

Applied Anatomy & Physiology



Questions

1. Which **one** of the following is not a function of the skeleton? (1 mark)

- ☒ a. To give support to the body
- ☒ b. To protect the heart and lungs
- ☒ c. To ensure enough oxygen reaches the working muscles
- ☒ d. To produce red blood cells

2. Identify **three** different functions of the skeleton? (3 marks)

3. Posture and support are two functions of the skeleton. Describe how the skeleton performs **three** different functions. (3 marks)



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Applied Anatomy & Physiology



Mark Scheme

1. Which **one** of the following is not a function of the skeleton? (1 mark)



c. To ensure enough oxygen reaches the working muscles

2. Identify **three** different functions of the skeleton? (AO1 – 3 marks)

Gives support (1)

Gives posture (1)

Gives protection (1)

Allows movement/muscle attachment (1)

Storage of minerals (1)

3. Posture and support are two functions of the skeleton. Describe how the skeleton performs **three** different functions. (AO1 – 3 marks)

Protection – the skeleton protects internal organs from damage e.g. the cranium protects the brain (1).

Movement – the skeleton allows muscle attachment (1).

Blood cell production – bone marrow in some larger bones produces blood cells (red) (1).

Storage of minerals – bones release essential minerals, e.g. calcium and phosphorus, when needed (1).



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Applied Anatomy & Physiology

Muscles and their Role #1

Muscles help create movement.



Name	D _____
Role	A _____ the arm at the s _____
Example in sport	Front crawl swimming arm action



Name	T _____
Role	E _____ the head at the n _____
Example in sport	Tilting the h _____ b _____ to head a football



Name	P _____
Role	A _____ the arm at the s _____
Example in sport	Forehand ground stroke in tennis

Top Tip

In the exam you may be asked to give a specific sporting action where a muscle or group of muscles are responsible for the movement.



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Applied Anatomy & Physiology

Muscles and their Role #1

Muscles help create movement.



Name	<u>Deltoid</u>
Role	<u>Abducts</u> the arm at the <u>shoulder</u>
Example in sport	Front crawl swimming arm action



Name	<u>Trapezius</u>
Role	<u>Extends</u> the head at the <u>neck</u>
Example in sport	Tilting the <u>head back</u> to head a football



Name	<u>Pectorals</u>
Role	<u>Adducts</u> the arm at the <u>shoulder</u>
Example in sport	Forehand ground stroke in tennis

Top Tip

In the exam you may be asked to give a specific sporting action where a muscle or group of muscles are responsible for the movement.



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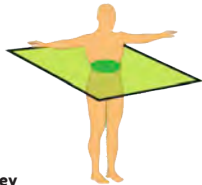
Planes of Movement #1



Key

 Frontal plane

F _____ plane – an imaginary line that **v** _____ divides the body into **f** _____ and **b** _____ portions. **A** _____ and **a** _____ occur in this plane e.g. a **c** _____ or **s** _____ jump.



Key

 Transverse plane

T _____ plane – an imaginary line that **h** _____ divides the body into **t** _____ and **b** _____ portions. **R** _____ occurs in this plane e.g. a **f** _____ **t** _____ in trampolining or **s** _____ in discus.



Top Tip

In the exam you may be asked to identify the plane that is being used in a particular movement.



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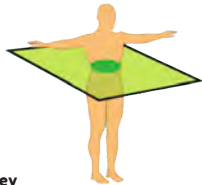
Planes of Movement #1




Key

 Frontal plane

Frontal plane – an imaginary line that vertically divides the body into front and back portions. Abduction and adduction occur in this plane e.g. a cartwheel or star jump.



Key

 Transverse plane

Transverse plane – an imaginary line that horizontally divides the body into top and bottom portions. Rotation occurs in this plane e.g. a full twist in trampolining or spinning in discus.



Top Tip

In the exam you may be asked to identify the plane that is being used in a particular movement.



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Physical Training



Types of Training #3

Type of Training	Interval training #1
Definition	Training that incorporates periods of e xercise and r est.
Example #1	<p>Circuit training.</p> <p>A series of aerobic exercises performed at slow durations that focus on muscle groups. This method often involves a rest between stations.</p> <p>e.g. 20 repetitions of the following exercises (slow) with a 20 second rest in between:</p> <p>✓ Press-ups ✓ Squats ✓ Crunches ✓ Star jumps ✓ Leg raises</p>



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Physical Training



Types of Training #3

Type of Training	<u>Interval</u> training #1
Definition	Training that incorporates periods of <u>exercise</u> and <u>rest</u> .
Example #1	<p><u>Circuit</u> training.</p> <p>A series of <u>alternate</u> <u>exercises</u> performed at <u>stations</u> that focus on <u>different</u> <u>muscle</u> groups. This method often involves a <u>rest</u> between stations.</p> <p>e.g. 20 repetitions of the following exercises (<u>stations</u>) with a 20 second rest in between:</p> <p>✓ Press-ups ✓ Squats ✓ Crunches ✓ Star jumps ✓ Leg raises</p> <p>The diagram illustrates a circuit training sequence with five stations. Each station is represented by a silhouette of a person performing an exercise, with a red arrow pointing to it from below and the text 'x 20' indicating the number of repetitions. The exercises are: Press-ups, Squats, Crunches, Star jumps, and Leg raises. Red arrows connect the stations in sequence, and a long red arrow at the bottom points from the last station back to the first, indicating a continuous loop.</p>



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Physical Training

Questions



1. Compare fartlek training and continuous training. (2 marks) _____

2. Which method of training would be most suited to an endurance athlete? (1 mark)

3. State **two** types of interval training. (2 marks)

4. Describe **two** features of weight training as a method of training. (2 marks)



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Physical Training



Mark Scheme

1. Compare fartlek training and continuous training. (AO3 – 2 marks)

Fartlek training involves different speeds whereas continuous training is at a more constant speed (1).

Fartlek training involves different terrains whereas continuous training often involves running with no variation (1).

Fartlek training includes short and long-distance work whereas continuous training is mainly long distance at the same intensity (1).

2. Which method of training would be most suited to an endurance athlete? (AO2 – 1 mark)

Continuous training (1)

3. State **two** types of interval training. (AO1 – 2 marks)

Circuit training (1), weight training (1), plyometric training (1), HIIT training (1)

4. Describe **two** features of weight training as a method of training. (AO1 – 2 marks)

A method of training that uses free weights/resistance machines (1).

It targets certain muscle groups (1).

Involves sets and repetitions (1).

Involves exercise like chest press/biceps curl/shoulder press (1).

(accept any other suitable answer)



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Socio-cultural Influences



Physical Activity and Sport – Current Levels from Sport England's Active Lives Survey 2016/17 #1

The five most popular methods that adults use to achieve 150+ minutes of physical activity a week are:

TYPES OF ACTIVITY

ADULTS ACHIEVING 150 + MINUTES OF ACTIVITY A WEEK DO SO THROUGH A BLEND OF ACTIVITIES

Analysis of numbers engaging in activities at least twice in the last 28 days helps us understand the contribution of different activities.

WALKING FOR LEISURE



WALKING FOR TRAVEL



FITNESS ACTIVITIES



* FITNESS ACTIVITIES DATA FOR NOV 15/16 AS A WHOLE IS NOT AVAILABLE. HOWEVER, DATA FOR TWO SPECIFIC TYPES OF FITNESS ACTIVITY CAN BE PROVIDED:

FITNESS CLASS



INTERVAL SESSIONS

(E.G. CIRCUITS, HIIT)



NOV 15/16
NOV 16/17

ARROWS SHOW
CHANGE IN THE
NUMBER OF
PARTICIPANTS
FROM 12
MONTHS AGO



Whilst overall activity levels remain stable, we have seen some changes in the amount of people taking part in some of these activities.

NOTE: All data taken from www.sportengland.org



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Socio-cultural Influences

Physical Activity and Sport – Current Levels from Sport England's Active Lives Survey 2016/17 #2



TYPES OF ACTIVITY

ADULTS ACHIEVING 150 + MINUTES OF ACTIVITY A WEEK DO SO THROUGH A BLEND OF ACTIVITIES

Analysis of numbers engaging in activities at least twice in the last 28 days helps us understand the contribution of different activities.

RUNNING, ATHLETICS OR MULTI SPORTS



CYCLING FOR LEISURE (EXCLUDING EXERCISE BIKE/SPINNING)



SWIMMING ACTIVITIES



TEAM SPORTS



CYCLING FOR TRAVEL



ADVENTURE SPORTS



RACKET SPORTS



NOV 15/16
NOV 16/17

ARROWS SHOW
CHANGE IN THE
NUMBER OF
PARTICIPANTS
FROM 12
MONTHS AGO



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Socio-cultural Influences



Drugs in Sport #2

Name of drug	A _____ s _____
Positive effect on performance	✓ Increases m _____ m _____ ✓ Can train harder for l _____, so greater a _____ take place
Negative effect on performance	✓ Increases a _____ ✓ Liver d _____
Who might take this drug and why?	A w _____ l _____, so they can lift a h _____ w _____.
Name of drug	B _____ b _____
Positive effect on performance	✓ Calms n _____ ✓ Slows h _____ r _____
Negative effect on performance	✓ D _____ ✓ Low b _____ pressure
Who might take this drug and why?	An a _____, so they can keep a s _____ hand and be a _____.



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Socio-cultural Influences



Drugs in Sport #2

Name of drug	<u>Anabolic steroids</u>
Positive effect on performance	✓ Increases <u>muscle mass</u> ✓ Can train harder for <u>longer</u> , so greater <u>adaptations</u> take place
Negative effect on performance	✓ Increases <u>aggression</u> ✓ Liver <u>damage</u>
Who might take this drug and why?	A <u>weight lifter</u> , so they can lift a <u>heavier weight</u> .
Name of drug	<u>Beta blockers</u>
Positive effect on performance	✓ Calms <u>nerves</u> ✓ Slows <u>heart rate</u>
Negative effect on performance	✓ <u>Depression</u> ✓ Low <u>blood</u> pressure
Who might take this drug and why?	An <u>archer</u> , so they can keep a <u>steady</u> hand and be <u>accurate</u> .



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Sports Psychology



Questions

For questions 1 – 3, indicate by placing a figure **X** on the continua below.

1. Where on the difficulty classification of skills continuum would you place marathon running? (1 mark)



2. Where on the difficulty classification of skills continuum would you place a rugby tackle? (1 mark)



3. Where on the environmental classification of skills continuum would you place a rugby tackle? (1 mark)



4. Using a practical example, describe **one** characteristic of a closed motor skill. (1 mark)
-

5. Using a practical example, describe **one** characteristic of a simple motor skill. (1 mark)
-



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Sports Psychology



Mark Scheme

For questions 1 – 3, indicate by placing a figure **X** on the continua below.

1. Where on the difficulty classification of skills continuum would you place marathon running? (AO2 – 1 mark)

Accept the X anywhere on the left-hand side of the continuum (the 'simple half' of the continuum) (1).

2. Where on the difficulty classification of skills continuum would you place a rugby tackle? (AO2 – 1 mark)

Accept the X anywhere on the right-hand side of the continuum (the 'complex half' of the continuum) (1).

3. Where on the environmental classification of skills continuum would you place a rugby tackle? (AO2 – 1 mark)

Accept the X anywhere on the left-hand side of the continuum (the 'open half' of the continuum) (1).

4. Using a practical example, describe **one** characteristic of a closed motor skill. (AO2 – 1 mark)

Performed in a predictable environment e.g. throwing a shot put (1).
(accept any other suitable answer)

5. Using a practical example, describe **one** characteristic of a simple motor skill. (AO2 – 1 mark)

Basic movement action e.g. running (1), not difficult to perform e.g. running (1), few decisions to make e.g. taking a long goal kick (1).

(accept any other suitable answer)



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Sports Psychology

SMART Principles of Goal Setting #1

Specific **M**easurable **A**chievable **R**ecorded **T**imed



Principle	Description	Example
S pecific	A t _____ to achieve.	To improve my serve in tennis.
M easurable	Something q _____ you can use.	A shot putter measuring the distances thrown to monitor progress.
A chievable	Something that can be d _____ by the p _____.	A diver must have the physical and mental ability to perform a front somersault.
R ecorded	A training p _____ record.	A long-distance runner writing down their times to check progress.
T imed	To be a _____ in a certain p _____ of time.	Completing the target within two months.

Top Tip

In your exam and coursework you will need to be able to apply the SMART principles to improve and/or optimise performance.



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Sports Psychology

SMART Principles of Goal Setting #1

Specific **M**easurable **A**chievable **R**ecorded **T**imed



Principle	Description	Example
S pecific	A <u>target</u> to achieve.	To improve my serve in tennis.
M easurable	Something <u>quantitative</u> you can use.	A shot putter measuring the distances thrown to monitor progress.
A chievable	Something that can be <u>done</u> by the <u>performer</u> .	A diver must have the physical and mental ability to perform a front somersault.
R ecorded	A training <u>programme</u> record.	A long-distance runner writing down their times to check progress.
T imed	To be <u>achieved</u> in a certain <u>period</u> of time.	Completing the target within two months.

Top Tip

In your exam and coursework you will need to be able to apply the SMART principles to improve and/or optimise performance.



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Sports Psychology



Questions

1. Which **one** of the following is an example of selective attention for effectively performing in diving? (1 mark)

- ☒ a. Concentrating on the take off board instead of listening to the crowd
- ☒ b. Thinking about all the things that could go wrong with the dive
- ☒ c. Warming up before climbing the steps to the diving board
- ☒ d. Setting a realistic target on how well the dive will be performed

2. Explain how mental rehearsal can help a sports performer mentally prepare for their effective performance. (3 marks) _____

3. Describe **two** effects of positive thinking on the performance of physical activities, giving a practical example for each part. (4 marks) _____



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Sports Psychology



Mark Scheme

1. Which **one** of the following is an example of selective attention for effectively performing in diving? (1 mark)



a. Concentrating on the take off board instead of listening to the crowd

2. Explain how mental rehearsal can help a sports performer mentally prepare for their effective performance. (AO3 – 3 marks)

Before/during performance mental rehearsal can be used to improve concentration by blocking out distractions (1).

Can increase confidence by picturing a perfect performance in your mind (1).

Can reduce stress/anxiety so they can calm down and focus on their technique/performance (1).

(accept any other suitable answer)

3. Describe **two** effects of positive thinking on the performance of physical activities, giving a practical example for each part. (AO2 – 4 marks)

Thinking about performing well (1), for example, thinking about successfully tackling an opponent in a rugby game to stop them scoring a try (1).

Blocking out negative thoughts (1), for example, in basketball not thinking about the free throw you missed earlier in the game (1).

(accept any other suitable answer)



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Health, Fitness and Well-being



Benefits of Physical Activity and Consequences of a Sedentary Lifestyle #2

Physical



C

heart disease (CHD)



Benefit of Physical Activity

Decreases risk of **C** by
i _____ blood flow
which **p** _____ arteries from
c _____ up with **f** _____
deposits.



Consequence of a Sedentary Lifestyle

Increases risk of **C** as
a _____ are more
i _____ to **c** _____ up with
f _____ **d** _____ which
r _____ **b** _____ flow.



B

pressure



Benefit of Physical Activity

Resting **b** _____
p _____ is reduced due
to **a** _____ being more
e _____.



Consequence of a Sedentary Lifestyle

Resting blood pressure
i _____ due to
a _____ being **l** _____ elastic.



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Health, Fitness and Well-being



Benefits of Physical Activity and Consequences of a Sedentary Lifestyle #2

Physical



Coronary heart disease (CHD)



Benefit of Physical Activity

Decreases risk of CHD by improves blood flow
which prevents arteries from clogging up with fatty deposits.



Consequence of a Sedentary Lifestyle

Increases risk of CHD as arteries are more likely to clog up with fatty deposits which reduce blood flow.



Blood pressure



Benefit of Physical Activity

Resting blood pressure is reduced due to arteries being more elastic.



Consequence of a Sedentary Lifestyle

Resting blood pressure increases due to arteries being less elastic.



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Health, Fitness and Well-being

Balanced Diet #2



Name:	F _____, e.g. red meats
Role:	Provide e _____, i _____ and protect i _____ organs.
Example of impact on performance:	A long-distance c _____ would eat m _____ f _____ to p _____ at a high i _____ d _____ a race.



Name:	Proteins, e.g. f _____
Role:	Muscle g _____ and r _____ and occasional e _____ source.
Example of impact on performance:	A w _____ l _____ would eat more p _____ to allow m _____ tears in the m _____ to heal so they can lift a h _____ weight.



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Health, Fitness and Well-being

Balanced Diet #2



Name:	Fats , e.g. red meats
Role:	Provide energy , insulation and protect internal organs.
Example of impact on performance:	A long-distance cyclist would eat more fat to perform at a high intensity during a race.



Name:	Proteins, e.g. fish
Role:	Muscle growth and repair and occasional energy source.
Example of impact on performance:	A weight lifter would eat more protein to allow micro tears in the muscle to heal so they can lift a heavier weight.



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