

TOPIC 11

Fit for life

11.1 Overview

11.1.1 Introduction

Fitness can have an immense effect on your quality of life. Being fit isn't limited to being a certain weight or being able to swim the fastest, run a marathon or play a particular sport. Fitness incorporates a number of components that can be specifically measured and trained. Some of these components are more closely related to sports performance and some are related to everyday health and well-being. There are many advantages to being fit. 'Being fit' allows you to meet the physical and mental demands of daily life, as well as enjoy a range of activities that enhance your sense of wellbeing and enjoyment of life.

Being fit, no matter our age, helps our bodies function better, helps us feel better and can be fun!



on Resources

 eLesson: Fit for life (eles-2331)

 Digital doc: Key terms glossary (doc-29207)

ESSENTIAL QUESTION

What does it mean to be fit and how can I improve my fitness?

SYLLABUS OUTCOMES

A student:

- investigates health practices, behaviours and resources to promote health, safety, wellbeing and physically active communities (PD4-7)
- plans for and participates in activities that encourage health and a lifetime of physical activity. (PD4-8)

11.2 Fitness – what is fitness?

There are enormous advantages to being fit. Fitness provides you with a physical platform from which to engage in activities that you find interesting. Not only is fitness beneficial to your physical health but also to your mental, spiritual, social and emotional health.

11.2.1 Fitness enhances people’s lives

Fitness has an enormous effect on our quality of life. Being fit allows us to engage in activities that interest us. It also has a positive effect on our sense of self and improves our general level of health.

We know that being fit can have a positive impact on your health but what does ‘being fit’ mean? What does being fit look like? Does being fit mean different things to different people?

Consider the above questions and discuss your ideas with a partner, then share with the rest of the class to gain an appreciation of different views.



11.2.2 What is fitness?

Physical fitness is a measure of our ability to perform daily tasks and activities. During most days we perform many general movements, notably walking and running. Other days we may choose or be required to perform additional activities such as jumping (for example, in basketball), cycling, surfing, climbing, swimming or skateboarding. The degree to which we can comfortably meet our daily physical demands is an indication of our level of physical fitness.

If we are unable to do the activities we would like to or if physical activity causes us discomfort — and if we are not injured or ill — we are probably lacking in fitness. When we are fit, we live a certain quality of life; we are able to perform our daily activities without undue fatigue. We can also choose to be involved in additional activities we enjoy because we have sufficient energy in reserve for these activities. All this adds up to feeling good and being able to approach each day in a positive way and with enthusiasm.

Physical fitness encompasses both health- and skill-related components. Health-related fitness relates to the level of fitness we need to maintain good physical health during our daily activities. Skill-related fitness relates to the level of fitness we need for involvement in physical activities like sport.

Fitness has both health-related and skill-related components.

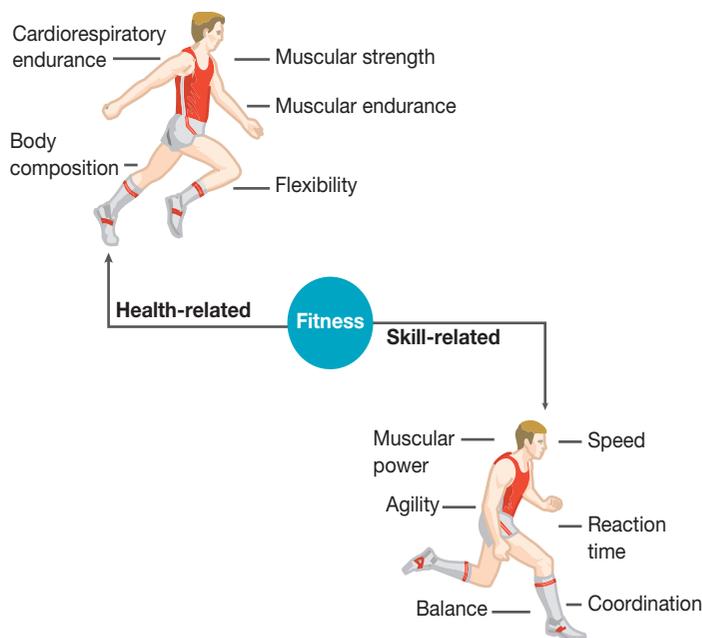


Table 11.1 outlines the various aspects of physical fitness and provides some examples of how these aspects are involved in day-to-day and sporting activities.

TABLE 11.1 The various aspects of physical fitness

Component	Health- or skill-related	Definition	Sporting/day-to-day example
Cardiorespiratory endurance (aerobic capacity)	Health	The body's ability to sustain prolonged exercise with the use of oxygen. It is also known as aerobic fitness, aerobic capacity or aerobic endurance.	Running a marathon Building a new farm fence
Muscular strength	Health	The ability of muscles to exert force	Holding someone down in a wrestle Undertaking farm work such as lifting hay bales or attaching farm implements to tractors
Muscular endurance	Health	The ability of the muscle or muscle group to sustain (isometric) or repeat (isotonic) contractions for a long period of time	Repeated actions by the legs while cycling Farm work such as flipping sheep
Flexibility	Health	The degree of movement around a joint	Bending down to pick up an object from the ground
Body composition	Health	Describing body shape or type with reference to the ratio of muscle tissue in the body compared to fat	Muscular body type suited to explosive activity such as sprinting
Muscular power	Skill	A combination of speed and strength. When strength is exerted explosively it is called power.	High jumper
Speed	Skill	The ability to get from one point to another as quickly as possible	50 m swimmer/100 m sprinter Sprinting to score a try or chase down an opponent
Agility	Skill	The ability to change direction quickly with speed and balance	Dodging an opponent
Reaction time	Skill	The time it takes to initiate the first response to a stimulus	Responding to the starting signal in a sprint
Balance	Skill	The ability to control our centre of gravity while stationary or moving	Diver on the edge of the 10-metre platform in a static handstand
Coordination	Skill	The ability of body parts to work together resulting in smooth flow of efficient movements	Tennis serve

To be considered physically fit, a person needs to attain a particular standard when tested for each of the components. Even then, some components are more important than others. **Cardiorespiratory endurance** (or **aerobic fitness**) is the most important component of all because it directly affects our health, such as our **cardiovascular** health, cholesterol levels and lung function. It is also important for participating in sustained physical activity and promoting recovery processes.

DID YOU KNOW?

Exercise improves heart function. When you begin an aerobic exercise program, expect your resting heart rate to decrease by about one beat per minute every week during the first few weeks. This indicates that your heart is becoming more efficient and pumping more blood each beat. Highly trained Olympic endurance athletes have had resting heart rates recorded at just 28–40 beats per minute, while the average Australian adult has a resting heart rate of 60–100 beats per minute.

11.2 Activities

Views about fitness

1. Fitness means different things to different people. Allocate the following occupations or roles to pairs within the class and create a list identifying how you think that person might view fitness. Have a representative of each pair report to the class on why that person would view fitness that way. The occupations or roles are:
 - (a) farmer
 - (b) dentist
 - (c) surfer
 - (d) chronically ill person
 - (e) triathlete
 - (f) body builder
 - (g) elderly person
 - (h) police officer
 - (i) nurse
 - (j) office worker
 - (k) obese person.
2. Why do people view fitness differently?
3. Which of the people in activity 1 would you consider to be the fittest? Why?
4. What factors affect an individual's optimal level of fitness?

Identifying fitness components

5. In pairs, discuss and justify the most important fitness components (at least three) for each of the following athletes/occupations. Share and compare different groups' responses. Analyse how the components are developed through the activity.
 - Sprinter
 - Long-distance swimmer
 - Pole vaulter
 - Nurse
 - Farmer

Analysing fitness components

6. Copy and complete the following table.

Activity	Health- or skill-related	Definition	Sporting example
Jumping as high as you can			
Completing five minutes of step-ups			
Touching your toes while sitting with legs straight			
Alternating hand toss with tennis ball			
Weaving around a set of five cones			
Completing a prone hold for one minute			
Standing on one foot with your hands above your head and holding for as long as possible			

11.2 Check and challenge

Explain

1. Define the term 'physical fitness'.
2. Distinguish between health-related and skill-related components of fitness.
3. Identify the health-related components of fitness.
4. Identify the skill-related components of fitness.
5. Why is cardiorespiratory endurance the most important element of fitness?
6. Explain why being able to run for a long time doesn't necessarily mean you will be successful in other sports.

Elaborate

7. Discuss why views about fitness differ from one person to another.
8. Research and suggest a sport that requires the greatest number of fitness components. Explain your choice.

Evaluate

9. Evaluate your performance in health- and skill-related fitness components. What are your strengths and weaknesses? Why do you think this is the case?



Resources



Digital doc: Worksheet 11.1 Fitness components (doc-29200)

11.3 Health-related fitness components — how can I measure them?

Cardiorespiratory endurance, muscular strength, muscular endurance, body composition and flexibility are all important components of our health. It is important to understand and know how to measure these factors, so that you can gauge improvement and modify your activity appropriately to build fitness levels.

11.3.1 Measuring health-related fitness components

The health-related components of fitness can be measured using a range of recognised tests, which are listed in table 11.2.

TABLE 11.2 Methods of measuring health-related fitness components

Component	Measurement method
Cardiorespiratory endurance	Beep test or yo-yo test
Muscular endurance	60-second push-up test
Muscular strength	Hand-grip dynamometer test
Body composition	Skinfold test or BMI (body mass index)*
Flexibility	Sit and reach test

* **Note:** The skinfold test should be conducted by a health professional to give an accurate and informative reading.

Use the **Trunk flexion test** weblink in the Resources tab to access a simple test that you can use to track the improvements in your flexibility.

on Resources

 Weblink: Trunk flexion test

11.3.2 Importance of health-related components

The health-related components of fitness target essential body functions that have a direct impact on our health. Improved cardiorespiratory endurance, muscular strength, flexibility, local muscular endurance and body composition all positively affect our health.

Regular exercise strengthens bones and muscles, which give shape to the body. Physical activity promotes healthy bone growth, which is important to support our weight as well as enabling basic motor skills such as carrying objects. Exercise strengthens the heart, making it a more effective pump in supplying the body with oxygen and nutrients. The heart muscle needs to remain strong so that it can pump blood every day for our entire lives. Exercise increases the heart's ability to contract forcefully, allowing it to pump more blood into our circulatory system with each beat.

Activity also improves our breathing and the ability of the lungs to extract oxygen. The harder we work, the more oxygen we need to deliver via the blood to the working muscle. This is why we breathe more rapidly during exercise sessions.

Body composition is an important health-related component. This relates to the make-up of our body in terms of muscle and fat. Unused energy is stored in the body as fat. We need to balance our intake (food) with our output (**metabolism** and exercise) to control our weight. It is better to monitor weight and maintain a healthy weight range than to let our weight fluctuate. Activity has the advantage of increasing our metabolism and keeping it elevated for hours after we have finished, so that we continue to burn more fuel even as we recover.

Flexibility is another important health-related component as it can help us prevent injury. Flexibility also helps improve posture, decrease back pain, maintain healthy joints and improve balance during movement.

Finally, exercise strengthens muscles, making them respond quickly and forcefully. This helps us to run faster, be active for longer and control our bodies with greater precision in activities such as dance, gymnastics and sports games.

The activities for this subtopic include a series of tests designed to measure the levels of some of your health-related fitness components. It is very important that the tests are carried out as instructed for accurate results. Remember, these results are a reference point only. They are not meant to grade your fitness ability; rather, they can be used to highlight areas in which you can improve. You can then choose appropriate activities to help you develop these areas, while also maintaining your strengths.

Developing cardiorespiratory endurance is an important part of health-related fitness.



11.3 Activities

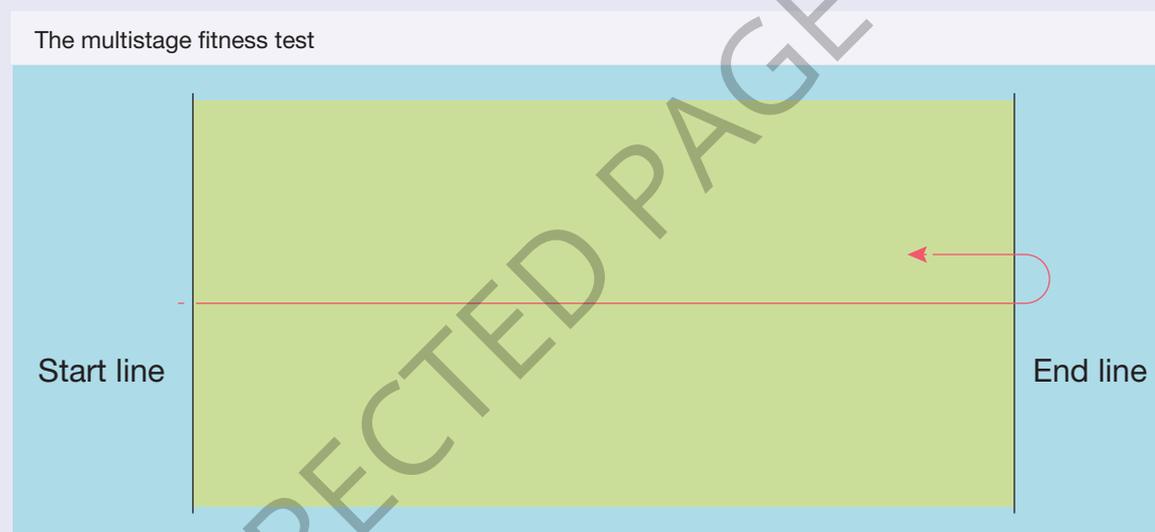
Pulse rate — an indicator of fitness

1. Learn to take your pulse rate accurately.
 - (a) Place your index and middle finger on the thumb-side of your wrist as indicated in the photo and count the pulse for 20 seconds.
 - (b) Multiply by 3 to convert to a reading for a minute.
 - (c) Repeat the exercise two more times and then average the reading. You have now established your resting pulse in beats per minute.
 - (d) An average resting heart rate is about 72 beats per minute. As your fitness level improves, your resting pulse rate will decrease. You can also measure your pulse rate using a heart rate monitor, which is worn during physical activity.
2. Use the **Heart rate levels** weblink in the Resources tab to find out how hard your heart needs to work for activities of varying intensity. Calculate your maximal heart rate by subtracting your age from 220.



Measuring aerobic fitness using the multistage fitness test

Equipment: Multilevel fitness test audio, firm surface with two lines marked 20 metres apart



3.
 - (a) Form a group of no more than 10 subjects to one supervisor.
 - (b) Divide the group into two. Half the group is to perform the test while the remaining half observes and records the results.
 - (c) Perform a general purpose warm-up including leg-stretching exercises before commencing this test.
 - (d) The subjects in Group 1 should move to the start line and listen to the introductory remarks on the audio, which tell them when to start and how to judge pace.
 - (e) Subjects begin by walking to the end line, aiming to reach it on the 'beep'. Both feet must cross the line. They then turn and walk back, aiming to reach the start line on the next 'beep'. Gradually the tempo is increased, necessitating a jog and then a run to reach the other line by the sound of the 'beep'. When subjects fail to stay in time with the 'beep' they are given a warning. Failure to catch up or a second warning means the subject must stop the test.
 - (f) Recorders should note the level at which their subject was unable to continue the test. Record the level and the fitness rating using table 11.3(a) and (b).

TABLE 11.3 Beep test fitness rating for 14-year-old (a) boys and (b) girls

(a)	Level	Number of shuttles	Rating (boys)	(b)	Level	Number of shuttles	Rating (girls)	
	1		Very poor		1		Very poor	
	2	5			1	5		
	2	6	Poor		1	6	Poor	
	3				2			
	4	5			3	5		
	4	6	Fair		3	6	Fair	
	5				4			
	6	1			4	1		
	6	2	Average		5	2	Average	
	7	4			5	4		
	7	5	Good		6	5	Good	
	8	9			6	9		
	8	10	Very good		7	10	Very good	
	9				7			
	10	9			8	9		
	10	10	Excellent		9	10	Excellent	
	11				10			
	12				11			
	13				12			
	14				13			
	15				14			
					15			

Measuring muscular strength using the hand-grip dynamometer test

Equipment: Hand dynamometer

4. (a) Pick up the dynamometer and push the arrow back to zero.
- (b) Let your arm hang vertically with the dynamometer comfortably gripped in your hand.
- (c) Gradually lift the dynamometer to shoulder height, squeezing the grip as hard as you can with your arm extended.
- (d) Read the result and record it in table 11.4. Repeat with your other hand.
- (e) Allow three tests on each hand and record the best result. Determine your rating using table 11.5.

TABLE 11.4 Results for muscular strength using a hand dynamometer

	Result (kg)	Rating
Right hand		
Left hand		
Best result		

TABLE 11.5 Ratings for muscular strength using a hand dynamometer (13–15-year-olds)

Classification	Strongest hand (kg)	
	Boys	Girls
Excellent	≥ 36	≥ 29
Good	31–35	25–28
Average	26–30	21–24
Fair	21–25	16–20
Poor	≤ 20	≤ 15

Measuring muscular endurance using the sit-up test

Equipment: Stopwatch, recording sheet

5. (a) Work in pairs. Nominate who will be the first subject and who will be the first counter.
- (b) The subject should lie on the floor with the knees bent and feet flat on the floor. Arms are folded across the chest. Palms are open and rest on the front of the shoulders. Elbows are close together. The counter should hold their partner's feet firmly on the floor. The angle at the knees should not be less than 60°. In the sit-up, the trunk is raised and the elbows brought to a position between the knees. The body then returns to the floor. The total movement counts for one sit-up.
- (c) Practise several times to warm-up and ensure the technique is correct. Disallow any sit-ups performed incorrectly.
- (d) Perform the test, counting the number of correctly executed sit-ups in one minute.
- (e) Change roles and repeat the process.
- (f) Determine the rating for each person, using table 11.6.

TABLE 11.6 Muscular endurance ratings for sit-ups (13–15-year-olds)

Classification	Number of sit-ups	
	Boys	Girls
Excellent	≥ 46	≥ 36
Good	41–45	31–35
Average	33–40	26–30
Fair	26–32	21–25
Poor	≤ 25	≤ 20

The sit-up test

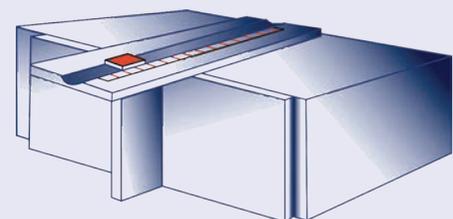


Measuring flexibility using the sit-and-reach test

Equipment: Sit-and-reach measuring device, box for mounting

6. (a) Divide into pairs. Set up the box with a sit-and-reach measuring device placed horizontally on top.
- (b) The first subject sits on the floor with both legs straight, as shown on the next page.
- (c) The second subject holds the first subject's knees firmly on the floor and sets the markers.
- (d) The first subject should reach forward slowly (no jerky movements allowed) and push the markers forward as far as possible with the fingers. Fingers remain extended with palms down.
- (e) The best of three attempts should be recorded.

Sit-and-reach measuring box



Sit-and-reach test



TABLE 11.7 Sit-and-reach ratings
(13–15-year-olds)

Classification	Reach (cm)	
	Boys	Girls
Excellent	≥ 33	≥ 36
Good	29–32	32–35
Average	25–28	28–31
Fair	21–24	23–27
Poor	≤ 20	≤ 22

Analysing your results

7. Use the **Analysing health-related fitness components** worksheet in the Resources tab to collate your results and analyse your health-related fitness.

on Resources

 **eLesson:** Heart exercise (eles-0220)

 **eLesson:** Measuring fitness (eles-0764)

 **Digital doc:** Worksheet 11.2 Analysing health-related fitness components (doc-29201)

 **Weblink:** Heart rate levels

11.3 Check and challenge

Explain

1. Explain how regular exercise improves the health-related components of fitness.
2. Explain how muscular endurance can be improved.
3. Explain the advantage of good flexibility in sport and game situations.

Elaborate

4. What was your rating in the multistage fitness test? Suggest what you can do to maintain (if satisfied) or improve this rating.
5. Were you satisfied with your muscular strength rating? Do you feel that this reflected your overall body strength?
6. When in your daily life is adequate strength important?
7. Choose any five sports and describe how muscular endurance is essential for good performance in each.

Evaluate

8. Analyse your level of muscular endurance in terms of the ratings provided.
9. Evaluate your level of flexibility in terms of the ratings.
10. Evaluate your level of flexibility in terms of exposure to injury in the sports or activities that you participate in.

11.4 Health-related fitness components – how can I improve?

While it is important to maintain a good level of fitness and ensure you stay healthy, you should also ensure that you aim to improve your health-related fitness components. Improving cardiovascular endurance will increase the working efficiency of your heart. Training for muscular endurance, muscular strength and flexibility will allow you to participate fully in day-to-day activities. Finally, enhancing these components will have positive impacts on your body composition which could also have a positive effect on your mental health. In this subtopic we will explore ways in which you can improve these components.

11.4.1 How do I rate?

How fit are you? The best measure of cardiovascular endurance fitness is maximal oxygen uptake or VO_2 max. After running the beep test, you can predict your maximal oxygen uptake by using the **VO_2 max** weblink in the Resources tab. The higher the value, the fitter you are. Knowing how you rate in health-related fitness components such as aerobic fitness, strength, endurance and flexibility is just the start. Different sports require different components and different activities will require focus on certain components.

In pairs make a list of the health-related fitness components you tested in section 11.3. Describe each component using at least two key words. Use the **Women's Rugby Sevens** weblink in the Resources tab, or watch a team sport of your choosing, and identify the use of the health-related fitness components. Explain why they are important in this sport.

A sport such as soccer involves many health-related and skill-related aspects of physical fitness.



DID YOU KNOW?

The highest VO_2 max ever recorded for a man was 96 mL/kg/min and 77 mL/kg/min for a woman. Both these people were cross-country skiers. Cross-country skiing requires a very high cardiorespiratory endurance due to the length of the event and because the event is held at high altitude. At high altitudes less oxygen is available, so these athletes must be able to take in, transport and use oxygen very efficiently.

on Resources

-  Weblink: VO_2 max
-  Weblink: Women's Rugby Sevens

HEALTH FACT

Our maximal heart rate during exercise varies from person to person. To get a rough indication, subtract your age from 220. For example, the maximal heart rate for a 14-year-old would be 206 beats per minute ($220 - 14 = 206$). However, the heart has been known to race at speeds of 300 beats per minute or more under certain medical conditions.

11.4.2 Training to improve

The key to training cardiorespiratory endurance/aerobic fitness is stressing the whole body over longer periods of time at a moderate intensity. By improving your cardiorespiratory endurance not only will you be able to work for longer, but you will also recover faster.

To train muscular strength you need to stress the body using weight, usually with added weights or resistance. Due to the increased load you should not be able to complete many **repetitions**.

To train muscular endurance you need to stress a muscle/group of muscles at a moderate intensity for many repetitions.

To train **flexibility** you need to stretch a muscle beyond its resting length. Body composition can be changed by decreasing body fat, increasing muscle tone or both at the same time. The activities for this subtopic will help you to develop the various components of health-related fitness.

DID YOU KNOW?

To improve your fitness you actually need to 'stress' your body so that it can recover and grow. This can include small muscle tears that can then repair and grow to be bigger.

11.4 Activities

Training cardiorespiratory endurance/aerobic fitness — Parlouf relay

1. In pairs, person 1 runs a lap of the oval while person 2 completes star jumps. When person 1 returns to the start, person 2 runs a lap while person 1 completes star jumps. Repeat at least three times.

Training muscular strength

2. In a slow and controlled movement, perform eight repetitions (excluding prone hold) of the following exercises.
 - Lunges
 - Ab crunch
 - Push-ups
 - Squats
 - Prone hold for 30 secondsComplete three sets.

Training muscular endurance

3. Complete as many repetitions of the following exercises as you can in 60 seconds.
 - Lunges
 - Ab crunch
 - Push-ups
 - Squats



Lunges



Push-ups



Squats



Ab crunches



Prone hold

Training flexibility

4. Participate in a yoga or Pilates class. If you cannot access one of these classes, as a group conduct a stretching session before or after your next practical class. Use the **Yoga for beginners** weblink in the Resources tab to watch a yoga class.



Resources

 Weblink: [Yoga for beginners](#)

11.4 Check and challenge

Explain

1. Explain the difference between training activities for muscular strength and muscular endurance.

Elaborate

2. Create a training session aimed to develop:
 - (a) cardiorespiratory endurance
 - (b) cardiorespiratory endurance that does not involve running
 - (c) muscular strength
 - (d) muscular endurance
 - (e) any three health-related fitness components.

Evaluate

3. Evaluate the use of the VO_2 max test for a long-distance swimmer.

11.5 Skill-related fitness components – how can I measure them?

The skill-related (or performance-related) components of fitness are muscular power, speed, agility, balance, coordination and reaction time. In this subtopic we will explore the uses of these components and learn how to measure them so that you can identify areas for improvement.

11.5.1 Measuring skill-related fitness components

Some fitness components are more directly related to sports performance. These are called skill-related fitness components because an improvement in these areas will enable us to perform movements safely and with greater skill in a range of sporting and recreational activities. People who have adequate development of skill-related fitness components perform better, both in individual sports such as tennis, and team sports such as netball, because their movements are skilful, practised and controlled.

In the activities for this subtopic, you will carry out specific tests that will measure your skill-related components of fitness.

Resources

 **Weblink:** Test your balance

HEALTH FACT

Due to different hormone levels, females tend to have greater elasticity in their tendons, muscles and ligaments and less muscle around joints than males; all these factors combine to make females generally more flexible than males.

11.5.2 Importance of the skill-related components of fitness

Muscular power is an important skill-related fitness component because it determines the ‘explosiveness’ of our movements. This affects skills such as rebounding in basketball, marking in AFL and sprinting in rugby. Strength and power are closely related. As we increase our strength, we simultaneously and indirectly increase our power. We can further develop power through the use of **plyometric** activities, which involve springing-, landing- and bounding-type movements.

Speed is probably the most important of the skill-related components. There are very few sports or activities in which speed is not an advantage. Although speed is essential in track events, it can also be a decisive element in games like hockey, rugby, basketball and soccer. This ability provides positional advantage in attacking strategies and also enables defenders to cover a wider area.

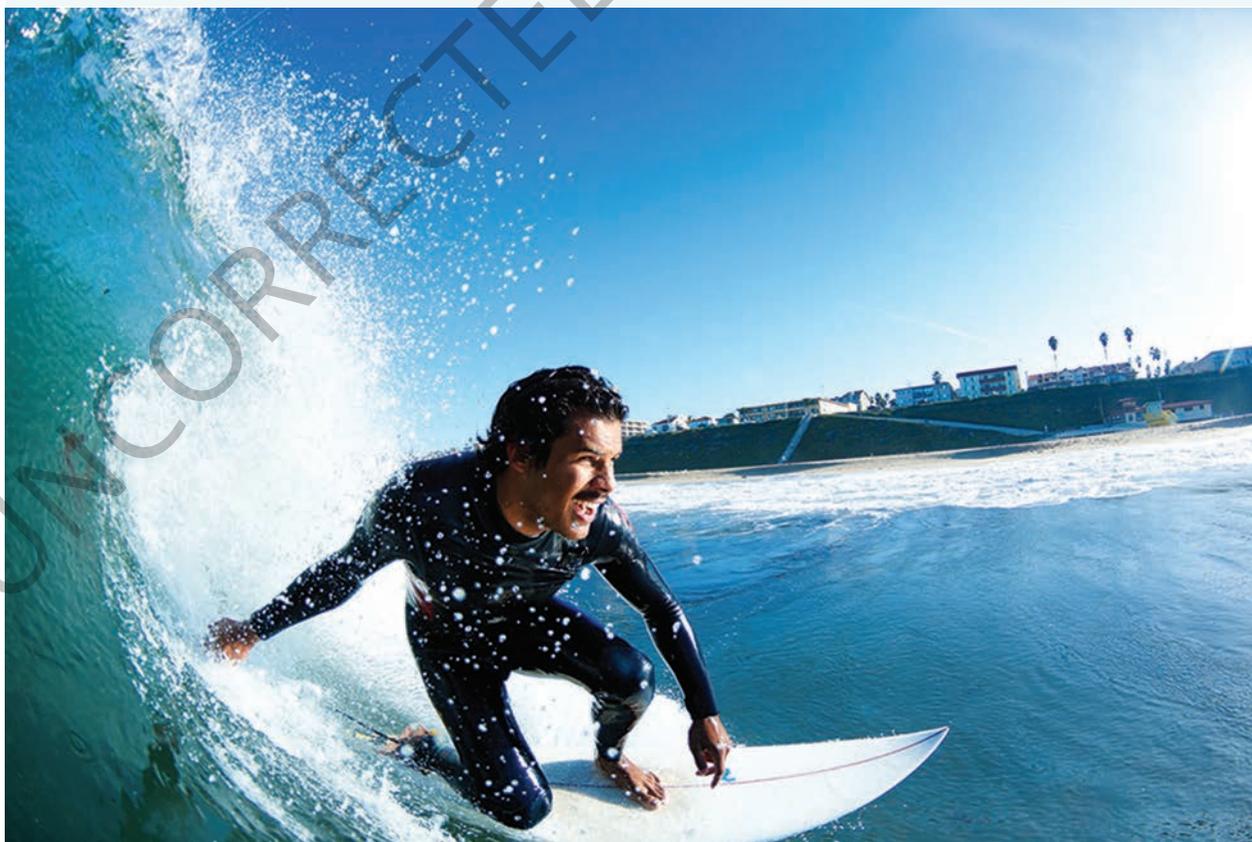
Agility is related to speed and is important in most sports, particularly team sports where you must move around opponents and teammates. An agile person can manoeuvre themselves better, take evasive action and wrong-foot opponents more easily than players who lack agility.

All activities, from the simplest to the most complex, require balance. For example, running requires us to balance our body weight on one foot momentarily and then shift weight and balance to the other foot. Good balance improves performance in all activities, particularly in fast-moving ones such as snowboarding, surfing, skating and skiing. It is also important, however, in activities such as gymnastics, golf and wrestling, where establishing a solid platform on which to perform a skill or movement is critical. Use the **Test your balance** weblink in the Resources tab to gauge your balance skills.

Coordination is the ability of body parts to work together, resulting in smooth, efficient movements. Coordination is developed with practice.

The ability to respond quickly is called reaction time. It is important at the start of events like running and swimming and used constantly in games such as rugby, soccer or table tennis.

Balance is an important fitness component in most sports.



DID YOU KNOW?

The standing long jump and standing high jump were Olympic events until 1912. The world record for the standing long jump was 3.47 metres and the standing high jump was 1.65 metres. They were both held by the same person, Ray Ewry, a US athlete who competed in the Olympic Games in 1900, 1904 and 1908. Nicknamed 'the human frog' for his incredible leaping ability, Ewry's feats were even more incredible considering he was confined to a wheelchair as a boy because of polio. He followed a rigorous jumping program to develop his leg strength and overcome muscle weakness brought on by the disease.

11.5 Activities

Measuring muscular power using the vertical jump test

Equipment: Vertical

jump board or tape measures attached to wall, Blu-Tack

- (a) Divide into pairs. One person is the subject and the other is the recorder.
 - The subject should take some Blu-Tack, face the wall, extend both hands upwards and make a mark. Record the height of the mark in centimetres.
 - The subject should then turn sideways to the wall, spread their feet, take a deep squat and jump vertically. No feet movements are allowed in preparation for the jump.
 - At the height of the jump, the subject should mark the wall with their Blu-Tack. Record the difference between the first and second marks.
 - Allow three jumps and record the best attempt.
 - The subject and recorder should now change roles and repeat steps b–e.
 - Take the best jump for each person and determine their power rating using table 11.8.

TABLE 11.8 Muscular power rating (13–15-year-olds)

Classification	Height (cm)	
	Boys	Girls
Excellent	≥ 50	≥ 41
Good	41–50	31–40
Average	31–40	21–30
Fair	21–30	11–20
Poor	≤ 20	≤ 10

Measuring agility using the Illinois agility test

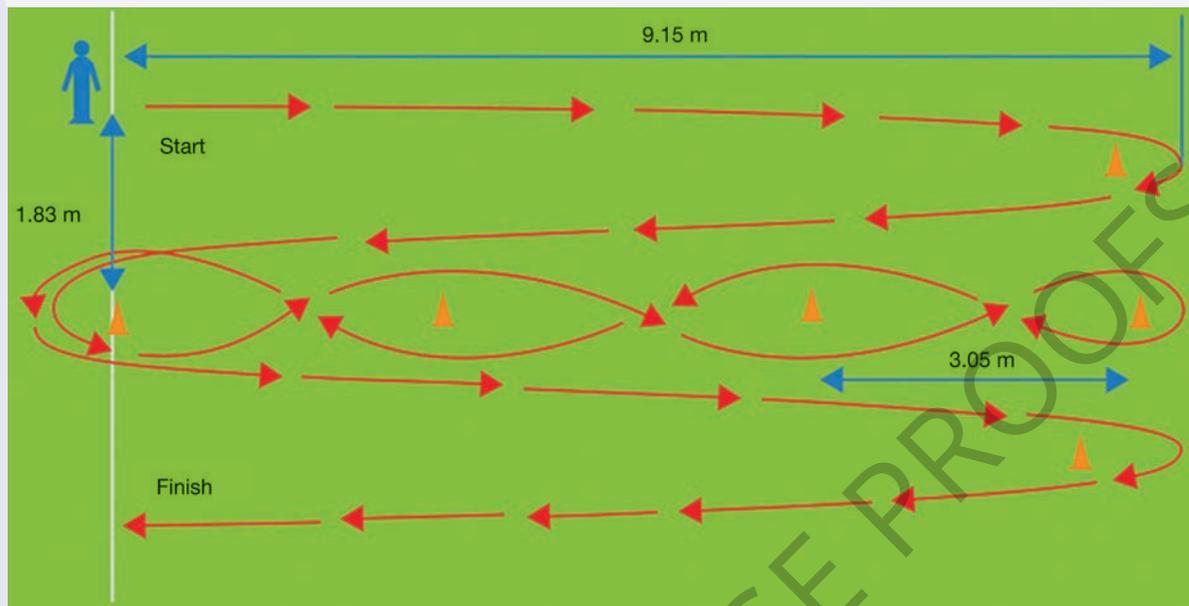
Equipment: Tape measure, four markers (chairs or cones), stopwatches, recording sheets

- (a) On a football field or suitable flat surface, mark two parallel lines 9.15 metres apart. Place four 'witches' hats 3.05 metres apart as illustrated in the figure on the next page. Place two cones 1.83 metres each side of the first line marker to indicate start and finish.
 - Divide into pairs. One person is to complete the course and the other is to time and record the results. Ensure that you warm up and stretch before you begin.
 - The first person from each pair must lie face down in a push-up position just behind the line at the start.
 - On the instruction 'go', that person:
 - runs to the end line, around the marker and back
 - weaves around the markers to the end line and back
 - then runs to the end line, around the marker and back to the finish.
 - During the run, each end line must be crossed. The marker cannot be jumped or knocked.
 - The other person records the time for completion of the course.
 - Allow two attempts, with recovery time between each. Then repeat the test for the other person.
 - Check your agility rating using table 11.9.

TABLE 11.9 Agility rating (13–15-year-olds)

Classification	Time (seconds)	
	Boys	Girls
Excellent	≥ 16.9	≥ 16.9
Good	17.0–17.9	17.0–18.9
Average	18.0–18.9	19.0–20.9
Fair	19.0–19.9	21–22.9
Poor	≤ 20	≤ 23

The Illinois agility test



Measuring coordination using the alternate ball toss

Equipment: Tennis ball, measuring tape, a marker, wall, recording sheet

3. (a) Mark a spot 1 metre from the wall.
- (b) Stand behind the line, facing the wall.
- (c) Throw the ball from one hand in an underarm action against the wall and attempt to catch it with the opposite hand.
- (d) Throw the ball back against the wall and catch with the first hand. Continue for 30 seconds.

Table 11.10 lists general ratings for the wall toss test, based on the score of the number of successful catches in a 30-second period.

TABLE 11.10 General ratings for the wall toss test

Rating	Score (in 30 seconds)
Excellent	>35
Good	30–35
Average	20–29
Fair	15–19
Poor	>15

Measuring reaction time using the Latham reaction time test

Equipment: Two one-metre rulers, desk and chair, recording sheets

4. (a) Divide into pairs. Nominate one person to be the subject and the other to conduct the experiment and record the result.
- (b) The subject sits at a desk and places their forearms across the desk so that the hands are beyond the far edge of the desk. Fingers and thumbs point away and have a gap between them, approximately two centimetres wide.
- (c) The recorder stands beside the subject's hands and suspends the rulers just beyond the far edge of the desk. The bottom edges of the rulers should be level with the thumb and index finger of the subject.
- (d) Any time after the recorder says 'ready', the rulers should be dropped, but not at the same time. However, the rulers must be dropped within 10 seconds of each other.

- (e) The subject should try to catch each ruler. The score is read in centimetres and is the point at which the thumb and index finger grasp the ruler. Combine the scores for each hand and average the result.
- (f) Allow three trials prior to testing and then five attempts during the test. Record the best result.
- (g) Repeat the test for the second subject.
- (h) Use table 11.11 to determine your reaction time rating.

TABLE 11.11 Reaction time rating

Classification	Ruler reading (cm)
Excellent	< 6
Good	7–10
Average	11–15
Fair	16–21
Poor	> 22

Analysing your results

- 5. Use the **Analysing skill-related fitness components** worksheet in the Resources tab to collate your results and analyse your skill-related fitness.

Conducting the Latham reaction time test



Resources

 **Interactivity:** Fitness components (int-5468)

 **Digital doc:** Worksheet 11.3 Analysing skill-related fitness components (doc-29202)

11.5 Check and challenge

Explain

1. Define muscular power.
2. According to the ratings chart, how was your level of agility classified? How could it be improved?
3. Identify five sports or activities in which above average levels of agility are essential.
4. What is reaction time?
5. Identify three activities where reaction time is important.

Evaluate

6. What was your muscular power rating? Is your power sufficient to be able to perform sporting movements as well as you would like?

Elaborate

7. Describe aspects of daily life where muscular power is an advantage.
8. Comment on your coordination as indicated by your measurement. Do you think this was an accurate measure? Suggest ways you could improve your coordination.
9. Discuss a range of activities that could be used to improve reaction time.

11.6 Skill-related fitness components – how can I improve?

Maintaining muscular power, speed, agility, balance and coordination helps you stay at the top of your game. In this subtopic, we look at how to improve these skill-related fitness components.

11.6.1 Maintaining skill-related fitness components

We know skill-related fitness components can have a big impact on our sporting performance. In subtopic 11.5 you identified your benchmarks for these components; the next step is to learn how these can be maintained and improved.

In pairs list the skill-related fitness components and at least two key words to describe each component. Use the **USA vs Aus basketball** weblink in the Resources tab, or watch a team sport of your choosing, and over a period of three to five minutes identify the use of the skill-related components in this sport. Explain their importance.

Skill-related fitness components are key to optimum sporting performance.



Resources

 [Weblink: USA vs Aus basketball](#)

11.6.2 Improving skill-related fitness components

The key to developing muscular power is completing explosive efforts. This can be done through plyometric training. When completing these activities you should always start with low-impact activities such as skipping and build up to high-stress activities such as the hop, step and jump.

To develop speed you need to work at maximal intensities over shorter distances, but also focus on technique.

The key to developing agility is combining speed training with changes in direction such as weaving around cones.

Improving coordination, balance and reaction time generally need to be more specific to the sport. For example, a rugby player requires hand–eye coordination, but a soccer player requires foot–eye coordination. These are best developed using sport-specific drills; for example, a 100-metres sprinter may practise both balance and reaction time by performing drills using starting blocks where their focus might be balance in the blocks and a quick and efficient reaction to the starting signal.

DID YOU KNOW?

High jump requires power, flexibility and agility. Before 1965, most high jump records were made using the scissor-kick technique, as opposed to the Fosbury Flop that became popular in the late 1960s.

11.6 Activities

Training power — plyometrics

1. Over 20 minutes, complete at least two sets of 10 repetitions of the following exercises.

Plyometric exercises

Low-impact plyometric drills



Light medicine ball throw



Side jumps



360° jumps



Skipping



Low hops



Steps



Jumps



Throwing a ball

High-impact plyometric drills



Jumps onto, over and from 35-cm benches



Hop, step and jump



- Rank the exercises from easiest to hardest.
- List three sports that might use these exercises as part of their training.
- Create two different plyometric exercises for the upper body.

Training speed – speed training

2. Use the **Speed training drills** weblink in the Resources tab to access the speed training drills.
 - (a) Rank the exercises from easiest to hardest.
 - (b) List three sports that might use these exercises as part of their training.
 - (c) List two factors that may impact your ability to complete these exercises.

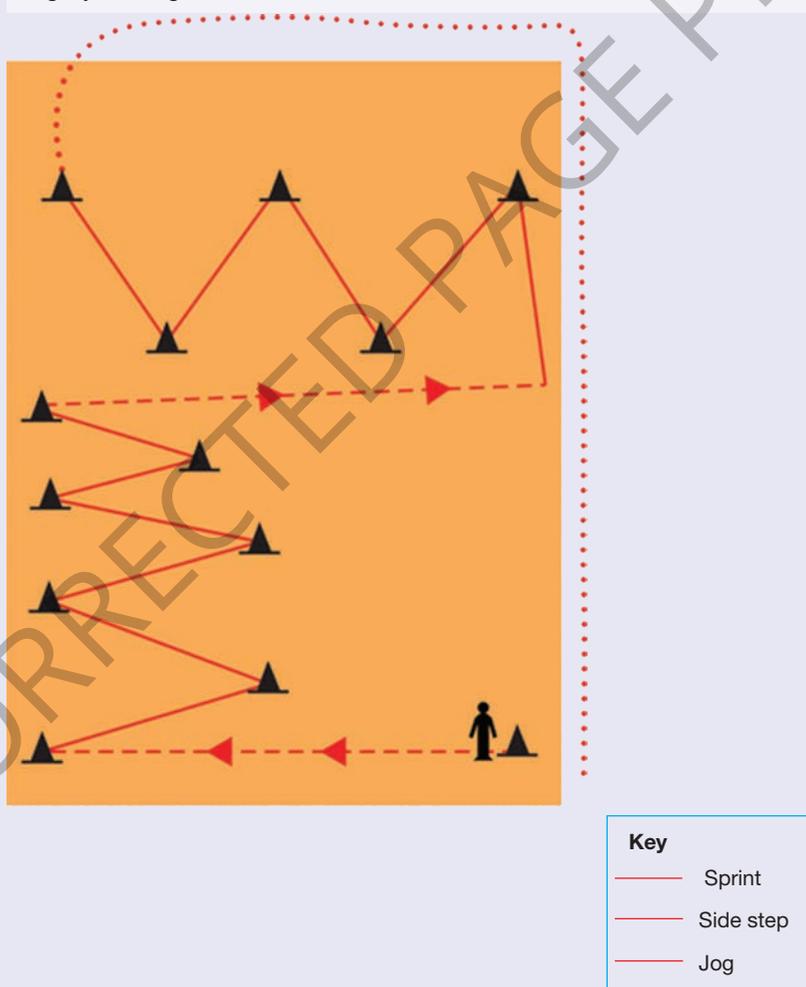
Training agility – agility circuit

3. In groups or as a class, use cones to set up the station depicted in the diagram below. The different line styles in the diagram represent different ways of moving to get to each cone. Your task is to move through the circuit from cone to cone either sprinting, side stepping or jogging, as shown in the diagram. Have a partner time you from start to finish.

For an extra challenge you might want to try and complete the circuit as fast as possible or introduce throwing and catching at certain points in the circuit!

- (a) List three sports that might use these exercises as part of their training.
- (b) List two factors that may affect your ability to complete these exercises.

Agility training circuit



on Resources

 [Weblink: Speed training drills](#)

11.6 Check and challenge

Explain

1. Define power.
2. Define speed training.
3. Define agility training.
4. Explain the difference between training activities for speed and agility.

Elaborate

5. Create a training session aimed at improving power.
6. Discuss how the session in question 5 could be made more specific for a tennis player.
7. Create a training session aimed to improve speed.
8. Create a training session aimed to improve agility.
9. Using a sport of your choice, create a specific activity that could be used to develop balance, coordination and reaction time.

Evaluate

10. Identify how the need for balance and coordination would differ for a diver and for a rugby player.
11. (a) Consider the following basketball training session and predict which fitness components are likely to be developed.
 - Warm up — 5-minute jog at 55 per cent maximal heart rate
 - 10 repetitions — sprint 10 metres and walk back
 - 5 repetitions — sprint 15 metres and walk back
 - 10 repetitions of the following exercises with rest between each:
 - skipping
 - bounding
 - lateral jumps
 - lateral hops
 - squat jumps (as high as you can)
 - squat jumps (as far as you can)
 - 5-minute cool down
- (b) Modify the above session to develop the same fitness components, but make it more specific to the sport of your choice.

11.7 FITT — the formula for fitness

When you have a goal you want to achieve, you need to form a plan to ensure success. When looking to improve fitness or sporting performance, the basis of your plan can be the FITT principle – an improvement plan formulated around four key exercise elements: frequency, intensity, time and type.

11.7.1 Achieving fitness success

There are many ways to improve our fitness. Ideally, the measures we take should be well planned, involve a variety of enjoyable activities, be challenging and target the components most in need of attention.

All competitive athletes must have a plan. Plans will differ based on the number of events and the recovery time required. Some sports have seasons that require building up to and then recovering from one high-intensity game a week, such as rugby. Others, however, such as many Olympic sports, have only one or two major events in a year. Discuss how you think this would change their training programs.

Training programs vary across different sports.



DID YOU KNOW?

It takes 6–12 weeks for training effects to become evident. After only two weeks without training you can lose up to half of any gains you had made.

11.7.2 How the FITT principle works

Whatever the sport, an effective performance maintenance and improvement plan can be structured around the FITT principle, with specific targets set for each of its four elements.

Frequency

Frequency relates to how often we engage in the program. To improve cardiorespiratory fitness, three or four days per week is the minimum, with five or more being preferable.

Intensity

Intensity is a measure of how hard we are working. The level of intensity may be indicated by our heart rate. When we are at rest, our muscles require less oxygen as they are not working very hard, so our heart rate is relatively slow (around 70 beats per minute). When we move (work), our heart rate increases. There is a limit to how fast our heart can beat during physical activity. This is called the **maximal heart rate (MHR)**.

To improve our aerobic fitness, the pace at which we exercise must be hard enough to make the heart work at between 70 and 85 per cent of its maximum rate. Somewhere between these two values lies our **target heart rate**. When we begin an exercise program, we should aim for a target heart rate that is around 70 per cent of our maximal heart rate. As our fitness improves, we should lift our target heart rate to 75 per cent MHR,

The FITT principle

Frequency (how often)



Intensity (how hard)



Time (how long)



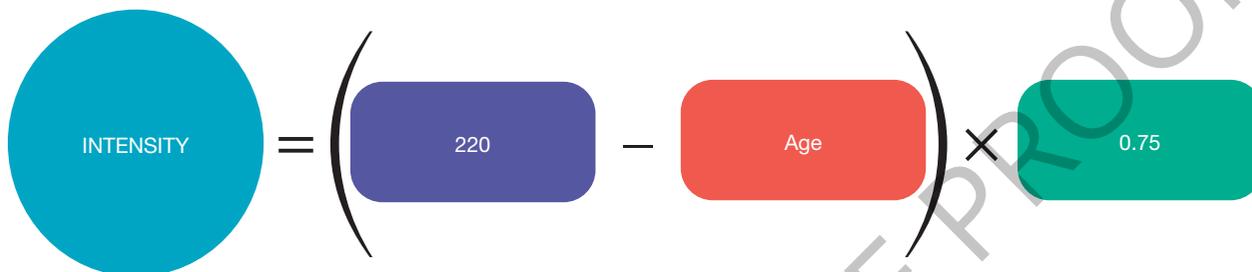
Type (what type of exercise)



and higher again with continued improvement. A progressive lowering of our resting heart rate indicates an improving level of fitness.

How then do we estimate our target heart rate? The easiest method is to subtract your age from 220 and multiply by the level you are aiming for, in this case, 70 per cent MHR. For a 14-year-old, for example, this would be $(220 - 14) \times 0.70 = 144$ beats per minute (to the nearest whole number). The 14-year-old person should then aim to keep their heart rate around the target heart rate for a sustained period of time. This general area is called the **target heart rate zone**. When they are comfortable with this level of intensity, the target heart rate could be lifted to 75 per cent MHR, or 154 beats per minute.

Calculating the target heart rate for 75 per cent of maximal heart rate (MHR)



Another indicator of intensity can be **respiratory rate (RR)**. As we increase our intensity our respiratory rate will increase in order to supply increased levels of oxygen to our muscles. The harder you work the more oxygen your muscles will require; therefore, your respiratory rate will also increase.

The higher your respiratory rate, the harder it can be to talk. It is very difficult to talk when you are working at maximal intensities. The talk test is a very easy method of indicating intensity.

The talk test is easy to implement, but it is not as accurate as measuring heart rate.

<p>Low-moderate intensity</p>	<p>You can hold a conversation with ease, maybe even sing.</p>	
<p>Moderate intensity</p>	<p>You can talk with possible pauses between sentences, but you cannot sing.</p>	
<p>Vigorous intensity</p>	<p>You cannot say more than one or two words without pausing to take a breath.</p>	

DID YOU KNOW?

A normal breathing rate for an adult at rest is 8 to 16 breaths per minute. For an infant, a normal rate is up to 44 breaths per minute.

Rate of perceived exertion (RPE)

Another way to calculate the intensity of a workout is by using the RPE, or rate of perceived exertion. This scale can assist coaches and trainers effectively gauge and monitor cardiovascular exercise intensity. The scale is based on how your body feels to you during exercise. This means that how you feel during an exercise might be completely different to how the person sitting next to you feels, therefore, your rate of perceived exertion will be different. It relies on your body's sensations such as fatigue, breathing rate, heart rate and how much you sweat.

When using this scale, moderate intensity might be considered to be somewhere between 11 and 13, and vigorous intensity above 14 or where an individual might perceive the activity as being difficult. For example, you might begin training at an intensity of 11–13 but as your fitness improves you might be able to train anywhere from 14–16, at a hard intensity, by incorporating some more vigorous exercise into your training regime.

Time

Time refers to the length of a session or program. For a training session targeting aerobic capacity (or aerobic fitness as it is also known), time refers to the minimal amount of time that we should spend with our heart rate in the target heart rate zone. Twenty minutes should be the minimum, with 30 minutes or longer being ideal.

Type

Type refers to the best kind of exercise that is appropriate to our fitness needs. To develop cardiorespiratory fitness, aerobic-type exercises such as cycling, jogging and swimming are best. To develop power, the best exercises are plyometrics.

TABLE 11.12 Rate of perceived exertion

RPE scale	
6	
7	Very very light
8	
9	Very very light
10	
11	Fairly light
12	
13	Somewhat hard
14	Hard
15	
16	
17	Very hard
18	
19	Very very hard
20	

DID YOU KNOW?

There are many gym classes available, such as 'body pump', 'cycle' or 'spin' classes and cross-fit gyms that will develop a range of health- and skill-related components, aiming to develop strength, endurance, cardiorespiratory fitness and flexibility. Have a look what is in your area!

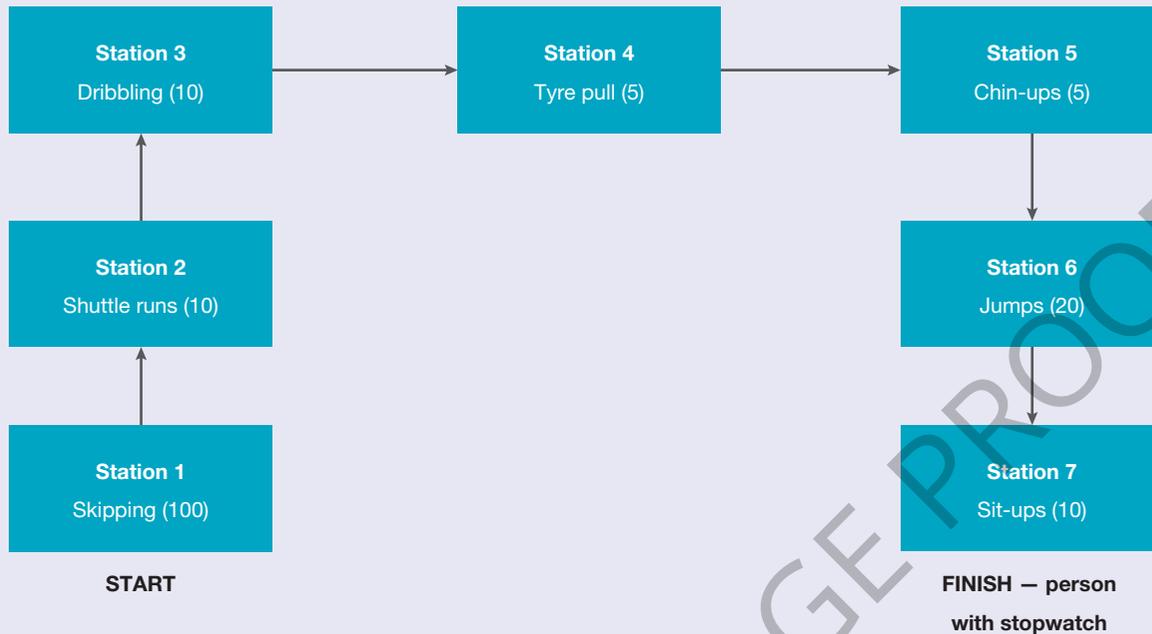
11.7 Activities

Choose some of the following activities to improve your fitness in a fun and challenging way.

Fitness circuit

1. A fitness circuit is a series of stations where different exercises are performed. The aim is to complete the circuit in the shortest possible time. Some examples of activities that may be included are skipping, shuttle runs, dribbling between markers, running while pulling tyres, chin-ups, jumps and sit-ups. Organise these into a circuit and make signs that display the number of times that an activity needs to be performed by each individual (illustrated on the next page). Allocate people to a starting position and complete two laps of the circuit, recording the time it takes. Rate your intensity using the talk test after each activity. Repeat the exact circuit in following lessons to see if you can improve your time.

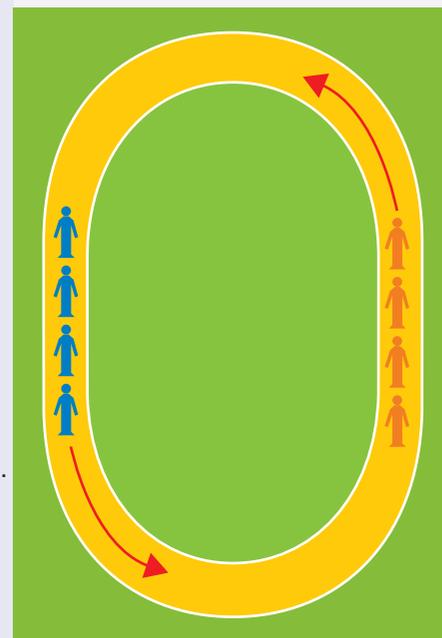
A fitness circuit



Pursuit

2. Organise the class into four teams of roughly equal endurance fitness ability. The aim is to engage in a game of pursuit where teams run around a 200-metre (or approximate) circular track trying to overtake the other group. Teams begin on opposite sides of the track and must stay as a unit (illustrated on the right). They may use any tactics to help their own group such as carrying or assisting slower runners, so long as they do not interfere with another group. When a team catches and passes the last person in the group ahead, it is declared the winner. The other two teams compete in the same manner, with winners advancing to the finals.

Pursuit



Relay carnival

3. Organise the class into four teams of equal running ability and assemble on a 60-metre track. Conduct relays in which each stage is a different activity. The first relay, for example, might consist of running, skipping, running backwards and hopping. Another relay might include stages for sack racing, three-legged sprints, car-tyre pull and skipping-rope run. As a class, discuss ideas for other activities that could be included. Plan your relays in advance to ensure you have all the necessary equipment. Conduct the relay carnival and have a class presentation.

Health hustle

4. Divide the class into small groups, each of which is responsible for organising an activity for the health hustle. Each group is allocated a phase such as warm-up, stretching, strengthening, cardio-work and cool-down. One group is given the responsibility for equipment and supplying music. Groups demonstrate their activity to the class and then organise the activities into a sequence. Finally, perform the health hustle with each group leading the activity it organised.

Ironman/ironwoman contest

5. As a class, suggest activities that could be included in an ironman/ironwoman contest. If possible, organise the inclusion of swimming and beach sprint events. If facilities like these are unavailable, improvise using activities like modified cross-country, skipping, a 50-metre medicine ball roll and jumping races to make up the contest. Conduct the event and determine the ironman/ironwoman for the class.

What does your body say?

6. (a) Perform the activities in table 11.13 for one minute each. Measure your heart rate, breathing rate and ability to talk after each activity. (For breathing rate, breathing in and out counts as one completed cycle.) Record your results in the table.

TABLE 11.13 Measuring intensity

Activity	Heart rate	Breathing rate	Talk test (indicate intensity)
Lying down			
Sitting up			
Standing			
Walking			
Slow jog			
Running			

- (b) Describe the effect of physical activity on your heart rate and breathing rate as you performed each activity. Which type of exercise had the greater effect on your ability to talk? Why do you think this is?

A personal fitness plan

7. Use the FITT principle to plan a personal fitness plan. Complete and then review the **Weekly training plan** worksheet in the Resources tab to track your progress. Does anything need to change? What were some of the barriers you faced? How did you overcome these?

on Resources

 Digital doc: Worksheet 11.4 Weekly training plan (doc-29203)

11.7 Check and challenge

Explain

1. Explain the FITT principle.
2. Demonstrate your knowledge of how intensity is measured.
3. Clarify the difference between maximal heart rate and target heart rate.
4. Develop a fitness circuit and describe the activities you would include and why.

Elaborate

5. Discuss some other possible measures of intensity and rank them from most accurate to least accurate. Justify your response.

Evaluate

6. (a) Evaluate all the activities in this subtopic in terms of their potential to improve your fitness.
- (b) Which do you think was the most effective activity? Why?
- (c) Not all fitness activities require specialised equipment or a formal plan to be effective. Use the **Exercise that doesn't feel like exercise** weblink in the Resources tab and identify some of the ideas you would find useful. Suggest another way of doing 'exercise that doesn't feel like exercise'.

on Resources

 **Weblink:** Exercise that doesn't feel like exercise

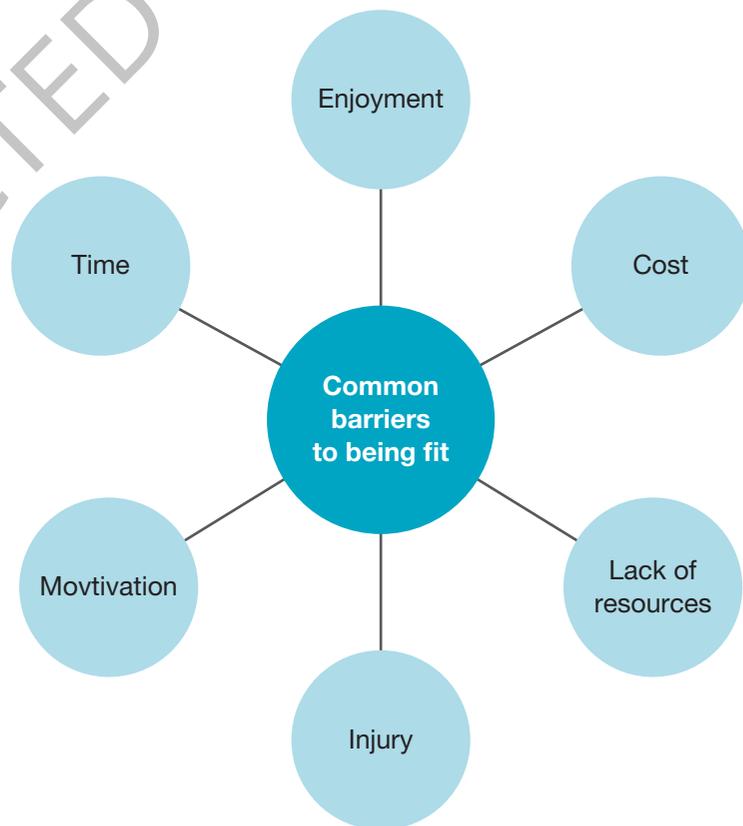
11.8 Fit for life – overcoming barriers to fitness

Fitness can be described as a state of good health that has been achieved through a combination of healthy diet and regular physical activity, which allows the body to function efficiently. Fitness is important at every age – from ensuring healthy development through childhood and adolescence to enabling vitality and mobility in later life. Recognising and overcoming barriers to fitness is essential to ensure you are able to obtain and maintain a level of fitness that will optimise your health and wellbeing throughout your life.

11.8.1 Staying fit for life

There are many ways to improve your fitness, health and wellbeing. The more enjoyable you make the process, the keener you will be to continue with your exercise and the more likely you will be to succeed in achieving your ideal level of fitness.

Consider the image below. List any barriers or excuses you have faced when trying to improve your fitness. With your partner, compare your lists. As a class, discuss the most common barriers. Do these barriers differ for boys and girls? Would these barriers be the same for 7-year-olds, 18-year-olds or the elderly? Why or why not?



11.8.2 SMARTER goals

Setting short-term and long-term goals can be an effective way to overcome some of the common barriers. When setting goals it is suggested you follow the SMARTER rule. SMARTER stands for:

- specific
- measurable
- achievable
- realistic
- timely
- evaluate
- reward.

Setting SMARTER goals can increase your chance of overcoming barriers and achieving success.

A SMARTER goal does not say ‘I want to be more active, or a better tennis player or runner’. Vague goals are not motivating, nor can you track your progress, so there is a good chance you will not achieve your goal. A SMARTER goal is broken down into small achievable parts that you can measure against specific times and dates. For example, instead of hoping ‘to run faster’ you set the goal of ‘I want to run 5 kilometres in 30 minutes by 30 June’. This is more motivating because you can easily track your progress and work out exactly what you need to do to achieve success. Complete the **SMARTER goals** worksheet in the Resources tab to practise identifying and setting SMARTER goals.

on Resources

 Digital doc: Worksheet 11.5 SMARTER goals (doc-29204)

11.8.3 Ways of making fitness fun

Training at the elite level is different from the way we need to work to achieve a general level of fitness. Much of what we see at rugby training, for example, is geared towards toughening players in preparation for contact sport. If we are more interested in health-related fitness rather than skill-related fitness, we need a different approach to exercise. With some creative thinking, we can make getting fit fun — so much so that we can actually improve our fitness without noticing small discomforts experienced in the process. Some suggestions for making fitness an enjoyable experience are listed below. Can you think of others?

- Play field games/activities such as beach volleyball and frisbee whenever you can.
- Do aerobic exercises such as power walking, jogging and cycling with a friend so you can socialise at the same time. This takes your mind off what you are doing and often encourages you to exercise for longer than you might by yourself.
- Plan enjoyable outdoor activities such as hikes, cycling, walks and backyard games.
- Enter fun runs and community adventure activities whenever you get the chance.
- Look for new activities that challenge you mentally as well as physically, such as dancing, water sports, badminton, golf, karate, rope climbing or skating.

How can I make fitness fun?



- Devise cross-training programs that include a range of exercises such as running, stretching, strength work, skipping and jumping. Challenge yourself by creating new activities to keep you interested. Test for improvement and monitor your progress to keep motivated.
- Make choices that favour activity over inactivity. Walk to the shops if you can and choose stairs rather than escalators.
- Join a gym or centre where you can learn something new and different such as Pilates, yoga or aqua aerobics.
- Work with friends who are also keen to be active and maintain their health and fitness to achieve common goals.
- Reward yourself when you achieve your fitness goals.

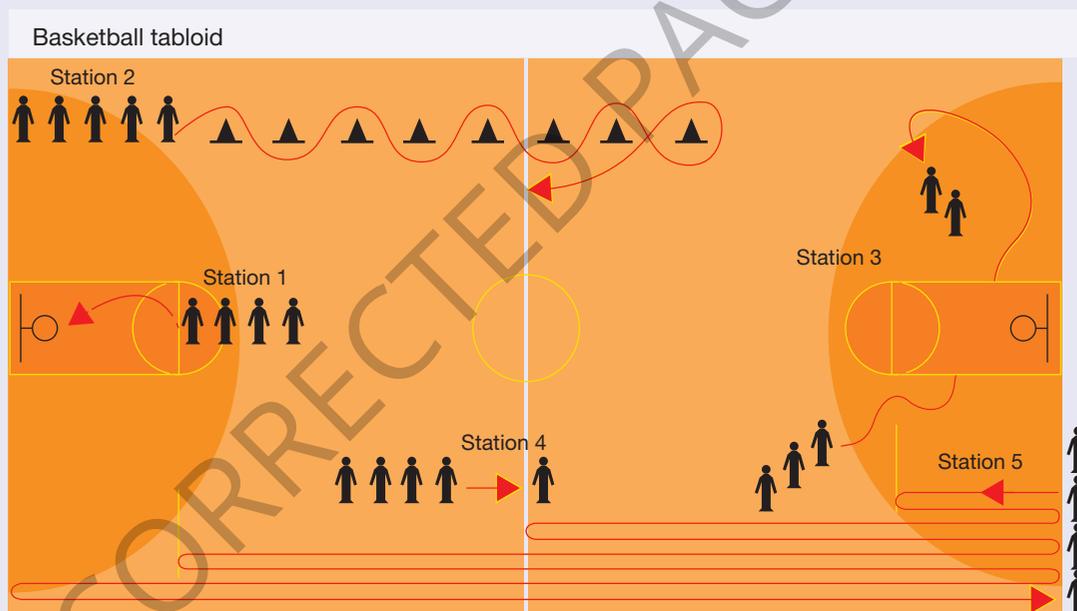
11.8 Activities

Try two or three of the following activities. They will help improve your fitness and hopefully you will enjoy them at the same time.

Basketball tabloid

Equipment: Court, basketballs, markers, skipping rope, station cards, whiteboard, markers

1. A tabloid is a fun activity where teams compete against one another by completing simple skills in a set period of time. Points are awarded to teams for the number of times an activity such as passing the ball is completed. At the end, the team that gains the most points is the winning team.
 - (a) Set up the basketball court with stations spaced well apart, as illustrated below.



- (b) Divide the class into five teams and allocate a leader/scorer for each team. Demonstrate the activity that is required at each station.

- **Station 1: Free throws.** Team members line up on the free throw line with a basketball in the hands of the team leader. Each person in turn has a shot for goal. One point is scored for each successful goal. The thrower returns the ball and goes to the end of the line until his/her turn comes again.
- **Station 2: Skip and dribble.** Team members complete 20 skips with the skipping rope and follow this with a dribble in and out of the cone markers and back to the line. Members gain one point for each completed skip and dribble.
- **Station 3: Lay-ups.** A team divides into two lines — a shooting line and a rebounding line. Players in the shooting line dribble towards the basket and do a lay-up. If successful, the team gains one point. The first person in the rebounding line gathers the ball, passes to

the next person in the shooting line and runs behind the shooting line. The shooter goes to the end of the rebounding line.

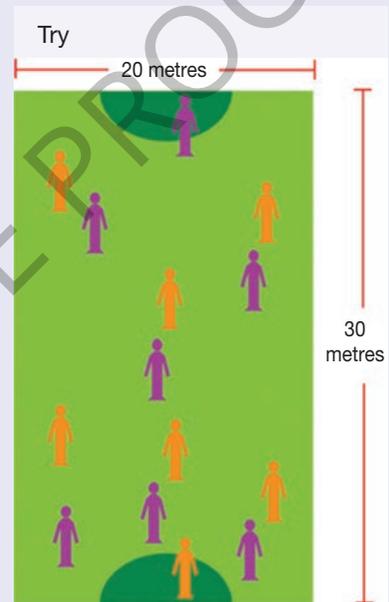
- *Station 4: Captain ball.* The team leader faces the group and, from a distance of three metres, passes to each of the team members. Once team members have passed back to the leader, they duck to allow the pass to go to the next person in the line. The end person runs up and replaces the leader who then goes to the front of the line. The team gains one point for each rotation made.
- *Station 5: Dribble conditioner.* Team members line up on the end line. The leader dribbles the ball to the quarter-line and back, to the halfway line and back, to the three-quarter line and back and finally to the far end line and back. This completes one dribble conditioner and gains one point for the team.

Try

Equipment: Field, rugby ball, bibs

2. (a) Divide the class into teams of seven players and allocate the following positions within each team — goal scorer, three defensive players and three forwards. Allocate bibs to identify players in their respective teams. On a field measuring approximately 30 metres × 20 metres, mark out a 5-metre semicircle at each end to indicate the try area. Only the goal scorer is allowed in this area. This is illustrated ensure this is correct according to any changes; may be 'on the right'.

(b) Use a rugby ball and begin the game with a toss. The team that gains possession attempts to pass the ball to their goal scorer who, after receiving the ball, puts it on the ground for a try, which is worth one point. The defensive side is allowed to intercept. Body contact (foul), however, is not allowed. If a person incurs five fouls, they must leave the field. The offensive side loses the ball if they take more than two steps with the ball or hold it for more than three seconds. The winning team is the team that scores the most tries in the time period.

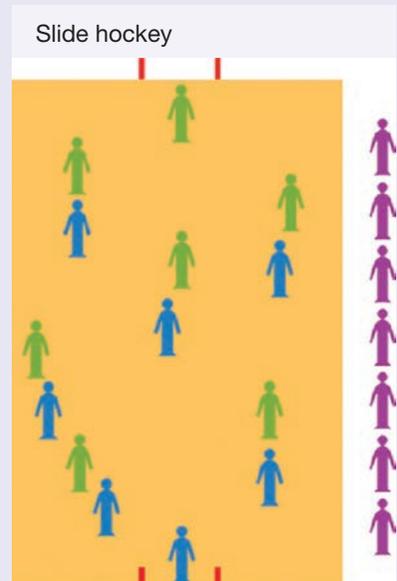


Slide hockey

Equipment: Hockey sticks, puck, bibs, markers

3. Play a game of slide hockey on an indoor surface or outdoor sealed area where the puck will slide easily. Divide the class into three teams. Mark an area approximately 20 metres × 10 metres and use markers to indicate goals that are one hockey stick wide. This is illustrated below.

One team begins with the puck, which must be pushed, not hit, to teammates. The offensive team can push the puck with either side of the stick but loses possession if responsible for the puck going over the sideline or end line. The defensive team is able to intercept the puck. When a team scores, the losing team leaves the field and is replaced by the team waiting on the sideline.



Design your own tabloid

4. Go online to research some ideas for making fitness fun. Using equipment available to you, create your own fun fitness tabloid. As a class, decide on the best ideas and use them in your next lesson.

11.8 Check and challenge

Explain

1. Why is it important to ensure that the process of improving fitness is a fun activity?
2. Why is it important to have variety in fitness programs?
3. Describe three activities that could be used to improve aerobic fitness.
4. Describe three activities normally conducted in gyms that could be used to improve fitness.
5. Create a soccer tabloid based on the 'Basketball tabloid' activity. Explain each station of your tabloid and use a diagram to illustrate progression from one activity to the next.
6. Identify the fitness components that are improved by participation in the 'Slide hockey' and 'Try' activities.

Elaborate

7. Predict the potential of the activities in this subtopic to improve fitness.

Evaluate

8. Evaluate tabloid activities in terms of their ability to improve fitness in a fun way.

11.9 Review

11.9.1 Summary

- Fitness is good for us because we feel better, look better and perform better.
- Physical fitness is a measure of our ability to perform daily tasks and activities.
- Health-related components of fitness include cardiorespiratory endurance, body composition, muscular strength, muscular endurance and flexibility.
- Skill-related fitness components include muscular power, agility, speed, balance, coordination and reaction time.
- A progressive lowering of our resting heart rate indicates an improving level of fitness.
- Regular exercise strengthens muscles, promotes healthy bone growth and helps the heart to transport blood more efficiently.
- There are recognised tests available for measuring both health-related and skill-related components of fitness.
- FITT stands for frequency, intensity, time and type.
- The FITT principle is an exercise prescription that guides us through developing and monitoring our fitness program.
- Target heart rate is the number of beats per minute that we want the heart to work at during exercise to achieve aerobic benefits.
- The target heart rate zone is the general range of the target heart rate.
- Respiratory rate (RR) and your ability to talk while exercising can be an indication of exercise intensity.
- Setting SMARTER goals can assist in setting up and maintaining a fitness program.
- There are many barriers to being fit, but the more enjoyable you can make getting fit the more likely you are to overcome these barriers.

ESSENTIAL QUESTION

What does it mean to be fit and how can I improve my fitness?

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

11.9.2 Key terms

cardiorespiratory endurance/aerobic fitness the body's ability to sustain prolonged exercise using the large muscles of the body; also known as aerobic stamina/endurance

cardiovascular refers to the heart and its blood vessels

flexibility the degree of movement around a joint

intensity how hard we work

maximal heart rate (MHR) the assumed maximum at which the heart can beat is calculated by subtracting your age from 220

metabolism the rate at which the body burns up the energy provided by the food we eat

physical fitness a measure of our ability to perform daily tasks and activities

plyometric a training method in which a muscle is lengthened before being rapidly shortened to develop explosive power; for example, jumping on to and off a box

repetitions a training activity that is repeated. The number of times it is repeated represents the number of repetitions. Usually used in flexibility and weight training.

respiratory rate (RR) the number of breaths taken per minute

target heart rate the number of beats per minute that you want the heart to work at during exercise

target heart rate zone the general range around the target heart rate

11.9 Check and challenge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au *Note: Question numbers may vary slightly.*

Key terms quiz 

Multiple choice quiz 

Check your understanding

1. Describe the benefits of fitness.
2. Explain the difference between health-related and skill-related fitness components.
3. Define cardiorespiratory endurance.
4. Explain why views about fitness differ from person to person.
5. Describe three ways to make getting fit a fun activity.
6. What is a tabloid and how can it be used to improve fitness?
7. Describe a test used to measure a health-related component of fitness.
8. Describe a test used to measure a skill-related component of fitness.
9. Explain how the FITT principle is used to develop and monitor a fitness program.
10. Explain how intensity is calculated.

Resources

-  Digital doc: Worksheet 11.6 Key terms quiz (doc-29205)
-  Digital doc: Worksheet 11.7 Multiple choice quiz (doc-29206)
-  Digital doc: Key terms glossary (doc-29207)