the group*



How much is a serve of milk, yoghurt, cheese and/or alternatives*?

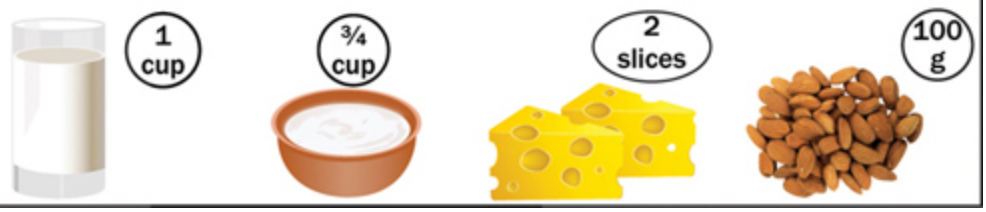
A standard serve is about 500–600 kJ or:

1 cup (250 mL)	fresh, UHT long-life or reconstituted powdered milk or buttermilk
½ cup (120 mL)	evaporated milk
2 slices (40 g)	4 x 3 x 2 cm cube (40 g) hard cheese, such as cheddar
½ cup (120 g)	ricotta cheese
¾ cup (200 g)	yoghurt
1 cup (250 mL)	soy, rice or other cereal drink with at least 100 mg added calcium per 100 ml

**Choose mostly reduced fat*

The following foods contain about the same amount of calcium as a serve of milk, yoghurt, cheese:

100 g	almonds with skin
60 g	sardines, canned in water
½ cup (100 g)	canned pink salmon with bones
100 g	firm tofu (check the label as calcium levels vary)



As the Australian Dietary Guidelines are very comprehensive, the Australian Government also released the Australian Guide to Healthy Eating. This visual representation is based on the same research as the Australian Dietary Guidelines but is presented in a more succinct way.

The guide is easy to understand and clearly shows the recommended proportions of the five major food groups, including water (see below).

Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.

Drink plenty of water.



Vegetables and legumes/beans

Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties

Fruit

Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans

Milk, yoghurt, cheese and/or alternatives, mostly reduced fat

Use small amounts



Only sometimes and in small amounts



11.5.3 The healthy eating pyramid

The healthy eating pyramid is a simple, effective guide to food choice that was developed by the Australian Nutrition Foundation. In this model, foods are classified into four main groups according to the proportions in which they should be included in the diet, as shown in the following figure.

The pyramid shows us how we can make the dietary guidelines work in a practical sense. The reference to enjoying a variety of food and being active every day emphasises the importance of being active as well as having a healthy diet. The foods we should eat the most are cereals, bread, vegetables, legumes and fruit. We should eat moderately from the groups of foods including oils, meat and dairy products. We should limit salt and sugar and eat small amounts of healthy fats, such as olive oil. We should choose to drink water instead of soft drinks. Unfortunately, many Australians have a diet rich in sugars and fats, and containing little fruit and vegetables; their pyramid is turned upside down!

The healthy eating pyramid



11.5.4 Calcium and iron intake

These minerals are extremely important for growth and development in adolescents. Table 11.7 indicates the number of serves of common foods required each day to meet the recommended daily intake of calcium and iron for adolescents.

TABLE 11.7: Food sources of calcium and iron

Mineral	Food source	Serves required per day
Calcium • Girls (RDI): 800–1000 mg • Boys (RDI): 1000–1200 mg	• Whole milk • Fruit yoghurt • Ice-cream • Baked beans • White bread	• 1 cup • $1\frac{1}{5}$ tubs • $9\frac{1}{2}$ level scoops • $3\frac{1}{5}$ cups • 20 slices
Iron • Girls and boys (RDI): 10–13 mg	• Beef • Chicken • Tuna • Wholemeal bread • White bread • All Bran cereal • Weeties • White rice • Whole milk • Soy milk	• $\frac{1}{2}$ cup • $\frac{1}{2}$ chicken • $1\frac{1}{5}$ cups • $4\frac{1}{3}$ slices • 10 slices • $\frac{1}{2}$ cup • 3 cups • 5 cups • 30 cups • $2\frac{1}{2}$ cups

Source: National Health and Medical Research Council (1995), *Dietary guidelines for children and adolescents*.

A healthy intake of calcium now while you are young will help prevent osteoporosis when you are older.



DID YOU KNOW?

In the most recent Australian National Children's Nutrition and Physical Activity Survey, it was found that 61 per cent of children aged 4–8 eat the recommended serves of fruit per day but only 1 per cent of 14–16 year olds eat this amount.

ACTIVITIES

1 Comparing food models

1. In pairs, discuss the Dietary Guidelines, the Australian Guide to Healthy Eating, and the Healthy Eating Pyramid food models.
2. For each of the food models discuss two advantages and two disadvantages.
3. Which model would be most beneficial in a secondary school? Justify your response.
4. Research whether different versions are available for each of the models. Are there modified versions for different population groups or cultures? If so, how do they differ? Explain why you think the different versions are needed.

2 Create a model

1. Collect a menu from your canteen.
2. Create a pie chart or pyramid that clearly classifies the foods available in the canteen.
3. Using one of the models, create a daily food plan including foods available from your canteen.

3 Analysing snack options

Use the **Analysing snack options** worksheet in your Resources section to compare your current eating patterns with what is recommended for you.

4 Set some goals

Use the dietary guidelines and dietary models supplied in this chapter to decide on three changes to your personal eating habits. Write these down and make a commitment to them.

5 How does your diet rate?

1. Write down everything you have eaten in the past 24 hours. Be honest.
2. Use one of the dietary models outlined in this section to organise and categorise the food you have eaten.
3. Use the data you have collected to complete the tables and answer the questions in the **Check your diet** worksheet in your Resources section.

CHECK & CHALLENGE

Explain

1. Describe the purpose of food models.
2. Explain what is meant by the term ‘sample serve’.
3. Explain how the food models could be used in the following environments to have a positive impact on eating habits.
    - School
    - Home
    - Workplaces
    - Community
4. Why is an understanding of what constitutes a serve important?

Evaluate

5. How could you change your current diet to match the AGHE recommendations for healthy eating?

Elaborate

6. Think of reasons for the changing nutritional needs as people move through each life span stage.
7. What are some lifestyle changes that might make it difficult to maintain a healthy diet? List some solutions to overcome these difficulties.

on Resources

Complete this digital doc: Analysing snack options
Searchlight ID: doc-15349

Complete this digital doc: Check your diet
Searchlight ID: doc-15347

11.6 Preventing diet-related diseases

11.6.1 Impacts of being overweight

One of Australia's dominant health issues relates to the link between being overweight and chronic health conditions such as type 2 diabetes, coronary heart disease and high blood pressure. Childhood obesity is of particular concern and has become a focus for local and state government initiatives to help reduce its incidence.

ENGAGE

Use the weblinks in your Resources section to visit one or more government health websites.

- List some informative facts relevant to diet and nutrition.
- Describe one strategy that aims to address the current trend towards unhealthy nutrition habits of Australians.
- How does this site inform you about healthy lifestyle choices?

What can the government do to improve your eating habits?



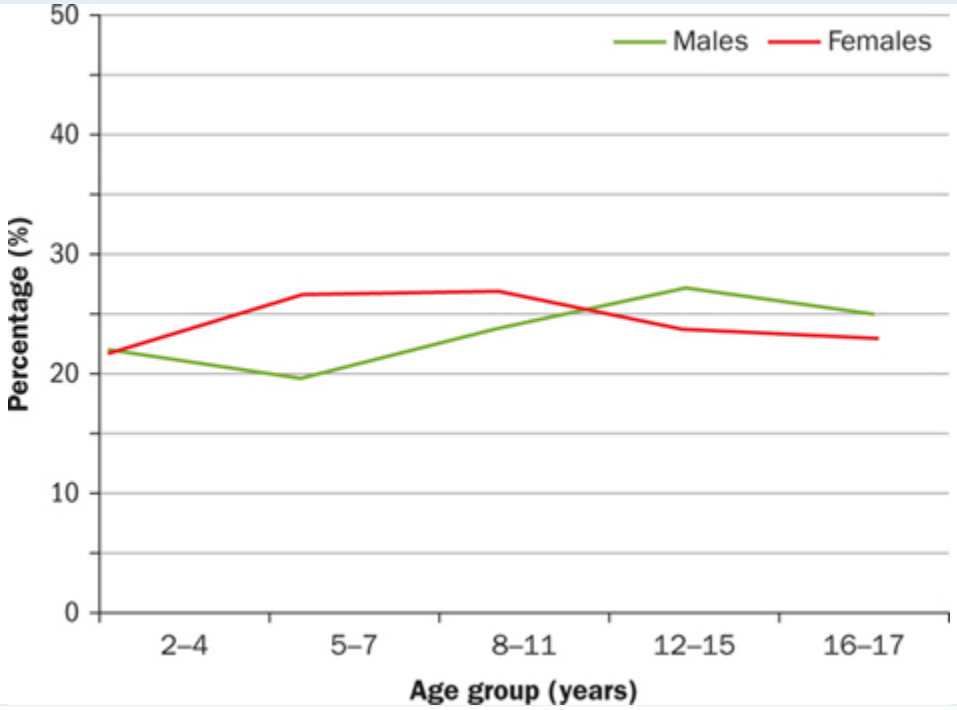
on Resources

- **Explore more with these weblinks:** ABC Health
- **Explore more with these weblinks:** Better Health
- **Explore more with these weblinks:** Food Standards Australia New Zealand
- **Explore more with these weblinks:** Exercise for children

11.6.2 Diet and obesity

The data shown in the following figure indicates the percentage of young people at or above healthy BMI indicators, with overweight being a score between 25 and 30 and obese being 30 or more. The rate of overweight children aged between 2 and 17 years is highest for the 12–15 year old age group at 26.6 per cent. The rate of overweight or obesity has remained stable since 2008 when it was 24.7 per cent; in 2001–12 the figures rose very slightly to 25.1 per cent. Figures were not significantly different between boys and girls.

Children aged 2 to 17 years — proportion who were overweight or obese by sex (a) 2011–12



11.6.3 Diet-related diseases and disorders

Obesity

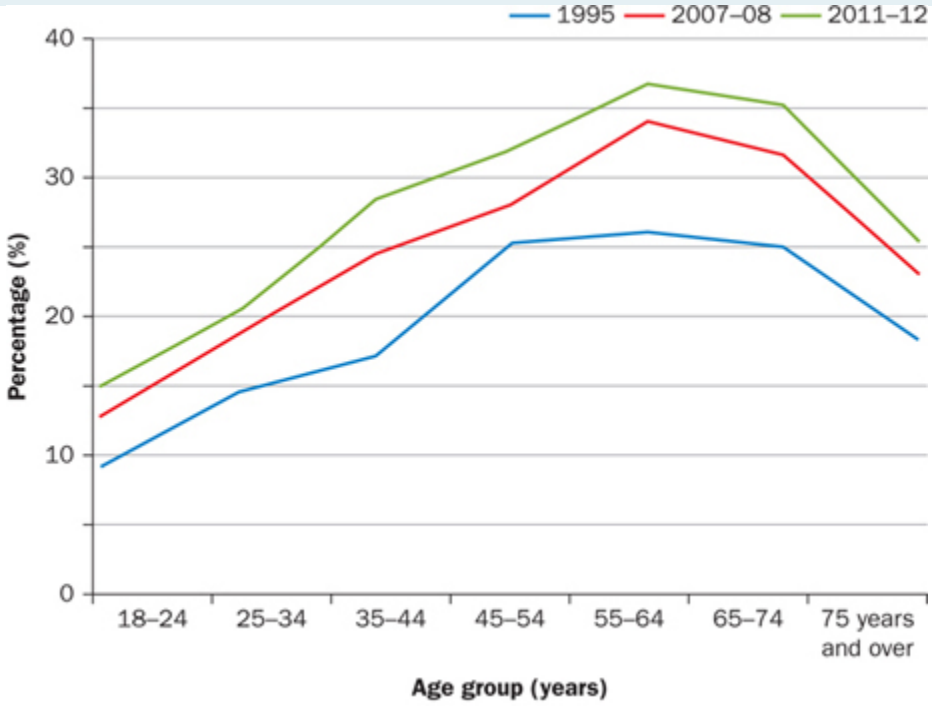
The rate of overweight and obesity among Australian adults is rising. For Australian children aged 5−17 years, the proportion of overweight and obese children increases as the age group increases.

From 1985 to 1995, the number of overweight 7−15 year olds almost doubled. The number of obese children has more than tripled. At the current rate, it is predicted that one-third of young Australians will be overweight or obese by 2025.

Obesity has many negative immediate health implications:

- poor social health, including a reluctance to mix with others due to embarrassment
- increased risk of other diseases, particularly type 2 diabetes.

Prevalence of overweight and obesity in Australian adults, 1995–2012



Note: Based on body mass index for persons whose height and weight was measured.

High blood pressure

Diets high in fat and salt content have been linked with **high blood pressure**. As previously mentioned, being overweight or obese can also lead to high blood pressure. High blood pressure is a major risk factor in heart disease. People with high blood pressure have up to four times the risk of heart disease.

Coronary heart disease

Coronary heart disease is one type of cardiovascular disease. Coronary heart disease is the largest cause of death for men and women in Australia and is responsible for more than one death every 20 minutes.

Coronary heart disease is related to the clogging and narrowing of coronary (heart) arteries due to the build-up of fatty deposits — atherosclerosis. This is a condition in which the artery walls thicken, harden and lose their elasticity. Once an artery is partially blocked, symptoms of heart disease occur. These range from angina to heart attack. High-saturated fat diets, being overweight or obese and elevated blood pressure all increase the risk of coronary heart disease.

Type 2 diabetes

In type 2 diabetes, the pancreas makes some insulin, but not enough to allow your body to work effectively. Type 2 diabetes results from a combination of genetic and environmental factors. Lifestyle factors contributing to the onset of type 2 diabetes include:

- high blood pressure
- being overweight or obese
- insufficient physical activity
- poor dietary or eating habits
- high cholesterol
- excess fat around the waistline
- cigarette smoking.

As you get older, the risk of contracting type 2 diabetes increases. Overweight people over the age of 45 with high blood pressure have an increased risk. Type 2 diabetes may be reversed or delayed by following some basic guidelines.

- Maintain or return to a healthy body weight.
- Undertake regular physical activity as recommended by the National Physical Activity Guidelines for Australians (refer to chapter 5 for more details).
- Make healthy food choices.
- Manage blood pressure.
- Manage cholesterol levels.
- Do not smoke.

Use the **Diabetes Australia** weblink in your Resources section to further investigate type 2 diabetes.

Colon cancer

The latest World Cancer Research Foundation (WCRF) Report in 2007 indicated that a combination of poor diet, physical inactivity and overweight and obesity — that is, poor diet and lifestyle — cause one-third of the world's cancer burden. Poor diet contributes to as much as 75 per cent of colorectal cancer and stomach cancers, and together these two cancers led to more than 2.3 million new cases worldwide in 2012.

Diets high in fat predispose humans to colorectal cancer. In countries with high colon cancer rates, the fat intake in the diet is much higher than in countries with low cancer rates.

Other contributing factors include:

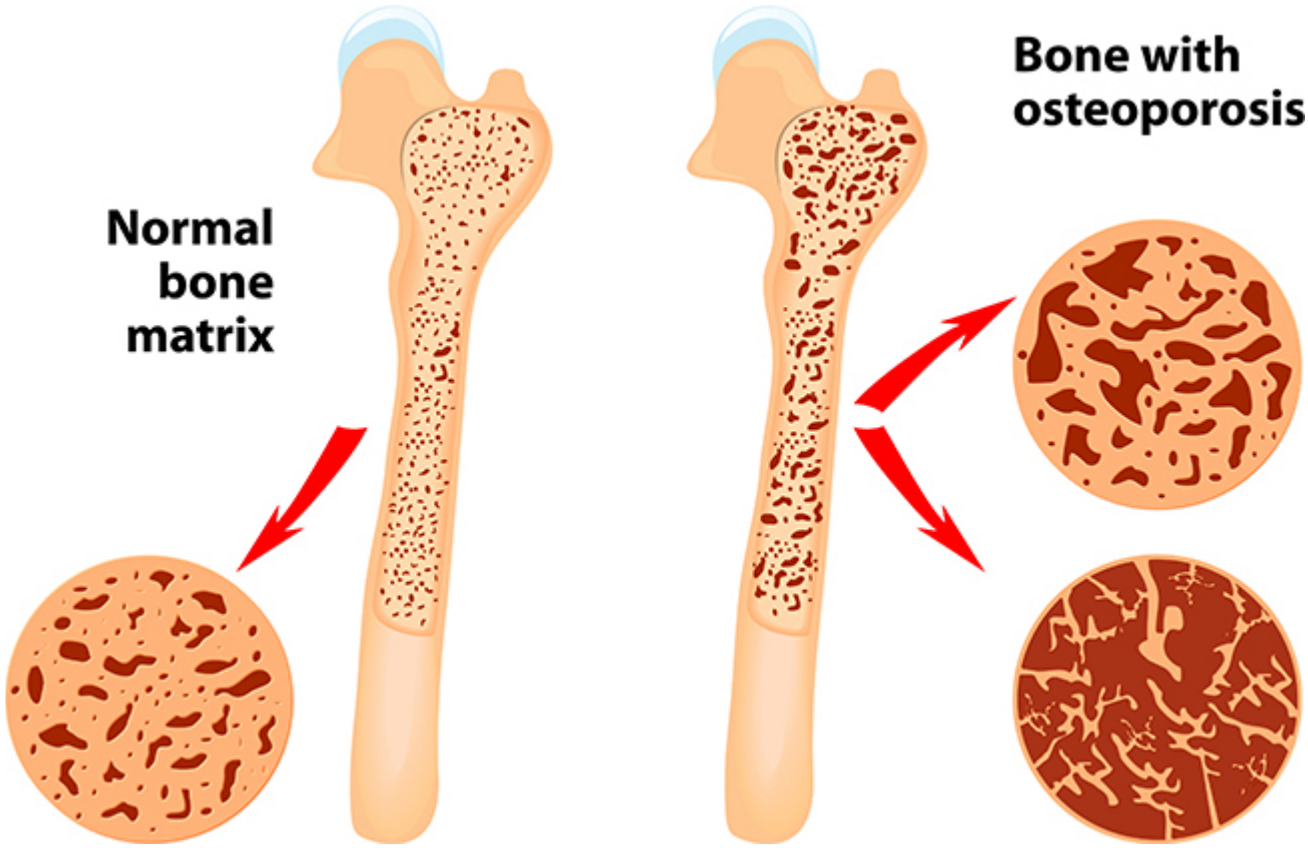
- age — as people age, the risk of contracting colon cancer increases
- diabetes — research has shown that diabetics are up to 40 per cent more likely to develop colon cancer than people who do not have diabetes
- a low-fibre diet
- overweight and obesity
- smoking cigarettes.

A report released by the George Institute of International Health in Sydney shows that people who are obese have a 20 per cent greater risk of developing colon cancer than people within healthy weight ranges. The report also states that for every 5 kg of weight gain above recommended levels, the risk of developing the cancer increases by 7 per cent.

Osteoporosis

Osteoporosis is caused by a thinning of the bones due to reduced calcium salts in the bone structure. It often results in bone fractures and deformities in older people. Women are more susceptible to osteoporosis than men because their bone mass is about 30 per cent less than that of males, at any age. Additionally, menopause results in women losing calcium from their bones at a much greater rate than men.

Research has shown that low calcium intake during childhood, adolescence and early adulthood is one of the principal factors implicated in the cause of osteoporosis. More information about osteoporosis is provided in chapter 8.



Anorexia nervosa and bulimia nervosa

These eating disorders, although classified as separate illnesses, have many common features and symptoms. Patients of both conditions display excessive and inappropriate food restriction; they experience a distorted body image, seeing themselves as fat even when they are dangerously thin.

The most likely individuals to develop either condition are females in their teens and early twenties, although males and older women can also develop the disorders. Young women often think they are too fat, even when they are not. Almost three-quarters of women say they would like to be lighter, with teenage girls being the most fat-conscious group in Australian society. Many diet and, often, those dieting are not overweight to begin with. Unfortunately, some girls who begin dieting cannot stop and continue until they develop these eating disorders.

The typical behaviour pattern of someone with **anorexia nervosa** involves severe restriction of food intake, coupled with excessive activity and exercise as part of an insatiable desire to lose weight. In extreme cases, the person may even diet themselves to death.

A person suffering **bulimia nervosa** becomes unhappy with their body weight and shape and starts to diet. This develops into a pattern or cycle of starving, **binge eating**, and vomiting or purging.

Both of these conditions have noticeably increased in prevalence in recent decades. Reasons for this increase are not fully known; however, there is no doubt that, within this time span, increasing pressure has been placed on women by the fashion industry and the media. Beauty and success are equated with a slender figure. Other pressures have come from the fitness and health industries, whose advice may be taken to unhealthy extremes by susceptible individuals.

on Resources

Explore more with these weblinks: Diabetes Australia

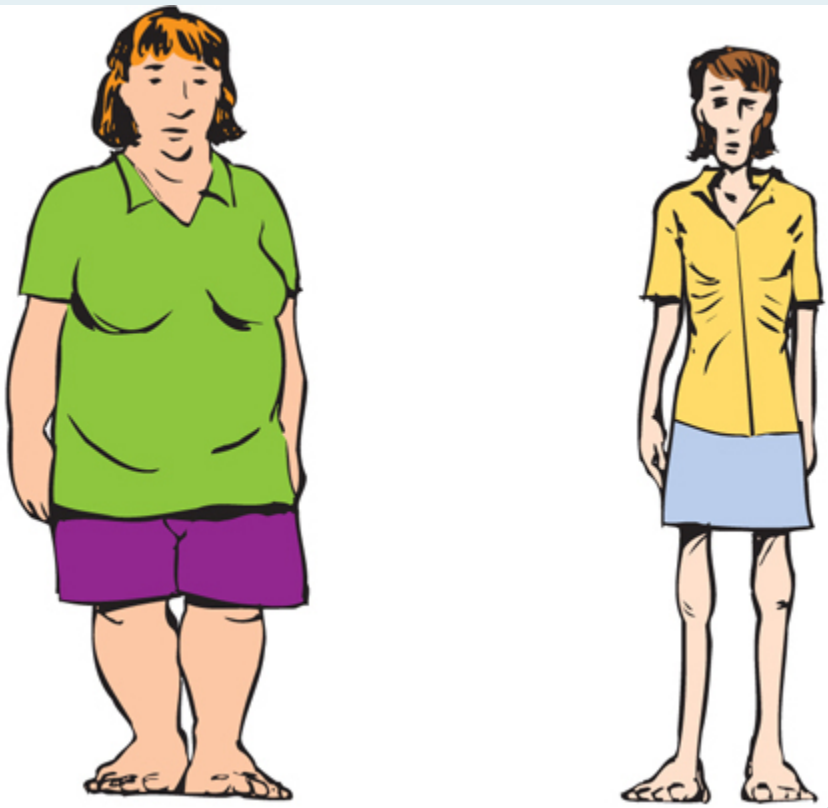
11.6.4 Sensible weight control

The major steps that we can take to prevent and control these types of dietary disease and disorder are sensible diet, regular physical activity and a healthy lifestyle. Where there is a genuine need for weight loss, the following guidelines should be followed.

- Follow a well-balanced, high-carbohydrate, low GI, high-fibre diet with minimal fat and small protein serves.
- Decrease consumption of refined sugars and alcohol.
- Plan regular exercise and activity. Coupled with balanced eating, this is the most effective way to lose weight.
- Set sensible and attainable goals and avoid obsessive weight loss. There is no quick way to lose weight. A recommended safe weight loss is about 0.5 to 1.0 kg per week.

Permanent changes to lifestyle are required to achieve and maintain weight control. Once your target weight is reached, continue with sensible eating and exercise habits. Most fad or **crash diets** widely published in the media do not work because they do not provide strategies that may be followed for the rest of your life. While many of these diets are nutritionally sound, they are often unbalanced and not suitable as a lifetime diet. Some diet programs exclude whole food groups or work on the basis of rapid fluid loss rather than fat loss.

Sensible weight control can avoid the extremes of obesity and anorexia.



on Resources

Explore more with these weblinks: Weight loss television shows

11.6.5 Strategies to prevent diet-related diseases

Australia currently spends 70 per cent of health funding to treat chronic diseases and this is forecast to grow to 80 per cent by 2020. To reverse this trend and thus relieve the burden of higher health care costs and productivity losses, the prevention of chronic disease through lifestyle modification is essential.

The growing importance of health promotion has been recognised and all state governments and territories have agreed to use Commonwealth funding and dedicated funding from their own budgets to:

- promote healthy lifestyles
- support early detection of lifestyle risks and chronic disease
- support lifestyle and risk modification

- encourage active self-management of chronic disease.

About one-third of all chronic disease has been attributed to changes in avoidable risk factors such as:

- smoking
- high alcohol use
- physical inactivity
- poor diet
- excess weight
- high blood pressure
- high blood cholesterol.

These risk factors have grown in importance because of changes in society and how people have responded to these changes.

Initiatives currently in place

The federal government has put in place some initiatives to help promote positive change in our lifestyle. These include:

- the National Nutrition Policy, which is a national framework to drive and monitor nutrition initiatives
- Australia's Physical Activity and Sedentary Behaviour Guidelines, a program designed to promote physical activity that is described in detail in chapter 5.

The state and territory governments also have many initiatives that are specific to their populations' needs. Can you think of some specific to your state or territory?

Making healthy food 'fun' for kids is a common initiative to promote healthy eating in young children.



ACTIVITIES

1 Diet and disease

Choose two diet-related diseases discussed in this section. Explain the role of diet in the prevention of the disease.

2 Schools set to lose their fizz

Use the **School ban** weblink in your Resources section to read the article. Then discuss whether this is an appropriate initiative on the part of the government.

3 Friendly advice

You have been asked by a friend who has been identified as being overweight to help with a weight-loss program. Using the sensible weight control guidelines, provide your friend with a checklist of rules to follow for sensible and practical weight loss.

4 Walk to school

1. Use the **Walk to school** weblink in your Resources section to read an article about childhood obesity.
2. Discuss the difficulties modern parents and young children face in being physically active.
3. Do you think the walking school bus strategy will catch on? Why or why not?
4. What additional or alternative strategies would work for primary school children?

5 Australian health trends

Using the **Australian health trends** worksheet in your Resources section, consider the graphs and draw conclusions regarding Australian health trends.

CHECK & CHALLENGE

Explain

1. Two principal factors have been identified by researchers as the cause of osteoporosis. Which one of these can be modified by diet?
2. Should children should be encouraged to walk to school? Why or why not?
3. Explain why the growing rates of obesity in children is such a concern for the Australian government.

Evaluate

4. The government spends millions of dollars to educate the public about making healthy nutrition decisions. Justify this spending by linking these costs to the prevention of diet-related diseases.
5. Review your diet and physical activity habits. Evaluate your current risk of diet-related diseases. Which one, if any, are you most at risk of? Why?

Elaborate

6. Suggest two strategies to address community health issues and explain how they will help improve health and wellbeing.

on Resources

Explore more with these weblinks: School ban

Explore more with these weblinks: Walk to school

Complete this digital doc: Australian health trends
Searchlight ID: doc-15351

11.7 Nutrition for sport and other special dietary needs

11.7.1 Special dietary needs

In this section you will explore the special dietary needs of vegetarians, athletes, people exercising in hot climates and women.

ENGAGE

Sports nutrition is based on the same basic principles that govern general nutrition; that is, a balance of all nutrients, a variety of foods and moderation of the intake of certain foods. More recently, the importance of 'recovery eating' at the completion of strenuous exercise to replenish glycogen stores and fluids has been recognised.

Brainstorm all the stories and myths you have heard about diet and exercise. Once the list is complete, compare the stories as a class and discuss:

- whether the stories are based on facts
- whether they are true or false
- from where people get their knowledge of diets
- the best methods for assessing information about diet and nutrition.

Athletes must rehydrate and refuel in order to maintain optimum performance.



11.7.2 Sports nutrition

The importance of the training diet is now widely acknowledged, with athletes understanding that they must eat well to ensure maximum return from heavy training schedules. Also, our understanding of the competition diet has increased, providing athletes with the opportunity to undertake special eating practices before, during and after the event to maximise their performance.

Each sportsperson will have different dietary requirements depending on training, age, sex, body size, the sport played, and the environment for training and competition. Despite this, there are some general principles of sports nutrition.

- Increase low GI carbohydrate intake.
- Decrease dietary fat intake.
- Ensure an adequate protein intake.
- Increase dietary fibre.
- Decrease or eliminate alcohol.
- Decrease salt intake.
- Increase water intake.

For many sportspeople, the recommended balanced diet (consisting of 55 to 60 per cent carbohydrates, 25 to 30 per cent fat and 10 to 15 per cent protein) may be adequate to meet their training needs. However, athletes involved in events of a strenuous intermittent nature (most team games), or continuous events of more than 90 minutes' duration will require an increased intake of carbohydrates. Carbohydrates should constitute 70 per cent of the training diet, with a subsequent decrease in the percentage intake of dietary fat to approximately 15 to 20 per cent of total intake.

11.7.3 Training diet

The sportsperson should follow the guidelines outlined in section 11.5 and keep in mind that he or she must have enough fuel to maintain weight *and* provide enough energy for increased expenditure through training.

11.7.4 Competition diet

The competition diet poses its own set of concerns, especially for the serious or professional athlete.

Competition nutrition strategies should be based on an understanding of nutritionally related factors causing fatigue and reduced performance that can occur during an event. These factors include depletion of muscle fuel stores, **hypoglycaemia** and dehydration. However, there are some important competition strategies to reduce, delay or offset these factors.

General preparation of energy stores

Fatigue in many sports is often related to the depletion of the body's energy stores, particularly muscle glycogen (carbohydrates). Therefore, preparation for a competition requires eating adequate muscle glycogen stores to last throughout the event. For most sports and athletes, this can be achieved quite readily, as a high-carbohydrate diet should already be part of their training plan. In the 24 hours or so prior to the event, athletes will often further increase carbohydrate intake in order to ensure that they achieve their natural storage capacity.

Carbohydrate loading for endurance events

This is a technique developed by Swedish researchers in the 1960s. It has since been modified by American sports physiologists and is mainly utilised by athletes competing in very demanding sports or ultra-endurance events. Carbohydrate loading is recommended and relevant only to events lasting 90 minutes or longer.

The carbohydrate loading method begins three to four days before competition. At this time, training is reduced and high levels of carbohydrate are consumed (80–85 per cent of kilojoule intake, instead of the usual 60–70 per cent). The body will store far more glycogen than usual.

Pre-competition meal

The purpose of the pre-competition meal is to ensure that blood glycogen and liver glycogen stores are topped up for the strenuous activity that is to follow. It also assists in ensuring adequate hydration (fluid levels) prior to competition. The following are guidelines for the pre-competition meal.

- The meal should be high in low GI carbohydrates, low in dietary fat and low in simple sugars (eating a minimum of dietary fat will assist in faster digestion because dietary fat is difficult to digest). If you eat large quantities of sugar or sugar-rich foods, you will alter your normal levels of blood glucose. This will raise your blood glucose level, which will slow down the release of energy when you need it most. It also creates a dependence on carbohydrates, leading to an early depletion of glycogen that will lead to a decrease in performance.

Pasta is a good pre-competition meal because it is high in complex carbohydrates.



- You should eat your pre-competition meal two to three hours before you compete to ensure your stomach is empty by the time you compete.
- Keep your dietary fibre content low to moderate as you don't want to feel any discomfort while competing. This will also lessen the production of gas and so lessen flatulence. (Normally, however, you should be eating a diet high in dietary fibre.)
- An important part of the pre-competition meal is the psychological aspect. The meal should be familiar and enjoyable with no hidden surprises. Use your training diet as a testing ground for your pre-competition meals.
- Keep up your fluid intake. Keep drinking right up to the event by drinking small amounts frequently. This will ensure adequate hydration.

Suggested pre-event foods and fluids are listed in table 11.8.

TABLE 11.8: Suggested pre-event foods and fluids

Solid foods	Fluids
• Fresh fruit • Cereal with low-fat yoghurt or low-fat milk • Baked beans • Steamed rice • Potato in its jacket with plain, low-fat topping • Fresh or canned pasta with plain, tomato-based sauce	• Water! • Pure fruit juice (no added sugar) • Tinned, unsweetened juice • Liquid meal formula, such as Sustagen • Carbohydrate/electrolyte sports drink • Tea • Herbal tea
The following may be eaten with no butter: • Toast with honey • Raisin bread with fruit spread • Crumpets with jam • Fruit muffins with honey • Low-fat pancakes with golden syrup • Bread or rolls with a spread (e.g. honey, jam, banana and Vegemite)	

Carbohydrate supplementation

Carbohydrate supplementation is the intake of enough additional carbohydrates while exercising to delay the onset of glycogen depletion and therefore fatigue. This will be needed only for prolonged intense exercise such as marathons, not a game of golf.

Most athletes using carbohydrate supplementation as a technique take it in fluid form in small amounts starting early in the exercise and at frequent intervals through the exercise. Sports drinks such as Powerade, Gatorade and SportsPlus provide a convenient method of supplementing carbohydrates during exercise, as well as providing fluid requirements in small amounts. Sports gels can also be used.

Glycogen replenishment

At the completion of strenuous exercise, the muscular stores of glycogen are depleted, but muscles have the capacity to replenish glycogen stores immediately after strenuous activity. In fact, the latest research indicates that athletes have the ability to restore depleted glycogen stores most rapidly within the first 15 minutes after exercise. However, this can occur only if carbohydrates are consumed in this time period. In the two hours that follow, glycogen is still replaced at a much faster rate than normal. Accordingly, the following guidelines should provide athletes with appropriate glycogen replenishment.

Phase 1: First 15 minutes after exercise

- Foods high in glycogen content should be consumed. The food eaten should be easily digested; for example, high GI.
- At least 50 grams of carbohydrates should be consumed.
- Foods such as fresh fruit, sports drinks and supplements, and glucose lollies (such as jelly snakes and jelly beans) are recommended.

Phase 2: The two hours following exercise

- A meal high in low GI carbohydrates should be eaten during this period. This meal can also include some protein in the form of lean meat, fish or skinless chicken.
- Fifty to 100 grams of carbohydrates should be consumed during this period.
- Plenty of fluids, such as water and/or sports drinks, should be consumed to ensure proper rehydration.

11.7.5 Fluid replenishment and dehydration

Fluid replenishment

It is important to begin exercise well hydrated, to regularly replenish fluids during the exercise bout and to replace fluids during the recovery period after exercise. Failure to do so can lead to dehydration, a potentially dangerous condition.

Water loss during exercise

Exercise produces heat within the body. Without any mechanism to get rid of this heat, body temperature would rise, leading to coma and, eventually, death. Sweating or perspiring is the safety mechanism. As muscles exercise, the heat produced is carried by increased blood circulation to the skin where it evaporates in sweat, cooling the body down. The amount of sweat is determined by the intensity of the exercise, the body's surface area, the temperature of the air and the humidity of the environment. It is not unusual to lose a litre of fluid per hour in this way, and some athletes have reported to have reduced their body weight by 8 per cent after a long-distance race in a warm, humid environment.

The effects on performance and health of losing this much fluid are great. Up to two litres of sweat may be produced per hour; therefore, fluid replacement is of paramount importance. Dehydration places great stress on the cardiovascular system, leading to a decreased blood flow to skin and muscles.

Many athletes are still unaware of the importance of replacing fluids. Most drink when they are thirsty, but thirst is not a good indicator of fluid loss. As a general guideline, it is recommended that athletes drink approximately 150 mL of fluid every 15 minutes in the two hours prior to competition. Another means of ensuring adequate hydration prior to an event is for the athlete to drink fluid until they are able to pass ‘clear’ urine. During exercise, particularly events of longer duration, athletes should drink during breaks in play (quarter-time, half-time, change of ends) and during quiet periods in the match or event. After the match, replacing fluid losses as soon as possible is vital to proper recovery. Approximately one litre of fluid should be consumed after competition in order to get the replenishment process underway (1 kg lost = 1 L needed to be replaced). Fluids should continue to be taken regularly over the next 24 hours.

The best choice of fluid for hydration purposes is water, although some sports drinks are also suitable, and may be preferred by those who find them more palatable than plain water. Sports drinks may even help to increase the rate of rehydration when compared to water. There is some evidence that the small amount of sodium in such drinks increases the rate of absorption of fluid from the intestines. Sports drinks have the added advantage of aiding muscle glycogen replenishment at the same time.

Sports drinks can play an important role in helping athletes to enjoy and perform well in training and competition.



The main points to remember about fluid replacement are outlined below.

- Thirst is not a good indicator of fluid needs.
- Drink half a glass of fluid every 15 minutes before exercise and during exercise.
- Cold drinks are absorbed more quickly.
- Plain water is the best drink of all.
- When you have finished your event, it is vital to replace fluids lost during the period of exercise.

11.7.6 Exercising in hot and humid climates

In high temperature and humid conditions, the sweating mechanism is inefficient at reducing exercise-produced heat; therefore, prevention of heat injury is vital. This can be done by paying close attention to:

- wearing appropriate clothing (loose fitting)
- the appropriateness of the activity for the age group (long-distance runs for children are not recommended because of children's greater fluid loss potential)
- acclimatisation (getting used to conditions before competing in them through training)
- the timing of events (the Darwin marathon, for example, commences at 4.30 am to take advantage of the lowest daytime temperatures).

The cool-down period is even more important when exercising in the heat. During this stage, a constant level of activity should be maintained to keep blood circulating to the skin to increase the rate of heat loss. Rehydrating is also extremely important during cool-down. Don't forget — thirst is not a good indicator of your fluid needs.

Travelling from cooler to hotter climates requires more acclimatisation than travelling from hotter to cooler climates. Of course, the fitter you are, the faster you will adapt to the conditions. The figure below provides a good summary of the points to remember when exercising in the heat.

You should follow these simple rules when exercising in the heat.



11.7.7 Special dietary needs

Vegetarians

There has been a recent trend towards increasing rates of vegetarianism for a number of reasons. Vegetarian diets vary according to the type of foods eliminated from the diet.

- *Lacto–ovo* (milk–eggs) vegetarian diets exclude the flesh of animals but include dairy products and eggs.
- *Lacto* vegetarian diets exclude the flesh of animals and eggs. They include dairy products and foods of plant origins.
- *Vegan* diets exclude all flesh foods, eggs and dairy products. Vegans eat only foods of plant origin.

Vegetarians in general, and vegetarian athletes in particular, need to plan their diet carefully. Their nutritional considerations are:

- ensuring that an adequate energy or kilojoule intake is maintained. This may mean that vegetarians will need to eat more frequently throughout the day and include energy-dense foods such as nuts and seeds to meet their energy needs.
- maintaining adequate protein intake, due to the removal of meat from the diet. (The best sources of protein are from animal sources — they contain all the essential amino acids.) Vegetarians, in particular those on vegan diets, will need to ensure that the plant proteins they eat complement each other correctly to ensure delivery of all essential amino acids; for example, eat baked beans with wholegrain bread.
- the danger of inadequate calcium supplies in vegan diets due to the elimination of milk and dairy products. Vegans need to consume soya milk, nuts, legumes and green leafy vegetables to receive an alternative source of calcium.
- maintaining adequate mineral iron intake, which comes primarily from animal origins such as lean red meat, liver and kidney. For alternative sources of iron, vegetarians need to include plenty of legumes (kidney beans, baked beans, lentils, split peas) and green leafy vegetables, and take them with foods rich in vitamin C (such as citrus fruits) to ensure the best absorption of the iron.

Adolescents

For students, breakfast is the most important meal of the day. Use the **Breakfast habits**, **Young brains** and **Breakfast variety** weblinks in your Resources section to read articles about breakfast habits and then answer the questions in the **Breakfast habits** worksheet.

Learning how to cook will enable you to be more responsible for your food intake.



Women

Because women have different cycles and metabolism to men, they have an increased need for certain nutrients.

Women need more iron than men due to the loss of the mineral through bleeding during menstruation. Everyone loses iron through the bowel, bladder and skin (perspiration). Both men and women need iron to form a compound known as **haemoglobin**, which is responsible for the transport of oxygen to all tissues of the body, including working muscle tissues.

A reduction in iron will lead to impaired performance because the oxygen supply to working muscles will be reduced. This condition is known as **anaemia** and can be experienced by both men and women if their dietary intakes are low in iron. Female athletes must be aware of the potential for iron depletion and know how to prevent it from occurring. For women, an increased intake of iron is essential, not only for sporting performance but also for good health.

Pregnant and lactating women have special dietary needs. A pregnant woman has additional nutritional requirements as she cares for her own health and the developing foetus. Additional energy and protein sources are required. It is suggested that an additional intake of 1200–1300 kilojoules per day is sufficient to meet the needs of the mother and the developing child. Women who are breastfeeding require additional nutrients, particularly calcium.

ACTIVITIES

1 Strenuous snacking

1. Use the **Fuel up** worksheet in your Resources section to read about a dietary plan and then trial it for yourself.
2. Participate in two strenuous activities (such as a 30-minute mini-triathlon); once after eating the suggested pre-competition meal, and once after eating a 'normal' breakfast. As a class, discuss how you felt during and after the event in each case.

2 Health food visit

1. Visit a health food store, chemist, supermarket and/or sports store. Compile a table listing the dietary foods and beverages on offer that claim to enhance sports performance.
2. Based on your knowledge of dietary enhancement of physical performance, would you recommend the products listed in your table as performance supplements? If recommended, indicate the type of sportsperson who might benefit from using the product and explain why.
3. If you would not recommend the supplement, explain your reasoning.

3 Sports drinks

1. Investigate the range of sports drinks available. Draw a table that summarises:
    a. the benefits each of the drinks claims to provide
    b. the recommended intake of each drink
    c. the price of each product
    d. the variety or appeal of the product (for example, the range of flavours or availability).
2. Summarise your findings and recommend the best product.

4 Setting goals

Use the dietary guidelines and models supplied in this chapter to decide on three changes to your personal eating habits. Write these down and make a commitment to them.

5 Risky diets

Use the **Risky diets** worksheet in your Resources section to explore different diet-related health problems.

CHECK & CHALLENGE

Explain

1. What do the terms ‘dehydration’ and ‘rehydration’ mean?
2. Why is it important for marathon runners to continually take in fluid during a race?
3. Explain the difference between lacto–ovo, lacto and vegan vegetarian diets.

Evaluate

4. Why is it advantageous for women in particular to ensure that their diet meets the recommended daily intake of iron?

Elaborate

5. Create a set of fluid replenishment guidelines for athletes. Include information to cover pre-exercise, during exercise and post-exercise periods. (These guidelines could be presented as a poster.)
6. What are the primary nutritional concerns for vegetarians? How can these concerns be avoided?

on Resources

Explore more with these weblinks: Breakfast habits
Explore more with these weblinks: Young brains
Explore more with these weblinks: Breakfast variety
Complete this digital doc: Breakfast habits
Searchlight ID: doc-15352
Complete this digital doc: Fuel up
Searchlight ID: doc-15353
Complete this digital doc: Risky diets
Searchlight ID: doc-15354

11.8 Review

11.8.1 What have I learned?

- We derive seven types of important nutrients from the food we eat: carbohydrates, fat, protein, vitamins, minerals, dietary fibre and water.
- The key food nutrients and their main food sources allow us to make and use food fuels for energy.
- Weight control may safely be achieved through following a sensible and well-balanced diet and undertaking regular exercise and activity.
- A wide range of factors influence the dietary habits of adolescents and the general population. These include personal needs and preferences, and sociocultural, physical, psychological, political and economic factors.
- Various dietary models — the Dietary Guidelines, the Australian Guide to Healthy Eating and the Healthy Eating Pyramid — have been developed to help Australians eat a balanced diet.
- Diet-related diseases and disorders include being overweight or obese, high blood pressure, coronary heart disease, anorexia nervosa, bulimia nervosa and osteoporosis. These conditions may be prevented and controlled by healthy eating and adequate exercise.
- Government and private sector initiatives are now in place to address the chronic problems of obesity, poor diet and reduced physical activity.
- Nutrition and diet regimes for athletes are different to non-athletes, and adequate fluid intake is important.
- Vegetarians and women have special dietary needs.

CHECK

1. Using dietary guidelines and models, what advice would you give to a friend who is overweight?
2. What nutrients does your body need?
3. Why is protein important?
4. What is the difference between low GI and high GI carbohydrates?
5. What foods are high in fibre?
6. Outline what we should eat most of every day, what we should eat moderately and what we should eat least every day.
7. What factors influence food choices?
8. What are the main diet-related diseases facing Australians?
9. What are some government and private sector strategies to prevent diet-related diseases?
10. What special nutrition concerns are there for professional sportspeople?
11. Which groups have special dietary needs?
12. Define the key words and terms of the topic using the **In my words** worksheet in your Resources section.

ESSENTIAL QUESTION REVIEWED

What are healthy nutrition decisions and how can I ensure I make these?

Evaluate your initial response to the essential question now that you have studied the topic.

on Resources

Complete this digital doc: In my words
Searchlight ID: doc-15356

Try out this interactivity: Multiple choice quiz
Searchlight ID: int-5413

Try out this interactivity: True/false quiz
Searchlight ID: int-5414

Try out this interactivity: Crossword
Searchlight ID: int-5415

Glossary

acquired immunodeficiency syndrome (AIDS): a disease that attacks the body's immune system and leaves it vulnerable to other infections

activity analysis: recording and analysing movement and skill data from a game, sport or activity; the data is analysed to appraise a player's performance

acute sports injuries: injury occurring spontaneously while playing sport

addiction: dependence on something, such as alcohol or other substances

adolescence: transition period between childhood and adulthood; the World Health Organization defines it as the period between the ages of 10 and 19

aerobic endurance: capacity of the body to keep up continuous physical activity over an extended period at a low to medium intensity

aerobic training: exercise that lasts longer than five minutes without any rest

affective disorders: types of mental disorders; for example, depression and mania

agility: the ability to start, stop and change direction rapidly at maximum speed, without losing balance

agonist: prime mover; the muscle that creates movement

airway: the passage that leads from the mouth, nose and throat to the windpipe

alveoli: site of exchange in the lungs of oxygen and carbon dioxide to and from the blood

amphetamines: illicit drugs with several names, such as speed or ice; affect the activity of chemicals in the brain, causing anxiety, shaking and panic attacks

anaemia: condition caused by low levels of iron in the diet

anaphylaxis: a sudden, severe allergic reaction which may be fatal if emergency treatment is not given immediately

angle of release: angle at which a projectile is released

anorexia nervosa: eating disorder involving severe restriction of food intake coupled with excessive exercise and activity as part of an obsessive desire to lose weight

antagonist: muscle that relaxes to allow movement to take place

anxiety disorders: types of mental disorders; for example, obsessive–compulsive disorder, panic disorder and social phobia

aorta: main artery of the body, delivers blood from the left ventricle of the heart

appraisal support: providing feedback to others to make sense of a particular situation

arteries: blood vessels that carry blood away from the heart; they have thick, elastic walls

arteriosclerosis: disease of the arteries where deposits build up inside the artery walls and blood flow is restricted

assertive: stating your point of view without being overly aggressive and without putting others down; being able to say ‘no’

associative stage: second stage of skill learning. During the associative or practice stage, the individual is beginning to get the feel of the movement and fewer errors are made.

asthma: medical condition characterised by bronchial spasms that constrict the passage of air to the lungs causing difficulty in breathing

atrophy: when the circumference of a muscle becomes smaller due to lack of use

attitude: an outlook on something; a way of thinking or behaving; what a person thinks; shown in a person's way of behaving

augmented feedback: information provided by visual, verbal or aural (hearing) signals

authoritarian: style of coaching typically characterised by a strict and disciplined approach, thorough organisation and planning, attention to detail, and total commitment to the role

automated external defibrillators (AEDs): a portable electronic device that automatically diagnoses some potentially life-threatening heart problems and is able to treat some of them with defibrillation

autonomous stage: third and final stage of skill learning. In the autonomous or automatic stage, the individual is able to complete the skill virtually without conscious control.

balance: the body's ability to control movement, whether it is static or dynamic

base of support: part or parts of the object in contact with the support surface

basic skill drills: practice drills designed to allow the individual to learn and perform skills in an environment that ignores outside elements such as the opposition or movement

behaviour patterns: the way in which we behave; can be similar in certain situations

beliefs: a philosophy or viewpoint on issues

binge drink: drinking large amounts of alcohol in a short period of time; drinking constantly for a number of days; drinking to get drunk

binge eating: often associated with bulimia, where excessive amounts of food are eaten in one sitting

blood pressure: measure of how much force is created to push the blood through the blood vessels

body composition: describing body shape or type

body fat: expressed as a percentage of total body weight; can be measured in a number of ways including skin folds and underwater weighing

body language: non-verbal cues that can be read from the way a person holds his or her body

body mass index (BMI): an indirect way of measuring overweight and obesity by expressing body weight in relation to height

bulimia nervosa: eating disorder characterised by binge eating followed by induced vomiting or purging

bystander: person who is aware that a bullying situation is occurring but is not directly involved in it

calcium: mineral nutrient required for bone growth and prevention of osteoporosis

cannabis: illicit depressant drug that can have a hallucinogenic effect

capillaries: the smallest blood vessels

carbohydrates: one of the key food nutrients; should comprise 55–65 per cent of the total diet; provides quick release energy and is stored as glycogen in the muscles

cardiac arrest: sudden cessation of heartbeat and heart function, resulting in the loss of effective circulation

cardiac muscle: muscle of the heart

cardiac output: volume of blood pumped around the body in one minute. Cardiac output is measured by stroke volume × heart rate

cardiopulmonary resuscitation (CPR): an emergency technique that combines rescue breaths with external chest compressions at a ratio of 2 : 30 at 100 compressions per minute. It is used when a casualty is unconscious and is not breathing.

cardiovascular disease: any disease related to the heart and blood vessels, such as stroke, coronary heart disease and vascular disease, including hypertension and atherosclerosis

cartilage: tissue that protects bones at the joints from rubbing on one another

casual: style of coaching characterised by a relaxed and almost detached approach, with the coach assisting only when advice is sought by the athlete

centre of gravity: the point in any object or body through which the downward force of gravity acts

cerebrovascular disease: a group of brain dysfunctions related to disease of the blood vessels supplying the brain

chlamydia: a common bacterial STI that can lead to infertility

chronic sports injuries: overuse injury, usually involving soft tissue, ligaments or tendons

circuit training: fitness training method involving a series of activity stations in sequence, designed to improve specific components of fitness

closed skills: skills performed in a stable and predictable environment. They allow the performer to plan his or her movements in advance.

cocaine: illicit stimulant with hallucinogenic properties

coercion: putting pressure on someone to do something

cognitive stage: first stage of skill learning. Individuals who are at the cognitive or beginner stage need to know how to execute the basic movement patterns of the skill in correct sequence.

come out: the process of telling people that you are homosexual

command: style of coaching that involves the coach dictating what will be done and how it will be done via direct instruction

commitment: committing to and believing wholeheartedly in a cause, be it a viewpoint, opinion, event, course of action or person

communication: the skill of being able to talk and listen to others

community: group of people living or working in the same place or environment and acting collectively in the areas of social values and with shared responsibilities

conception: occurs when the egg (ovum) from a female and the sperm from a male meet; also called fertilisation

concussion: acute injury to the head caused by collision

conflict: a difference of opinion

conflict resolution: resolving a problem or situation so that both sides come to a mutual agreement without aggression or violence

consent: permission; to say ‘yes’

consequences: results of a person's actions; may be either positive or negative

continuous skills: skills that have no distinct beginning or end; such skills or movements are often repetitive or rhythmic in nature

contraception: any method or device that prevents conception and, therefore, a pregnancy

coordination: motor skills component of fitness involving control of movement such as hand–eye coordination

coronary arteries: arteries that supply blood to the heart muscle

coronary heart disease (CHD): narrowing of the coronary arteries of the heart or complete blockage of the coronary arteries leading to heart attack

crash diets: irresponsible activity designed to lose weight rapidly; often involves withdrawal of important food nutrients or food groups — weight lost is nearly always quickly put on again

cyber safety: how to stay safe online

cyberbullying: bullying that takes place using electronic technology such as mobile phones, computers etc.

decision making: the ability to weigh up game situations and decide which option to take and when to take it

defensive tactics and strategies: structured plans or moves used by a team or individual to prevent the opposition from scoring

defibrillation: the application of electrical therapy which allows the heart to re-establish an effective rhythm

dehydration: loss of body fluids, usually during hot weather or exercise, leading to heat stress and fatigue

democratic: style of coaching typically characterised by consultation and shared decision making by the coach with others

depression: a prolonged loss of enjoyment of life

determinants of health: factors that affect how healthy you are

diabetes mellitus: a chronic condition in which blood glucose levels become too high due to the body producing little or no insulin, or not using insulin properly

diastolic blood pressure: the pressure of blood in the arteries as the heart relaxes

dietary fat: a nutrient in food and an essential ingredient of a balanced diet; should comprise 25–30 per cent of daily food intake

dietary fibre: part of a plant that cannot be digested by the human body; aids in the digestive process and passage of food through the small and large intestines

discrete skills: skills or movements of brief duration that have a distinct beginning and end.

disease transmission: passing diseases from one person to another; includes infections and parasitic diseases

dislocation: a separation of two bones from where they meet at a joint

distributed practice: short sessions interspersed with periods of rest, during which either feedback is provided or another skill is practised

diversity: the differences between people and groups of people, including those of culture, race, religion, gender, and life experience. Diversity means understanding that each individual is unique, and recognising our individual differences.

drowning: submerging and suffocating in water

DRSABCD action plan: a plan of action that prioritises checking for danger, seeking a response from the casualty, sending for help, checking the airway and breathing of the patient, commencing CPR and applying a defibrillator if necessary, and in that order

dry spirometer: instrument used to measure vital lung capacity

duration: how long the activity is performed

ecstacy: illicit drug; extremely dangerous, causing paranoia, organ damage, insomnia and dehydration

emotional support: sympathetic understanding and behaviour to another team member's emotional wellbeing

expiration: breathing out

fast twitch muscle fibres: white muscle fibres that are suited to performing anaerobic activity

fatigue: tiredness, sleepiness, lack of concentration caused by lack of sleep; power naps are recommended for drivers when they feel fatigued

feedback: information provided to a performer about the quality and/or outcome of the performance

first aid: the initial or first help that is given to an injured or ill person. It is administered until medical help arrives.

fitness: physical capacity to undertake various physical activities, measured by testing ability on a range of components

flexibility: the range of motion of specific joints and the muscles that act on them; may be static or dynamic

flexion: the movement which decreases the angle of a joint, for example, bending the elbow

flotation device: object used to assist flotation while in the water, for example, a life jacket

frequency: how often physical activity is undertaken

frostbite: local freezing of a particular body tissue, usually fingers, toes, nose or ears

fructose: simple carbohydrate found as sugar in fruit

game plans: style of play or organisation adopted by teams and developed by or in conjunction with a coach

game sense: (1) the ability to use an understanding of the rules, of strategy, of tactics, and most importantly, of oneself to solve the problems posed by the game or by one's opponents in the game; (2) an approach to teaching and coaching in which players are encouraged to start thinking strategically about game concepts and to become more tactically aware and better able to make appropriate decisions during the game

gender stereotypes: generalisations (not necessarily accurate) of how individuals of a certain gender should behave or conduct themselves

GI index: a ranking of carbohydrates from 0−100 according to their effect on blood glucose levels

glycogen: stored form of glucose found in the muscles and liver; used as a source of fuel for both aerobic and anaerobic energy production

grid games: an extension of intermediate and advanced skill drills; take place within a grid or defined area and usually involve a relatively small number of players

guided discovery: style of coaching in which the coach sets forward various options that the athlete has freedom to explore and decide upon

haemoglobin: substance in the blood that transports oxygen to the body cells

hallucinogens: alters the perceptions and causes hallucinations, for example, LSD

harm minimisation: any action or strategy designed to remove or reduce risk and therefore prevent or minimise harm

health promotion charity: charitable institution whose principal activity is promoting the prevention or control of diseases in humans

heart: muscular pump responsible for pumping blood around the cardiovascular system

heat exhaustion: loss of excessive amounts of body fluids leading to dehydration and fatigue

heat stroke: more serious than heat exhaustion; body core temperature rises to life-threatening levels and the casualty must be cooled using any means available as soon as possible

HELP (heat escape lessening posture): position assumed in cold water to help conserve body warmth

heterosexual: being sexually attracted to someone of the opposite gender

high blood pressure: also called hypertension; a major risk factor in coronary heart disease; measured in and expressed as systolic pressure over diastolic pressure

high GI foods: foods ranked higher than 55. These foods have an immediate effect on blood glucose levels.

homophobia: encompasses a range of negative attitudes and feelings toward homosexuality or people who are identified or perceived as being lesbian, gay, bisexual or transgender (LGBT)

homosexual: being sexually attracted to someone of the same gender

huddle: strategy in which defenders and mid-field players typically huddle together as a group at the centre half-back area as the nominated kicker prepares to kick the ball back in

huddle position: used by a group of people immersed in cold water to conserve body heat by pressing up close to each other

human immunodeficiency virus (HIV): the virus that causes AIDS

hypertrophy: when the circumference of a muscle becomes larger as a result of exercise

hypoglycaemia: low levels of blood sugar (glucose) causing a feeling of fatigue

hypothermia: condition caused by exposure to cold temperatures and wind; the body core temperature drops to dangerous levels

illicit drug: any drug that is banned by law

immunisation: receiving a vaccine; becoming immune to a disease as a result of being vaccinated

impulse: the force applied to an object and the length of time the force is applied

incomplete proteins: lack of one or more essential amino acids; found in plants

independence: the ability to think, decide and act for yourself, giving consideration to, but without being adversely influenced by, other factors, pressure, coercion or opinions

infertility: inability to reproduce

informational support: the exchange of necessary information amongst team members for their functioning

inspiration: breathing in

instrumental support: the practical support team members offer each other

intensity: measurements of intensity include what speed or heart rate (measured as a percentage of maximum heart rate) is achieved during activity

interval training: periods of work interspersed with periods of rest; can be used to train the ATP–CP system or the lactic acid system, depending on the intensity of the work period and the length of the rest period

intimate relationship: close relationship with a high level of sharing, trust and understanding

iron: mineral found in the body; inorganic substance required to assist in transportation of oxygen in the blood; lack of iron can cause anaemia

ischaemic heart disease: characterised by reduced blood supply to the heart muscle, usually due to coronary artery disease

isometric: when a muscle produces force without changing length

isotonic: when a muscle produces force while changing length either lengthening or shortening

key elements: distinct actions that join to make up a movement phase of a skill

kick-in zone: strategy in which teams place their forwards and mid-field players in certain predetermined positions when defending the kick-in huddle. These players must then defend against any opposition player who breaks from the huddle and enters their zone.

kilojoules: measure of the energy contained in foods; the standard metric measurement of energy

kinaesthetic feedback: feedback about the ‘feel’ of a movement skill

knowledge of performance: feedback about the quality of performance itself

knowledge of results: feedback about the outcome of the performance

ligaments: straps of slightly elastic tissue that cross over joints, providing stability by attaching from bone to bone

line of gravity: imaginary vertical line passing downward through the centre of gravity of a body or object

local muscular endurance (LME): ability of the muscle or muscle group to sustain (isometric) or repeat (isotonic) contractions for a long period of time

long-term condition: a medical condition (illness, injury or disability) which has lasted at least six months, or which is expected to last for six months or more

low GI foods: foods ranked less than 55. These have a gradual and sustained effect on blood glucose levels.

mammogram: screening process for women to help early detection of breast cancer

marginalisation: the social process by which a person or a group of people become relegated to the fringe or edge of society

massed practice: practice of a longer duration

masters sport: competition for age groups ranging from 30 to over 80

maximum heart rate (MHR): approximated by subtracting your age from 220. For example, a 15-year-old would have an MHR of 220 − 15 = 205.

Medicare: public health system financed by the federal government by general taxes and a levy on all income earners. It provides free health care for a limited range of services.

melanoma: a dark, pigmented tumour, usually found on the skin. It is often malignant.

mental health: ability to cope with the pressures and stress of daily living

mental practice: involves imagining or visualising a skill in the mind

minerals: inorganic elements found in food that ensure body functions and structures operate effectively

moderate intensity: sub-maximal exercise that increases heart rate and breathing rate somewhat above resting levels

mortality: a measure of the number of deaths in a given population

movement concepts: refer to how skills are to be performed, e.g. striking the ball hard; also known as elements of movement

movement phases: division of a movement or skill into a number of phases or parts, such as the preparation phase, the execution phase and the follow-through phase

muscle pump effect: the effect the skeletal muscles have on blood flow in the veins. As the muscles contract, they squeeze against the veins, forcing blood to travel towards the heart.

muscular power: a combination of speed and strength. When strength is exerted quickly, it is called power.

muscular strength: exertion of a single maximal force by a muscle or muscle group

National Physical Activity Guidelines: guidelines that describe the recommended daily physical activity required to maintain good health for Australians

negative energy balance: when the number of kilojoules used during daily activity is greater than those eaten. Body weight will decrease if negative energy balance is maintained.

obese: having an excess of total body fat; indicated by a body mass index of greater than 30.0 kilograms per metre squared

objective judgements: utilise methods, techniques or tools for appraising the proficiency of the movement performance

objective methods: rely on solid data or observations

offensive tactics and strategies: structured plans or moves whose primary purpose is the achievement of a score or scoring opportunity

official: any person who controls the actual play of a sporting competition by applying the rules and laws of the sport to make judgements on rule infringement, performance, time and score

one-on-one defence: involves each player on a team being responsible for marking an opposition player

open skill: skills performed in an environment that is variable and unpredictable; usually externally paced and performed in a constantly changing environment

osteoarthritis: joint cartilage degenerates and causes pain

osteoporosis: calcium deposits in the bone diminish, causing decrease in bone density, increased risk of fracture and curvature of the spine

overweight: having body weight greater than is desirable for good health; indicated by body mass index (BMI) between 25.0 and 30.0 kilograms per metre squared

part practice: breaking down and practising a skill in its ‘parts‘ or sub-routines

pedometer: device that measures the number of steps taken during the day and estimates the distance covered in kilometres

peer group: group of friends of a similar age with similar interests, often from a similar social background

performance measures: methods, techniques or tools for judging or assessing the level of performance

personal identity: the qualities, skills, attitudes and beliefs that make each individual unique

physical health: physiological functioning of the body

physical practice: practice in which the skill is actually performed physically

plasma: clear fluid contained in blood that transports red and white blood cells, nutrients and waste

platelets: cells in blood which cause it to clot when blood vessels are damaged; produced in bone marrow

platonic: relating to love, usually of a non-sexual nature

plyometrics: used to train for power by performing activities such as bounding and depth jumping

positive energy balance: amount of kilojoules used during daily activity is less than the amount eaten. Leads to weight increase.

prejudice: prejudgment, or forming an opinion before becoming aware of the relevant facts of a case

prevalence: the extent of something, for example, the number of people infected with a disease

private health insurance: insurance for additional services not covered by the public health system; individuals must pay extra for this insurance

problem-solving: style of coaching in which the athlete is challenged to respond to and solve problems set by the coach

proficiency of movement (or skill proficiency): the achievement or attainment of a movement goal with maximum certainty, minimum energy expenditure and minimum movement time (where speed is essential)

progressive overload: training principle that requires the workload to be progressively increased at regular intervals, for example, the weight lifted, the number of repetitions, the distance run or the time over which the activity is performed

projectile: the object propelled into the air as a result of force application, such as a soccer ball or even a body itself

projectile motion: the motion of objects such as balls or implements that are thrown, struck or kicked into the air

protein: made up of amino acids; found in animal and plant foods; essential for most body functions; should comprise 15–20 per cent of daily food intake

pulmonary circulation: blood from the heart is pumped to the lungs for oxygenation and then transported back to the heart

qualitative analysis: process of observing, analysing and appraising human movement performance

radial pulse: pulse on the thumb side of the wrist used to measure heart rate

random breath testing: testing blood alcohol concentration of drivers

reaction time: time taken to respond to, or initiate movement after, a given signal or cue, for example, a starter's gun

reciprocal: style of coaching in which the athlete takes some responsibility for his or her own development, with the coach monitoring progress and development

reciprocal inhibition: pair of muscles working together; the antagonist muscle relaxes and the agonist muscle contracts to create movement

recommended dietary intake (RDI): provides recommendation for the daily intake of all nutrients. These RDIs change for various age groups and stages of growth.

recovery position: the body position a casualty is placed in to ensure the airway is clear and any likely obstruction flows out from the mouth

red blood cells: comprise 99 per cent of all blood cells and carry oxygen and carbon dioxide to and from the cells and muscles; contain haemoglobin

repetition: also known as a rep; a single effort or performance of an exercise

repetition maximum (RM): the heaviest load that can be successfully completed in a given number of efforts or exercises

resistance training: a type of training that causes muscles to work against a body resistance or weights

resting heart rate: the number of heartbeats per minute while at rest

RICER: management plan used to achieve the immediate and longer term treatment of injury

SALTAPS: simple checklist to use when diagnosing a sports injury; stands for stop, ask, look, touch, active movement, passive movement and stand

same-sex attraction: attraction to a person of the same gender

satiety: a feeling of fullness and absence of hunger

scorers: sporting officials responsible for maintaining an accurate record of the scores attained during the course of a game or event

secondary drowning: occurs when someone has been immersed in water and inhales fluid into the bronchi and lungs, and then suffocates some time later because of impaired lung function

self-efficacy: person's belief in his or her ability to be active across a range of challenging situations

self-esteem: the way you feel about yourself. High self-esteem means you feel good about yourself and you are confident in your abilities.

septum: muscular wall separating the right and left sides of the heart into two pumps

serial skills: series of discrete skills strung together to form a more complicated action

sets: the number of repetitions in a sequence of exercises

sexting: sending photos, images, video or text messages of a sexual nature via mobile phones and social media sites.

sexual activity: sexual behaviour; usually involves contact with the genitalia

sexual identity: how we self-identify or publicly identify as sexual beings

sexual orientation: a person's sexual preferences

sexual relationship: a relationship that involves any form of sexual activity

sexually transmissible infection (STI): an infection that is spread via sexual activity

signs of life: consciousness, responsiveness, normal breathing, signs of movement

skeletal muscle: all the muscles that pull on bones to create movement

skill: learned ability to bring about predetermined results with maximum certainty, often with minimum outlay of time or energy or both

skill themes: action words to describe the fine motor skills needed to complete the movement. They are grouped into three categories: locomotor (e.g. walking, running), non-locomotor (i.e. turning, swinging) and manipulative (i.e. throwing, kicking) skills.

skill-related fitness: the level of fitness we need for physical activity and sport

slow twitch muscle fibres: red muscle fibres that are suited to performing aerobic activity

smooth muscles: involuntary muscle that contracts and relaxes without conscious thought

social health: ability to develop and maintain positive relationships with others, including family, friends, peers and colleagues

socialisation: the way we are brought up and expected to behave in society, often based on gender

specificity: training principle that ensures that activities performed within a training program are directly related to the sport or activity being trained. This includes energy systems, components of fitness, muscle groups and movement patterns.

spiritual health: encompasses our ideals, values, morals and ambitions

sporting conduct: conforming to the rules of sport; an aspiration or ethos that the activity will be enjoyed for its own sake, with proper consideration for fairness and ethics, and respect for one's opponents

sprain: injury to a ligament

stability: an object's resistance to movement from a balanced position. Static stability is when the object is at rest; dynamic stability is when the object is in motion.

stages of change model: a theoretical model designed to explain how people may be encouraged to change their attitudes toward, and participation in, daily physical activity

starches: form of complex carbohydrate found mainly in bread, cereal, pasta and rice

stereotypes: conventional views (not necessarily accurate) or ideas about a group of people

strain: injury to a muscle

stroke volume: volume of blood pumped from the left ventricle of the heart in one beat

subjective judgements: judgements based on feelings or impressions and which do not involve the use of techniques or tools for appraising the proficiency of the movement performance

subjective methods: rely on own perceptions

substance-use disorders: types of mental disorders; involves harmful use of, and addiction to, drugs (including alcohol)

sugars: simple carbohydrate found in fruit, honey, confectionery and soft drinks. Sugars have a high glycaemic index.

synovial fluid: lubricating substance found in synovial joints

synovial joints: freely movable joints that have cartilage, ligaments and synovial fluid, for example, the knee or the elbow

systemic circulation: blood from the heart circulates throughout the arteries and veins of the body and then returns to the heart

systolic blood pressure: the pressure of blood in the arteries as the left ventricle of the heart contracts

TAC (Transport Accident Commission): entity that aims to reduce the incidence of road crashes and trauma

tactical proficiency: the ability to weigh up game situations and decide which option to take and when to take it

target heart rate: percentage of maximum heart rate an athlete must work at to improve fitness. This is 50–70 per cent of maximum heart rate for moderate intensity activity and 70–85 per cent for vigorous intensity activity.

tendons: attach muscles to bones

timekeepers: sporting officials who ensure that competition times are adhered to, and that periods of play are in accordance with the rules of the sport

type: a key principle of training; refers to the kind of exercise performed

umpires and referees: sporting officials responsible for regulating the conduct and playing of sporting events

unconscious: a condition in which a person is unaware of or does not respond to external influences

values: beliefs about what is important, and what is right or wrong

vascular system: all the network of blood vessels, comprising arteries, capillaries and veins

veins: blood vessels that return blood to the heart

velocity of release: single most important factor for achieving maximum distance of a projectile; the greater the velocity of release, the greater the distance achieved

ventricles: pumping chambers of the heart. The left ventricle pumps blood into the systemic circulation and the right ventricle pumps blood into the pulmonary system.

vigorous intensity: high intensity activity, such as running and playing sport, which raises heart rates and breathing rates significantly

virginity: never having had sexual intercourse

vital capacity: maximum amount of air that can be expelled from the lungs after a maximal inspiration

vitamins: organic compounds needed in small quantities to promote growth and maintain body functions

VO_2 maximum: maximum amount of oxygen that can be used by the muscles to produce work (usually measured in millilitres per kilogram of body weight per minute)

white blood cells: fight disease-causing organisms by absorbing and digesting them

whole practice: form of practice in which a skill is practised in its entirety

World Health Organization (WHO): responsible for leadership of global health matters for the United Nations

zone defence: players are responsible for guarding or defending a particular space on the court or field, rather than individual opposition players