

Fitness & Health

Concepts of health & fitness

The terms fitness and health are often used interchangeably in general conversation, with little clear understanding of what either term really means, or the two topics are related.

Health

The World Health Organisation (WHO) defines **health** as

"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

This definition suggests that health has three parts to it. It is not simply not having a disease.

So not having flu, or not being injured, isn't enough to be healthy. These are just the physical side of the definition.

Mental health is defined by the WHO as:

"a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community"

Again, mental well-being is not simply the absence of mental illness. You may be able to cope with the stresses of work, but are you able to work productively? Such individuals may not think of themselves as mentally ill.

The last part of the WHO definition considers 'social well being'. This is more difficult to define but involves elements of living within a community, spirituality, fulfilling work, social relationships etc.

01. What do you understand by the term health?



- 02.** How may a fully fit Premiership be able to play the full 90 minutes but still be unhealthy?

Fitness

Fitness may be defined as the 'ability to cope with the demands of everyday life'.

The demands made on an individual vary considerably. Consider the elite athlete and her daily training programme as compared to the mother walking the family dog. Compare the building labourer to the office worker.

Even for an individual, the demands vary from day to day. To be fit is to be able to cope with those demands and be able to meet them without undue stress.

Fitness levels vary, depending on many factors and can change, either for the better or for the worse.

- 03.** Suggest **three** factors that may affect our fitness levels.

- 04.** What do you understand by the term fitness?

Generally, a person who is fit is more likely to be healthy. Taking part in activities that help our levels of fitness means we are less likely to suffer from certain illnesses and may even help us live longer.

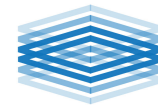
Fitness is not a single entity. There are many different types of fitness. Compare the shot-putter to the marathon runner, of the sprinter to the gymnast; who is fitter?

Each activity has its own fitness requirements.

- 05.** What are the main fitness requirements of:

the shot-putter

the marathon runner



the sprinter

the gymnast?

These fitness requirements are called the components of fitness. There are two broad areas of fitness components, health-related and skill-related.

Health-related components are concerned with the physical side of fitness and skill-related are concerned with the technical side of fitness.

Components of health related fitness

Stamina or **cardio-respiratory fitness** or **aerobic capacity** this is the fitness component that allows us to take part in continuous, whole body, sub maximal activities such as swimming, long distance running, cycling and rowing.

In simple terms, stamina is the ability to delay fatigue.

It is also involved as an important factor in many games.

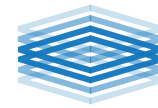
06. Why is stamina an important component of games?

Stamina depends on the lungs, the heart and the blood to work efficiently to get oxygen to the muscles in the body. The need for good stamina is not restricted to sports performers. You need stamina when running for a bus, mowing the lawn, playing with children, decorating, and climbing the stairs.

07. What do you understand by the term stamina?

08. Which body systems are mainly involved in stamina?

Strength may be defined as the ability to overcome a resistance.



When watching physical activities we can see performers applying strength rapidly and powerfully; or in holding a position over a period of time; or by repeating an action many times. There are therefore different types of strength.

09. Give an example from different physical activities of:

'applying strength rapidly and powerfully'

'holding a position over a period of time'

'repeating an action many times'

10. What do you understand by the term strength?

Explosive strength is the rapid contraction of a muscle or group of muscles to achieve a maximum generation of force. Explosive strength is also related to power.

11. Give **three** examples of explosive strength in physical activities.

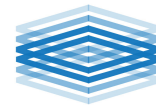
Dynamic strength is the repeated contraction of a single muscle or group of muscles which causes repeated movements. It involves moving heavy resistances and this distinguishes it from muscular endurance.

Static strength is the holding of a limb or part of the body in a stationary position. This is achieved by muscles maintaining a state of contraction.

12. Use examples from gymnastics to distinguish between the three types of strength.

Speed

The concept of speed relates to both whole and part body movement. Speed is achieved through the application of powerful, often maximal, muscular



contractions. Speed is shown by the sprinter, the tennis player moving towards the ball, and the table-tennis player moving his bat into position.

13. What is speed?

Muscular endurance is the repeated contraction and relaxation of a single muscle or group of muscles causing a repeated movement over time. It involves reasonably light resistances and is therefore different from dynamic strength.

14. Distinguish between dynamic strength and muscular endurance, using examples from a named activity

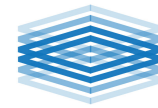
Flexibility is the ability to move a joint through a wide range of movement. It depends on the structure of the bones in the joint, the length of the muscles and ligaments around the joint.

Flexibility is an important factor in performing many skills. It is also important when trying to apply muscular contractions for power or speed and when attempting to produce a movement or position that copies a perfect model – for example in gymnastics or diving.

15. What do you understand by the term flexibility?

Power may be thought as the application of forceful muscular contractions as rapidly as possible. It is often defined as speed x strength.

Power is seen in a wide variety of physical activities – the smash in volleyball or tennis, shot put etc. Often power in sport is being able to move your own body weight (strength), quickly (speed).



16. What do you understand by the term power?

Components of skill related fitness

Agility is the ability to change direction quickly. It is the combination of speed and co-ordination. Agility is needed in almost all sports – a side step in rugby, catching and passing on the move in netball, recovering to the middle after a drop shot in badminton etc.

17. What do you understand by the term agility?

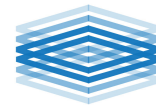
Balance is about maintaining stability or equilibrium. It is formally defined as maintaining your centre of mass over the base of support. Examples of balance would be a headstand in gymnastics (static balance) and a skier weaving in and out of slalom gates (dynamic balance). Many performers require good dynamic balance when dodging and weaving.

18. What do you understand by the term balance?

19. Distinguish between dynamic and static balance.

Co-ordination is getting muscles and groups of muscles to work together to bring about a specific movement. Good co-ordination needs the nervous and muscular systems of the body to combine efficiently. Examples of good co-ordination include dribbling a basketball while changing hands to protect the ball or keeping the stick in contact with the ball when dribbling in hockey.

20. What do you understand by the term co-ordination?



Reaction time is the time taken to begin a response to a stimulus. For example, an athlete on the starting block starts to move as soon as they hear the starter's gun.

Reaction time is affected by how quickly an individual can process information in their brain and how quickly the nerve impulses travel to the muscles. It is possible to improve reaction time through practice.

21. What do you understand by the term reaction time?

How life style choices can affect health and fitness

Life style choices are the choices we make about the way we live our lives, especially those that affect our health and fitness.

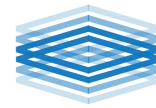
These include our **diet**, the amounts of **exercise** we take, whether we **smoke**, drink **alcohol** or use other recreational drugs and the impact those choices have upon our health and fitness.

A **balanced diet** is one that contains all the necessary nutrients to allow you to maintain your lifestyle. Eating too little or too much of any of the basic nutrients can affect both your health and your fitness.

In the UK, the over-consumption of food has led to high levels of obesity and other health disorders. This over-eating has been accompanied by a decrease in the amount of physical activity that people take in their daily lives. This lack of physical activity has also contributed to the problems of obesity.

22. What are the factors that we can choose that may affect our lifestyles?

Exercise is essential for health and fitness. We are only concerned with the amount and type exercise that helps us maintain health and the level of fitness needed for our normal lives.



The main effects of a lack of exercise include reduced **stamina** – not being able run for the bus, dig the garden, mow the lawn, and walk up stairs without feeling out of breath.

Lack of exercise means weaker hearts and decreased numbers of blood capillaries in the lungs and muscles. We will also suffer reduced **flexibility** - we will become less mobile and have a smaller range of movement around our joints and this is particularly important as we grow older.

We will have reduced **strength**. Muscles that are not used become wasted and lose tone and strength. Our **body composition** will change. If our energy intake and output is not balanced we store fat. Excess amounts of fat on the body result in raised blood pressure and significantly increased risk of heart disease and diabetes.

23. Why is it important to exercise regularly?

The effects of continued over-consumption of **alcohol** include:

- Liver damage - cirrhosis
- Cancer - of the mouth, oesophagus, liver, stomach, colon and rectum
- Heart disease and high blood pressure
- Digestive problems – ulcers
- Psychiatric disorders – depression, suicide
- Reproductive problems - impotence in men and miscarriages in women

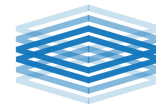
The Department for Health advice on the drinking of alcohol is that men should not regularly drink more than 3 - 4 units of alcohol per day, and women should not regularly drink more than 2 - 3 units of alcohol per day.

24. List **three** diseases associated with too much alcohol.

In the UK one person dies from a **smoking**-related disease every **four minutes**.

Smoking causes:

- lung cancer (smoking causes over 80 per cent of all lung cancer deaths)



- heart disease
- bronchitis
- strokes
- stomach ulcers
- leukaemia
- gangrene
- other cancers e.g. mouth and throat cancer

The effects of smoking or the over consumption of alcohol cannot be undone by improved diet or regular exercise.

Life style choices involving poor diet, smoking and sustained over-consumption of alcohol will have a significantly detrimental effect on fitness and sport performance.

25. List **three** diseases associated with smoking.



Typical Examination Questions

1. Games players require a good level of stamina if they are to be successful

- (a) (i) What do you understand by the term *stamina* **and** why is it an important component of fitness for games players? (1 mark)
- (ii) Explain how different lifestyle choices can positively and negatively affect a games player's stamina. (4 marks)

2. Performers in team games such as netball need to be suitably prepared to meet the demands of the game.

- (a) (i) In order to play netball effectively, performers need to be fit. What do you understand by the term *fitness*? (1 mark)
- (ii) Discuss whether you must be *healthy* in order to be fit. (2 marks)