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Examiners' Report
June 2025

GCSE Physical Education 1PE0 01

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Introduction

As was the case in the 2024 series, the paper was split into three sections:

- Section A Applied Anatomy and Physiology and Movement Analysis, assessing content from Topics 1 and 2 of the specification.
- Section B Physical Training, assessing Topic 3 from the specification
- Section C assessing Topic 3 via an extended writing question

Question 2

Candidates were given two different sporting examples demonstrating the use of the skeleton in sport. For each example they were asked to name the bone in use and then to classify the bone in use.

Candidates had to apply their knowledge of the skeleton to name the required bone. The cranium was well known, with very few incorrect alternatives provided in candidate responses. The carpals appeared less well known: incorrect responses related to parts of the hand, for example the phalanges or metacarpals, or parts of the body.

Knowledge of the classification of the cranium was good, although classification of the carpals appeared more challenging.

2 Our skeleton helps us when we play sport.

Complete **Table 1** by:

(a) Stating the name of the bone used in the sporting example.

(b) Stating the classification of the bone used in the sporting example.

Sporting example	(a) Name of the bone	(b) Classification of bone
Reducing the risk of concussion when heading a football	Cranium (1)	flat (1)
Supporting majority of body weight in a handstand	carpels (1)	~~flat~~ short (1)

Table 1

ResultsPlus
Examiner Comments

This response gains all available marks, identifying correctly the names of the bones and the correct classification for each bone.

Total: 4 marks

2 Our skeleton helps us when we play sport.

Complete **Table 1** by:

(a) Stating the name of the bone used in the sporting example.

(b) Stating the classification of the bone used in the sporting example.

Sporting example	(a) Name of the bone	(b) Classification of bone
Reducing the risk of concussion when heading a football	Cranium / skull (1)	protects the head (1)
Supporting majority of body weight in a handstand	arms / tricep (1)	Supports your weight (1)

Table 1

ResultsPlus
Examiner Comments

This response gains 1 mark for correct identification of the cranium in (a).

The responses in (b) are incorrect because they are the functions of the stated bones.

Total: 1 mark

ResultsPlus
Examiner Tip

Make sure you name a specific bone, rather than just a part of the body.

Question 3

Candidates were presented with an image of an athlete performing a side plank and then asked to analyse the movement through a series of short-answer questions.

Candidates were asked to:

(a) state the plane the movement occurred in

(b) name the muscle used to lift the arm at the shoulder

(c) classify the type of joint at the shoulder

(d) give the type of movement that had occurred at the left hip

3 **Figure 1** shows an athlete performing a side plank.

(Source: © Vladimir Sukhachev/Shutterstock)

Figure 1

Using **Figure 1** complete the following statements:

(a) The movement is occurring in the frontal plane.

(1)

(b) The muscle that allows the athlete to lift the arm at the shoulder is called the deltoid.

(1)

(c) The shoulder is an example of a ball and socket joint.

(1)

(d) The type of movement that has occurred at the left hip is abduction.

(1)

ResultsPlus
Examiner Comments

This response gains all available marks, correctly identifying the:

- plane of movement (1)
- muscle responsible for lifting the arm at the shoulder (1)
- type of joint at the shoulder (1)
- type of movement occurring at the hip (1)

Total: 4 marks

3 **Figure 1** shows an athlete performing a side plank.

(Source: © Vladimir Sukhachev/Shutterstock)

Figure 1

Using **Figure 1** complete the following statements:

(a) The movement is occurring in the ..frontal.. plane.

(1)

(b) The muscle that allows the athlete to lift the arm at the shoulder is called the

..deltoid..

(1)

(c) The shoulder is an example of a ..ball and socket.. joint.

(1)

(d) The type of movement that has occurred at the left hip is

..adduction..

(1)

ResultsPlus
Examiner Comments

This response states the incorrect type of movement at the left hip; the remaining aspects of the response are correct.

Total: 3 marks

ResultsPlus
Examiner Tip

Remember if you adduct something you are bringing it back, or adding it back to the body.

Question 4

The focus of this question was movement analysis.

Candidates were given an image of a performer during a training session and asked to analyse the action of the antagonistic muscle pairs at the elbow and the hip, which resulted in the performer achieving the shape shown.

Responses were only credited if they used the correct terminology, eg no credit was given for muscles bending, flexing or extending, or for bones acting as the agonist.

In question part (i) candidates gained a mark for:

- identifying the antagonistic pair, triceps and biceps
- applying their knowledge of the roles of each muscle to state the the triceps as the agonist
- analysing the movement in the image to state extension as the joint action

Occasionally, candidates gave conflicting statements in their response, eg that the triceps were the agonist and relaxed. Where there were conflicting statements, a mark could not be given.

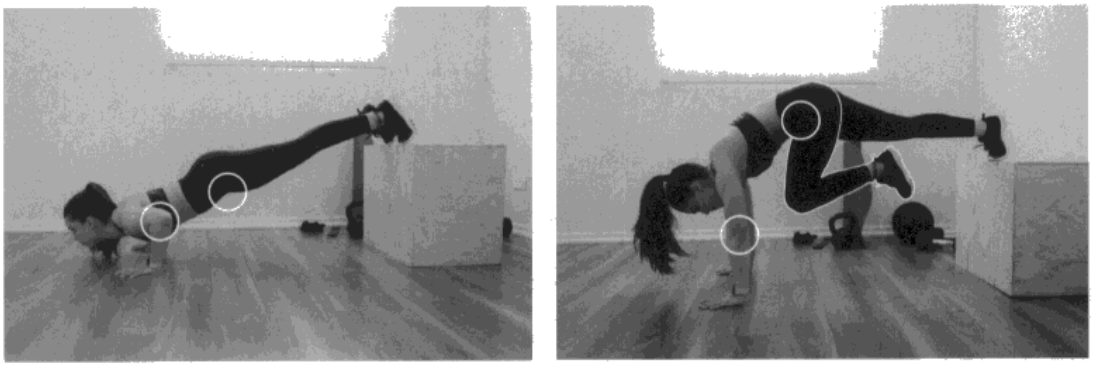
In part (ii) candidates gained a mark for:

- identifying the antagonistic pair, hip flexors and gluteus maximus
- applying their knowledge of the roles of each muscle to state the the hip flexors as the agonist
- analysing the movement in the image to state flexion as the joint action

Occasionally, candidates gave only one correct muscle from the antagonist pair: both were required for the mark.

4 **Figure 2** shows an athlete during a training exercise.

Her left elbow and left hip are circled.



Position A **Position B**

(Source: © antoniodiaz/Shutterstock)

Figure 2

Analyse the actions of the antagonistic muscle pairs at the **circled** joints of the left **elbow** and left **hip** that allow the athlete to move from **Position A** to **Position B** in **Figure 2**.

(i) **Left elbow**

(3)

Left elbow: the elbow goes into extension of the arm from position A to position B caused by the contracting muscle the tricep (agonist) and the bicep is relaxing (therefore the antagonist).

(ii) **Left hip**

(3)

Left hip: the hip moves from extension to flexion between position A and position B, caused by the hip-flexor contracting (agonist) and the gluteus maximus relaxing (antagonist)

ResultsPlus
Examiner Comments

This response gains all available marks.

It is concise, and addresses the question fully. Reference is only made to the movement into Position B

Marks are gained for correct:

- joint action
- antagonistic muscle pair
- agonist muscle

Total: 6 marks

ResultsPlus
Examiner Tip

Make sure you know the correct technical language to use for movement analysis questions.

Remember: muscles contract and relax, joints flex and extend

Analyse the actions of the antagonistic muscle pairs at the **circled** joints of the left **elbow** and left **hip** that allow the athlete to move from **Position A** to **Position B** in **Figure 2.**

(i) **Left elbow**

(3)

Left elbow: At the left elbow, the pair of muscles is the bicep and tricep. The bicep is the antagonistic muscle and relax so that the agonistic muscle, the tricep, can contract and push the athlete.

(ii) **Left hip**

(3)

Left hip: At the left hip, the pair of muscles is the gluteus maximus and the hip flexors. The gluteus maximus is the antagonistic muscle and relaxes and the hip flexors are the agonstic muscles and they contract.

ResultsPlus Examiner Comments

This response gains 4 marks.

Because the question is asking about the movement from Position A to Position B, if no position is stated it is assumed this is the movement being referred to in the response.

In each part of the response the candidate correctly identifies:

- the antagonistic muscle pair
- the agonist muscle

The candidate does not identify the joint action for either movement.

Total: 4 marks

ResultsPlus Examiner Tip

Make sure you are clear which movement you are analysing.

Question 5(a)

The stem or introduction to the question identified one characteristic of type 1 muscle fibres. Candidates were then asked to state one other characteristic of type 1 muscle fibres.

Fatigue resistant was a popular correct response. Incorrect responses tended to focus on the use of the fibre, rather than a characteristic.

5 One characteristic of **type I** muscle fibres is a high capillary supply.

(a) State **one other** characteristic of type I muscle fibres.

(1)

Slow contraction speed.

ResultsPlus
Examiner Comments

This response gains the mark for stating a relevant characteristic of type 1 muscle fibres.

Other acceptable characteristics given included high concentration of myoglobin or low force production, but fatigue resistant seemed to be most well-known.

Total: 1 mark

ResultsPlus
Examiner Tip

Make sure you give a different example from the one given in the question.

5 One characteristic of **type I** muscle fibres is a high capillary supply.

(a) State **one other** characteristic of type I muscle fibres.

(1)

It just makes them performer faster makes the performer have more endurance

ResultsPlus
Examiner Comments

This response gains 0 marks.

Although linked to fatigue resistance, the response is referring to the level of fatigue of the performer, not a characteristic of the fibre type.

Total: 0 marks

ResultsPlus
Examiner Tip

Make sure you are familiar with the terms used in the specification to help your understanding of exam questions.

Question 5(b)

This part of the question asked candidates to name one athletics event where it would be a benefit to performance if the athlete had a high percentage of type 1 fibres.

This was answered well, with a marathon being a popular, correct, response.

A variety of athletic events was accepted and it was good to note that relatively few candidates gave examples other than athletic events, eg football.

(b) Name **one athletics event** where the athletes would benefit from a high percentage of type I muscle fibres.

(1)

Athletics event: Marathon

ResultsPlus
Examiner Comments

Marathon was a popular correct response.

Total: 1 mark

(b) Name **one athletics event** where the athletes would benefit from a high percentage of type I muscle fibres.

(1)

Athletics event: goal keeper

ResultsPlus
Examiner Comments

The response given does not relate to athletic events, therefore no mark is given.

Total: 0 marks

ResultsPlus
Examiner Tip

Read the question carefully: this question asks for an athletics event not a game.

Question 5(c)

This part of the question asked candidates to explain why a high capillary supply would be an advantage to an athlete.

When answering this type of question it is important to include the advantage, ie why the high capillary supply is better. For example, rather than just stating capillaries are important for gas exchange, the advantage is that gas exchange can be faster.

Most candidates gained one or two marks for understanding the increase in oxygen delivery and the impact on level of fatigue.

Whilst some candidates included references to gaseous exchange and diffusion, these were often used as introductory remarks about capillaries, rather than developed explanations of better gaseous exchange/diffusion.

(c) Explain why a high capillary supply would be an advantage to an athlete.

(3)

A high capillary supply would allow for more gaseous exchange, allowing more oxygen to diffuse into ~~voluntary~~ muscles. This would be an advantage to an athlete because more aerobic respiration can take place, allowing an athlete to release more energy, and perform activity for a longer period of time.

ResultsPlus
Examiner Comments

This response gains 3 marks for:

- correctly stating a benefit, more gas exchange (1)
- developing this point, allowing more oxygen to diffuse into the muscle (1)
- stating the impact, allowing more aerobic respiration to release more energy (1)

Total: 3 marks

ResultsPlus
Examiner Tip

This is an 'explain' question so make sure you develop your answer, expanding on the first point you make.

(c) Explain why a high capillary supply would be an advantage to an athlete.

(3)

High capillary supply would mean that there is a high ~~amount~~ amount of oxygen constantly being supplied towards the working muscle meaning that for example a runner ~~that feel as fatigued as~~ would be able to run a long time rather feeling fatigued.

ResultsPlus Examiner Comments

This response gains 2 of the available marks.

The candidate states the:

- advantage of increased oxygen supply to the working muscles (1)
- impact of this, can run for a long time without feeling fatigued (1)

There is no reference to increased diffusion rate or gaseous exchange.

Total: 2 marks

Question 6

Candidates were told that heart rate increases during exercise so that the working muscles can receive an increase in blood flow. The candidates were then asked to describe one other way blood flow can be increased to the working muscles.

Incorrect responses tended to describe the method already given in the question. To gain all four marks candidates needed to name the alternate method and then describe it:

- redistribution of blood flow or blood shunting
- through vasoconstriction and vasodilation
- vasoconstriction to reduce blood flow to the digestive system
- vasodilating blood vessels to active muscles to increase blood flow

Because the command word in the question was 'describe', candidates needed to identify the method and then give a step-by-step account of the process of how blood is redistributed.

6 During exercise heart rate increases so more blood can flow to the working muscles.

- Vascular Shunting

Describe **one other** method of increasing blood flow to the working muscles during exercise.

One other method is vascular shunting. Vascular shunting is the redistribution of blood from inactive areas to the working muscles. This is done via vasoconstriction and vasodilation. Vasoconstriction is where the lumen of the artery gets narrow, reducing the flow of blood to the inactive areas. Vasodilation is where the lumen of the artery widens, increasing the amount of oxygenated blood to the working muscles so the athlete won't suffer from cramp and can continue training.

ResultsPlus
Examiner Comments

This response gains all available marks.

The candidate:

- names vascular shunting as the other method of increasing blood flow
- gives a step-by-step account of how this is achieved

Total: 4 marks

6 During exercise heart rate increases so more blood can flow to the working muscles.

Describe **one other** method of increasing blood flow to the working muscles during exercise.

vasodilation
vascular shunting

vasodilation increases bloodflow to the working muscles because it causes the ~~the~~ blood vessels to increase in size *1 ~~and~~ so more blood ~~can~~ can pass through the blood vessels to reach the working muscles.

*1 and have a wider lumen.

ResultsPlus Examiner Comments

The candidate does not name the method of redistribution of blood flow, but does provide some detail about the process:

- vasodilation increasing blood flow to the working muscles (1)

Whilst there is some detail about vasodilation the remainder of the process is omitted.

Total: 1 mark

ResultsPlus Examiner Tip

Remenber that to increase blood flow through vasodilation the body must vasoconstrict blood flow to other areas.

Question 7(a)

This question asked candidates about the difference between carbon dioxide concentration in inhaled and exhaled air during a long-distance run.

One mark was given for identifying correctly that there would be more carbon dioxide breathed out than breathed in; the remaining two marks were for explaining why.

Most candidates identified that carbon dioxide levels would be higher when breathed out. There was a variety of reasons given for this, a popular incorrect explanation was that oxygen became carbon dioxide, or that carbon dioxide was not required so needed to be removed. Whilst true, this does not explain why there is more; this would be the same amount.

Some candidates focussed more on oxygen than carbon dioxide, so did not gain the available marks.

Correct explanations focussed on the production of carbon dioxide as a waste product during aerobic respiration.

The concentration of carbon dioxide in inhaled and exhaled air will vary during a long-distance run.

7 (a) Explain the difference between carbon dioxide concentration in inhaled and exhaled air during a long-distance run.

(3)

Carbon dioxide concentration inhaled is much less than carbon dioxide exhaled. This is due to carbon dioxide being a waste product of aerobic respiration, and a long-distance runner will be working aerobically throughout the whole run. carbon dioxide concentration when inhaling is around 0·04 % but it is around 4 % when exhaling.

ResultsPlus
Examiner Comments

This response gains 3 marks for identifying the increase in carbon dioxide when breathing out and the explanation that this is due to carbon dioxide being a waste product, produced during aerobic respiration.

The candidates emphasises this point, linking to the long-distance runner who works aerobically throughout the run.

Total: 3 marks

ResultsPlus
Examiner Tip

Note how this response links the explanation back to the information given in the question.

The concentration of carbon dioxide in inhaled and exhaled air will vary during a long-distance run.

7 (a) Explain the difference between carbon dioxide concentration in inhaled and exhaled air during a long-distance run.

(3)

The difference between them is that they exhale more carbon dioxide concentration than they inhale. This is because they require more oxygen & during a long-distance run because they are running for a longer time so they don't need the carbon dioxide meaning why they breath out. they just require oxygen

ResultsPlus
Examiner Comments

This response gains 1 mark for stating correctly that more carbon dioxide is breathed out than breathed in.

The explanation focuses on the need for oxygen: whilst not incorrect, it does not explain why there is more carbon dioxide.

Total: 1 mark

Question 7(b)

This part of the question asks candidates to explain why breathing rate remains high immediately after exercise.

Correct responses focussed on the high demand for oxygen immediately after exercise due to the exercise session. This point could be expressed in many ways, for example, elevated because there is a need for more oxygen than when at rest to pay back the oxygen debt, or deficit created during the activity.

The required explanation focussed on an aspect of recovery, either:

- they needed to recover after working anaerobically

or

- the additional oxygen is required for recovery to help break down lactate

or

- increased breathing rate to remove additional carbon dioxide

(b) Explain **one** reason why breathing rate remains high immediately after exercise.

(3)

During anaerobic periods of exercise our body respires without oxygen. This leads to lactate accumulation. Our breathing rate remains high after exercise to repay our oxygen debt. This will help with breaking down lactate and will speed up muscle recovery

ResultsPlus Examiner Comments

This response gains 3 marks.

A reason why breathing rate remains high is given and then expanded.

The response gains marks for:

- requires an increase in breathing rate to repay the oxygen debt (1)
- to break down accumulated lactate (1)
- to speed up muscle recovery (1)

Total: 3 marks

ResultsPlus Examiner Tip

Three clear points are made and because this is an explain question, the points are linked.

(b) Explain **one** reason why breathing rate remains high immediately after exercise.

(3)

this is because an athlete will build oxygen debt, meaning they have to keep breathing heavily after to replenish the oxygen used to have less lactic acid build up.

ResultsPlus
Examiner Comments

This response gains 2 marks.

A reason is provided and there is some explanation:

- oxygen debt/need to replenish oxygen (1)
- to have less lactic acid build up (1)

Total: 2 marks

ResultsPlus
Examiner Tip

Try not to repeat the same point in your answer. In this example oxygen debt and replenish oxygen are the same point.

Question 8(a)-c

This question asked candidates about lever systems.

In (a) candidates needed to apply their knowledge to determine the lever system in use in two different sporting examples

In (b) candidates had to state the fulcrum in use in the example

In (c) candidates had to state the muscle providing the effort in the example

The examples were selected with specific lever systems in mind, ie a second-class lever operating at the ankle when taking off in high jump and a third-class lever operating at the knee to kick the ball a long way. However, any relevant lever system at the ankle, knee or hip was accepted.

8 Participation in sport is possible because of the body's lever systems.

Complete **Table 2** by:

(a) Stating the lever system from the example of its use.

(b) Stating the fulcrum for each example.

(c) Stating the muscle providing the effort.

Example of use	(a) Lever system	(b) Fulcrum	(c) Muscle providing the effort
Take off in high jump	2nd class (1)	Ankle (Hinge) (1)	Gastronemius (1)
Kicking a football for distance	3rd class (1)	Knee (Hinge) (1)	Quadriceps (1)

Table 2

ResultsPlus
Examiner Comments

This response gains all available marks, identifying correctly the lever system in use during the take off for the high jump and when kicking a football.

The fulcrum and effort for each lever system are also identified correctly.

Total: 6 marks

ResultsPlus
Examiner Tip

Try to picture yourself doing the actions in the examples: this should help you think about the joints and muscles involved.

8 Participation in sport is possible because of the body's lever systems.

Complete **Table 2** by:

(a) Stating the lever system from the example of its use.

(b) Stating the fulcrum for each example.

(c) Stating the muscle providing the effort.

1 2 3
F L E

Example of use	(a) Lever system	(b) Fulcrum	(c) Muscle providing the effort
Take off in high jump	First class (1)	Ankle (1)	(1)
Kicking a football for distance	~~Second class~~ Second class (1)	Knee (1)	Tibia (1)

Table 2

ResultsPlus
Examiner Comments

This response states the incorrect lever system for both examples.

However, appropriate joints to act as the fulcrum for the techniques in the examples are given.

No muscles are identified.

Total: 2 marks

Question 8(d)

This part of the question asked candidates to state what is meant by the term 'mechanical disadvantage'.

Many correct responses were given, focussing on the relative lengths of the effort and load arms within the lever system or that the system required a large effort to move a relatively small load.

Incorrect responses tended to state the meaning of mechanical advantage, possibly mis-reading the question, whilst other incorrect responses were too vague for credit. Eg ‘a lot of effort is needed’. This could not gain the mark because it was not clear what the effort was needed for.

To gain the mark both effort and load needed referencing correctly.

A third class lever system has a mechanical disadvantage.

(d) State what is meant by a **mechanical disadvantage**.

(1)

requires more effort to move a smaller load

ResultsPlus
Examiner Comments

This response gains 1 mark.

The meaning of mechanical disadvantage is given.

Total: 1 mark

A third class lever system has a mechanical disadvantage.

(d) State what is meant by a **mechanical disadvantage**.

(1)

Large load lifted with little effort.

ResultsPlus
Examiner Comments

This response states the meaning of a mechanical advantage rather than disadvantage.

Total: 0 marks

ResultsPlus
Examiner Tip

Make sure you read the question carefully, especially words in bold.

Question 10(a)-c

Candidates were provided with an image of a dancer. The dancer is inverted, with his legs in a wide straddle position, supporting his body weight on his right hand.

In (a) candidates were asked to use the image to state how the dancer was using strength and flexibility. This was well-answered, most candidates gaining at least one mark.

The use of strength related to supporting his body weight on his hand: incorrect answers tended to link to balance rather than strength, eg to hold his shape. Given the link to balance this could not be accepted.

Mainly, the use of flexibility was linked correctly to the shape the dancer created with the legs. Any accurate statement describing the shape was credited, eg legs apart or the splits. Occasionally, candidates referenced the joint action, incorrectly stating adduction.

In (b) candidates were asked to state a training method for each component of fitness: a variety of responses was accepted from the specification, including fitness classes. A popular correct response for strength was resistance training, and Pilates or yoga for flexibility.

In (c) candidates were asked to state a fitness test for each component of fitness. Phonetic spelling is accepted throughout the paper, but a little more variance was accepted for the grip dynamometer test. Incorrect responses tended to be too vague eg grip test; too far away from the correct spelling eg diameter test; or incorrect tests eg one-minute press-up test. The sit-and-reach test was often stated correctly, for flexibility.

Complete **Table 4** by:

(a) Stating how the dancer in **Figure 3** is using each component of fitness.

(b) Stating **one** training method to improve each component of fitness.

(c) Stating **one** fitness test to measure each component of fitness.

Component of fitness	(a) How component is being used in Figure 3	(b) Training method for the component of fitness	(c) Fitness test for the component of fitness
Strength	Holding body weight up on one hand (1)	Weight ~~Gravity~~ training (1)	Hand grip dynamometer. (1)
Flexibility	Doing Splits with legs when in the air (1)	Yoga (1)	Sit and reach (1)

Table 4

ResultsPlus
Examiner Comments

This part of the response gains all available marks.

The candidate states:

- how the dancer is using each component of fitness
- a suitable training method to improve each component of fitness
- a suitable fitness test for each component of fitness

Total: 6 marks

Complete **Table 4** by:

(a) Stating how the dancer in **Figure 3** is using each component of fitness.

(b) Stating **one** training method to improve each component of fitness.

(c) Stating **one** fitness test to measure each component of fitness.

Component of fitness	(a) How component is being used in Figure 3	(b) Training method for the component of fitness	(c) Fitness test for the component of fitness
Strength	using his wrist to hold up his body weight (1)	weight training (1)	grip diometer (1)
Flexibility	being able to have his legs spread open (1)	Circuit training (1)	Sitting Flexibility Push test (1)

Table 4

ResultsPlus
Examiner Comments

This response gains 4 marks for stating:

- how both components of fitness were being used by the dancer
- two training methods that could be used to develop each component of fitness

No marks were given for either of the responses for the fitness tests.

Total: 4 marks

ResultsPlus
Examiner Tip

Make sure your examples are clear and cannot equally be applied to another component of fitness.

Question 10(d)

Candidates were reminded that the dancer uses strength and flexibility during a routine. Candidates were then asked to state two other components of fitness the dancer needs to hold the position in the image.

Important information was given in this question:

- Two **other** examples, so do not use strength or flexibility
- Needed to **hold** the position

Complete **Table 4** by:

(a) Stating how the dancer in **Figure 3** is using each component of fitness.

(b) Stating **one** training method to improve each component of fitness.

(c) Stating **one** fitness test to measure each component of fitness.

Component of fitness	(a) How component is being used in Figure 3	(b) Training method for the component of fitness	(c) Fitness test for the component of fitness
Strength	To be able to hold the body up on one arm (1)	weight ~~circuit~~ training (1)	Hand grip dynamometer (1)
Flexibility	The legs being Seperated whilst balancing (1)	Circuit training (1)	Sit and reach test. (1)

Table 4

The dancer uses strength and flexibility during a routine.

(d) State **two other** components of fitness the dancer needs to hold the position shown in **Figure 3**.

(2)

1 Co-ordination

2 Balance

ResultsPlus
Examiner Comments

This response gains 2 marks, one for each component of fitness used to hold the body position.

Total: 2 marks

Complete **Table 4** by:

(a) Stating how the dancer in **Figure 3** is using each component of fitness.

(b) Stating **one** training method to improve each component of fitness.

(c) Stating **one** fitness test to measure each component of fitness.

Component of fitness	(a) How component is being used in Figure 3	(b) Training method for the component of fitness	(c) Fitness test for the component of fitness
Strength	By holding their body weight. (1)	Resistance training (1)	Grip dynamometer test (1)
Flexibility	doing the maximum amount of movement at a joint they possibly can (1)	(1)	Sit & Reach test (1)

Table 4

The dancer uses strength and flexibility during a routine.

(d) State **two other** components of fitness the dancer needs to hold the position shown in **Figure 3**.

(2)

1 Balance.

2 Agility.

ResultsPlus
Examiner Comments

This response gains 1 mark for the component of fitness balance.

Whilst agility might be used to get into the position it is not used to **hold** the position.

Total: 1 mark

ResultsPlus
Examiner Tip

Do not repeat examples already given in the question.

Do not include examples that are not relevant to the question context: the context in this case is **holding** a position.

Question 10(e)

This part of the question is about reducing risk of injury.

Three methods to reduce the risk of injury were given:

- follow safety rules, this includes having spotters and following the rules of the activity
- using appropriate protective clothing
- using appropriate protective equipment, this would include the use of mats

Candidates were asked to explain two other ways the dancer could reduce the risk of injury.

The remaining possibilities from the specification are:

- correct application of the principles of training
- checking of equipment/facilities before use
- warm-up

There were many good responses related to checking facilities or warming-up.

Use of a PARQ, carrying out a risk assessment, and staying hydrated, were not credited because they were inappropriate for this question context.

Make sure your two answers are different.

For example, an answer on not overtraining and using progressive overload are both examples of correct application of the principles of training.

The dancer follows safety rules during training and uses appropriate protective clothing and equipment to remain injury free.

(e) Explain **two other** ways the dancer can reduce the risk of injury during training.

(i)

(3)

warm up and cool down. This elasticates muscles by stretching them. This means they're less likely to injure themselves.

- ~~warm up~~ cool down
- ~~follow rules~~
- principles of traing
- wear ~~protective~~ clothing
- ~~check equipment~~

(ii)

(3)

~~Follow principles~~ Check Follow principles of training. This makes sure training is effective and avoids overtraining. This allows for rest and recovery which prevents ~~training~~ injury.

ResultsPlus
Examiner Comments

This response gains all available marks.

For each way of reducing risk of injury the candidate:

- states what needs to be done (warm up and follow the principles of training)
- expands on this, stating more about the method (by stretching, by avoiding overtraining)
- develops the statement further stating why injury is less likely (muscle fibres become more elastic, allowing for rest and recovery)

Total: 6 marks

The dancer follows safety rules during training and uses appropriate protective clothing and equipment to remain injury free.

(e) Explain **two other** ways the dancer can reduce the risk of injury during training.

(i)

(3)

~~Two~~ ~~Two~~ ~~Two~~ One other ways the ~~dancer~~ dancer can reduce the risk of injury during training is make sure someone is always watching, ~~secon~~ is this way he can be seen doing what he is doing and if he falls there will always be help.

(ii)

(3)

The dancer could reduce the risk of injury by getting more safety equipment underneath him. This way if he falls he will have a much softer landing and a more cushioned effect.

ResultsPlus
Examiner Comments

This response gains 0 marks.

The response contains examples already given in the question: safety rules and protective equipment.

Someone watching whilst performing is equivalent to a spotter, which would come under 'safety rules' for an activity, and safety equipment is included in protective equipment.

Total: 0 marks

ResultsPlus
Examiner Tip

Make sure your answer has not already been given in the question.

Question 11(a)

Candidates were presented with three sets of values for resting:

- heart rate
- stroke volume
- cardiac output

The question asked candidates to explain what would happen to these values after an eight-week training programme.

Each part of the question was designed to be more challenging, with most candidates knowing that resting heart rate would decrease, explaining that this was due to cardiac hypertrophy, a stronger heart or due to increased stroke volume.

Whilst there were many correct responses in this part of the question, popular incorrect responses linked the change in heart rate to the respiratory system, rather than the CV system.

The effect of training on resting stroke volume was less well-known, with many candidates incorrectly stating it reduced.

The final part of this question relied on candidates understanding the relationship between heart rate and stroke volume. There were several ways to achieve both marks.

Correct responses included that it:

- stayed the same due to the proportional drop in resting heart rate and increase in stroke volume
- increased due to the increase in resting stroke volume
- decreased due to the drop in resting heart rate

11 Table 5 provides values for Jude's heart rate, stroke volume and cardiac output at rest.

	(i) Resting heart rate	(ii) Resting stroke volume	(iii) Resting cardiac output
Values	75bpm	75ml	5.6L/min

Table 5

(a) Explain what would happen to **each** of the values in **Table 5** after Jude completes an eight-week aerobic training programme.

Use a **different** explanation for each value.

(i) Resting heart rate

(2)

Jude's resting heart rate would decrease as her cardivasr ular fitness has improved which means her stroke volume is higher so not as many bpm are needed to get the same amount of blood around the body

(ii) Resting stroke volume

(2)

Judes ~~Rest~~ resting stroke volume would increase, because her cardiac muscles have strengthend through the aerobic training

(iii) Resting cardiac output

(2)

Judes resting cardiac output would stay around similar as ~~both~~ her resting heart rate has decreased but her stroke volume has increased ~~and re~~ Resting Heart Rate : Resting heart rate (bpm) x resting stroke volume.

ResultsPlus
Examiner Comments

This response gains all available marks.

There is correct identification of:

- a drop in resting heart rate after the training programme and reason for the drop in resting heart rate given (improved stroke volume)
- an increase in resting stroke volume after the training programme and reason for the increase in resting stroke volume given (stronger cardiac muscles)
- resting cardiac output staying roughly the same after the training programme and reason it stayed the same (resting heart rate dropping but resting stroke volume increasing)

Total: 6 marks

ResultsPlus
Examiner Tip

Note how a different explanation is given in each part of the response.

11 Table 5 provides values for Jude's heart rate, stroke volume and cardiac output at rest.

	(i) Resting heart rate	(ii) Resting stroke volume	(iii) Resting cardiac output
Values	75bpm	75ml	5.6L/min

Table 5

(a) Explain what would happen to **each** of the values in **Table 5** after Jude completes an eight-week aerobic training programme.

Use a **different** explanation for each value.

(i) Resting heart rate

(2)

Resting heart rate would decrease as Jude's heart would become stronger, meaning it can pump more blood every time so it does not have to beat as often.

(ii) Resting stroke volume

(2)

Resting stroke volume would increase as Jude's heart will pump more blood with each beat due to the muscular hypertrophy of his heart.

(iii) Resting cardiac output

(2)

Resting cardiac output would increase because his stroke volume has increased, so the amount of blood pumped per minute would also increase.

ResultsPlus
Examiner Comments

This response gains all available marks.

Correct identification of:

- a decrease in resting heart rate after the training programme due to increased strength of the heart
- an increase in resting stroke volume after the training programme due to cardiac hypertrophy
- the resting cardiac output increasing after the training programme due to his increased stroke volume

Total: 6 marks

Question 11(b)

This question asked candidates to state the component of fitness improved by following an aerobic training programme. Cardiovascular fitness was the expected response.

Those not achieving the mark tended to state endurance rather than CV endurance or stated stamina.

(b) State the component of fitness Jude is trying to improve by following an aerobic training programme.

(1)

Cardio-vascular fitness.

ResultsPlus
Examiner Comments

This response gains 1 mark for identifying cardiovascular fitness correctly.

Total: 1 mark

ResultsPlus
Examiner Tip

Make sure you can match each component of fitness to a specific method of training.

(b) State the component of fitness Jude is trying to improve by following an aerobic training programme.

(1)

endurance.

ResultsPlus
Examiner Comments

To gain the mark a specific component of fitness is required.

Endurance is considered too vague because this could be related to CV endurance or muscular endurance.

Total: 0 marks

ResultsPlus
Examiner Tip

Use the correct terminology for the components of fitness.

Question 11(c)

This part of the question asked candidates to explain why Fartlek would be a good training method to use to prepare for a cross-country race.

To gain all three marks candidates needed to:

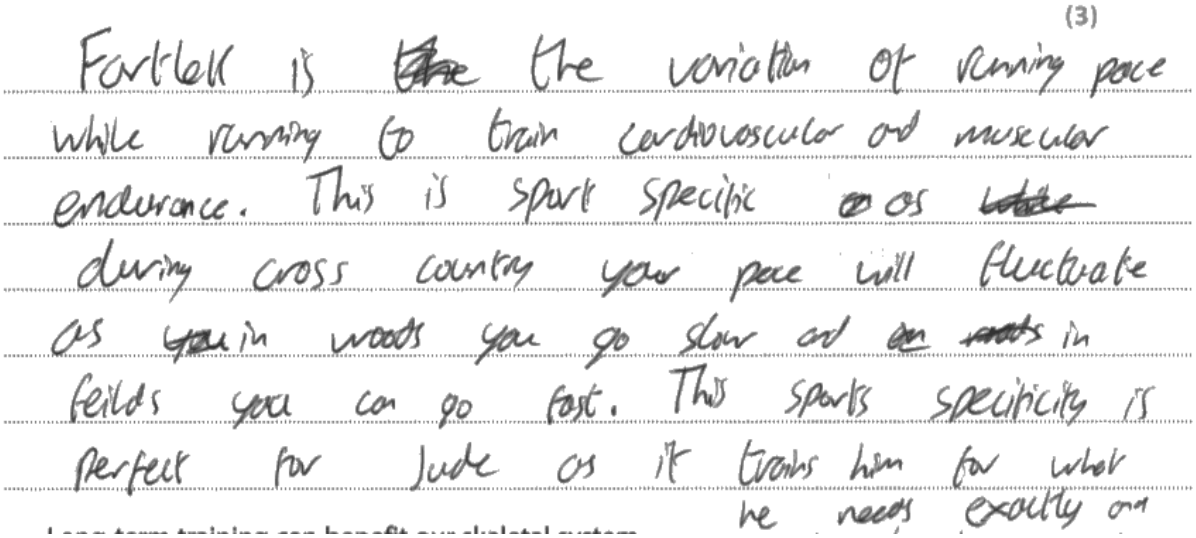
- give a reason that said something about Fartlek, eg it involves a change in intensity
- link this reason to cross-country, eg in cross-country athletes increase intensity to maintain pace when they run up-hill
- provide a justification, eg therefore Fartlek is specific to cross-country

Many candidates received two marks for this question, often gaining the first two marks, but not the third.

Jude is a cross-country runner.

(c) Explain why Jude chooses Fartlek training to prepare for their next cross-county race.

(3)



ResultsPlus
Examiner Comments

Marks are given for:

- the variation of pace in Fartlek training (1)
- matching the need to fluctuate pace in cross-country (1)
- meaning that Fartlek training is sport-specific because it trains him for what he needs exactly (1)

Total: 3 marks

Jude is a cross-country runner.

(c) Explain why Jude chooses Fartlek training to prepare for their next cross-county race.

(3)

Fartlek uses speed play. During a cross-country race they must sprint at the start, pace themselves in the middle and sprint at the end. Cross-country races also have different terrain. Fartlek is changing speed and terrain. This will prepare them for cross-country.

ResultsPlus
Examiner Comments

This response gains 2 marks for:

- a relevant point about Fartlek that makes it a suitable choice for cross-country (1)
- the feature in Fartlek is used in cross-country (1)

Total: 2 marks

Question 11(d)

The final part of this question asked candidates to explain one long-term training effect on the skeletal system that would benefit cross-country performance.

- One mark was given for the effect on the skeletal system, eg increased bone density
- The second mark was given for the developed expansion of this, eg reducing the risk of injury
- The third mark was given for the impact, eg so they would not need to take time off from training due to injury

Make examples as clear as possible, so the examiner knows exactly what you mean and so the example links to the question.

For example, here it states less risk of stress fractures from the constant running. So a specific injury is given and why cross-country may cause it.

Long-term training can benefit our skeletal system.

(d) Explain **one** long-term training effect on the skeletal system that would benefit Jude's cross country performance.

(3)

One effect is that Jude's bones get stronger. ~~this~~ This means they would be less susceptible to fractures due to stress from the constant running. Therefor Jude is less injury prone, and can keep training, improving his performance in the long term

ResultsPlus
Examiner Comments

This response gains all three marks for the:

- long-term training effect (increase in bone strength) (1)
- benefit of this (less risk of stress fracture from constant running) (1)
- impact (less likely to get injured so can continue to train) (1)

Total: 3 marks

Long-term training can benefit our skeletal system.

(d) Explain **one** long-term training effect on the skeletal system that would benefit Jude's cross country performance.

(3)

Increased bone density. This is important to Jude as his bones will be stronger, meaning they less likely to break/fracture during the long distance event. Therefore, he reduces the risk of injury, meaning he can carry on performing to a high level of performance and perhaps give him an advantage over other runners.

ResultsPlus Examiner Comments

This response gains 2 of the 3 available marks.

Marks are given for the:

- long-term training effect (increased bone density/strength) (1)
- benefit of this (less likely to get injured, or break/fracture a bone) (1)

The impact is too vague for the mark because it is not linked specifically to maintaining training.

Reference to performance might mean that specific race.

Total: 2 marks

ResultsPlus Examiner Tip

Make your answer as clear as possible, so the examiner knows exactly what you mean.

Question 12

Responses to extended answer questions are marked using a levels-based mark scheme: the quality of the response determines the level.

There are four levels: Level 0 where there is no rewardable material presented and then Levels 1, 2, 3; the higher the level the higher the quality of the response.

The maximum mark available for each A0 is three marks, thus an essay full of factual content only (AO1) would gain a maximum of three marks. Relevant application of knowledge (A02) and evaluations (A03) are also required for maximum marks.

This essay question asked candidates to evaluate the effects of three different performance-enhancing drugs (PEDs) on a 100m sprinter's performance.

This question assesses the specification content on PEDs, part of Topic 3.

Based on the specification content, candidate responses needed to focus on:

- the purpose of each PED
- how this could be utilised by the 100m sprinter
- the impact on their performance.

The three PEDs were:

- anabolic steroids
- narcotic analgesics
- diuretics

Whilst every candidate was not familiar with every PED, no one PED seemed more challenging than another across the cohort.

Occasionally, candidates confused narcotic analgesics with beta blockers, and diuretics with blood doping, but normally where a response was attempted the effect of the PED was known.

For this question, Level 1 responses tended to demonstrate isolated elements of knowledge about one or more of the PEDs, eg diuretics increase urination or narcotic analgesics numb pain.

Level 2 responses tended to include knowledge and application of knowledge, without the relevant evaluation.

Alternatively, they had some knowledge about one PED and extensive understanding about another. For example, anabolic steroids allow the sprinter to train more frequently because they help the muscle repair and recover faster, so they see a quicker increase in muscle mass, leading to greater strength, which would allow greater acceleration from the blocks.

To achieve Level 3, responses had to include assessment or evaluation, but not necessarily for each PED, depending on the quality of the response.

12 Some elite athletes are tempted to take performance enhancing drugs (PEDs).

Evaluate the effects of anabolic steroids, narcotic analgesics and diuretics on a 100m sprinter's performance.

(9)

~~Ba~~

Plan

Anabolic steroids - muscle mass improved - heart disease, deepened voice

Narcotic analgesics - mask injury so can still train / perform

Diuretics - help mask other drugs taken, lose weight - water in body - dehydration

All anabolic steroids, narcotic analgesics and diuretics will impact performers - positively and negatively. They may be taken to aid performance due to pressure, fame and income.*

Anabolic steriods are used to increase muscle mass of a performer, which would increase their strength. This would help a 100m sprinter as strength is needed to combine with speed to improve the sprinters power. Power is used to push off from the

starting block ~~and~~ at the beginning of the race. Improved power will give the performer a faster start, as they will travel further in a shorter amount of time. This would help reduce their time, making them faster. However, there are some disadvantages to the performers health, for example can lead to heart disease - which could make the 100m sprinter unable to perform.

Narcotic analgesics are used to help a performer as they allow them to continue training through an injury. This would help a 100m sprinter as they can continue to train, which will help them improve and lower their time, helping them to win at a race or event or get a personal best/ record time. However, this may lead to the injury becoming worse and more serious as not enough rest time^ or recovery is given.

Diuretics are used to mask the use of any other performance enhancing drugs as they get rid of the water / fluid in the body. This would help a 100m sprinters

performance if they had taken any performance enhancing drugs, however would not be helpful if ~~not~~ PEDs taken. Diuretics can lead to dizziness and ~~nausea~~ nausa which could hinder the sprinters performance as they may enter the wrong lane, through impaired vision or could stop them competing / training.

Overall, I think anabolic steroids would have the greater impact on the ~~performer~~ athletes performance as it would improve their power, which is vital for 100m sprinters. However, if caught could disqualify the performer. Therefore there is a higher risk than reward of taking PEDs.

* However Taking PEDs can lead to lifetime bans of the sport, loss of sponsorship and health related diseases and side effects.

ResultsPlus
Examiner Comments

This is a well-structured response, taking each PED in turn, demonstrating:

- knowledge about the PED, eg steroids can lead to heart disease, diuretics get rid of fluid in the body
- application to the question context, eg the loss of water from the body will mask the presence of other drugs in the system if the athlete were taking other PEDs although diuretics themselves do not enhance performance
- evaluation, eg because steroids increase muscle mass the performer will increase strength, giving them a better start from the blocks, reducing the time taken to complete the sprint

In addition, there is a more general evaluation about athletes taking PEDs due to the pressure of winning, or for the fame and fortune, despite the severe health risks and the risk of being banned from the event if found taking PEDs.

Overall, this response demonstrates accurate knowledge and understanding of the relevant specification topic. It applies this knowledge to the question context. The points raised provide evidence to support the claims about the value of each PED.

Level 3

Total: 9 marks

12 Some elite athletes are tempted to take performance enhancing drugs (PEDs).

Evaluate the effects of anabolic steroids, narcotic analgesics and diuretics on a 100m sprinter's performance.

(9)

Anabolic steroids are PEDs which greatly increase muscular hypertrophy so the muscles are bigger and stronger. A 100-metre sprint performer may take these to improve the power they can generate with each step in the race. This will increase the speed of the athlete as they can get further with each step resulting in a faster time and better final position.

Narcotic Analgesics are a form of PED which are a painkiller and mask pain. If a performer in a 100m sprint is feeling pain in ~~there~~ their muscles in the leg then they could take narcotic analgesics to mask the pain and perform anyways. So they can perform as usual despite carrying an injury so may result ~~it~~ in finishing on the podium.

The PED, Diuretics decrease water weight of a person by increasing sweating eet. and can also mask other PEDs that may have been taken. A performer may want to be as light as possible yet still be able to go fast which would increase the speed of the athlete. This would be because the muscles would work as usual but since there is less weight the muscles could work faster. An 100m sprint performer taking these would be able to move faster and possibly finish higher than previously.

ResultsPlus
Examiner Comments

This response achieves Level 2.

The response demonstrates mostly accurate knowledge and understanding of the specification topic being assessed. For example, it references the use of narcotic analgesics to reduce pain, or diuretics to shed water weight.

In both instances, knowledge is then applied to the question context through relevant examples – act as a pain killer so they can continue to compete, or diuretics masking other drugs.

There is also an attempt at a concluding point, linked to anabolic steroid use, the increased muscle mass, increasing strength, contributing to power so quicker race times.

Total: 6 marks

12 Some elite athletes are tempted to take performance enhancing drugs (PEDs).

Evaluate the effects of anabolic steroids, narcotic analgesics and diuretics on a 100m sprinter's performance.

(9)

Anabolic Steroids are ~~Steroids~~ Performance enhancing drugs taken to enhance Strength meaning a Performer Can become Stronger and lift more weight. This is not to relevant to an loom Sprinter as their race is more about Speed then Strength so Strength isn't a major factor for them. A weightlifter may take these in order for them to gain more muscle and be able to lift a heavier weight.

Narcotic analgesics is a drug used to add more red blood cells into the bloodstream. An loom Sprinter may use these as it will deliver more Oxygen to the working muscles meaning they can work for longer. A long distance runner may also use these as the increase in red blood cells can lead to the muscles working for longer therefore they will have more energy to work for a longer time.

Diuretics are drugs used to make you loose weight and they also cover up the use of any other drugs. A long sprinter may use these to become lighter so they may feel faster and move quicker. A boxer may also take diuretics to make weight for their fight as diuretics decrease your body's weight by urinating a lot.

ResultsPlus
Examiner Comments

This response achieves Level 1.

The response demonstrates isolated elements of knowledge linked to the required area of the specification.

There is an attempt to apply this knowledge, but this tends to be to a different context, eg the boxer is linked to diuretics or a weightlifter to anabolic steroids.

Total: 2 marks

ResultsPlus
Examiner Tip

Tip - Remember to apply any knowledge you have to the question context. Make sure your examples relate to the question, not another sport or different situation.

Paper Summary

Based on their performance in this examination, candidates are offered the following advice:

- Use appropriate technical language when answering anatomy or movement analysis questions, eg muscles contract and relax rather than flex and extend (Q04)
- Do not abbreviate muscle names, eg quadriceps rather than quads and gluteals rather than glutes (Q08)
- If asked for examples, make them clear, eg 'type 1 fibres would be used during long distance running' rather than just 'when running' (Q05b)
- Use the command words and number of marks available to help you decide the depth required in your response, eg a two-mark 'explain' question does not need the same level of development as a three-mark 'explain' question (Q11a and Q07b)
- Use the writing space as a guide: it should be possible to fully-address the question in less space than is provided
- Do not use examples already provided in the question as part of your answer, eg Q11d mentions strength and flexibility so these cannot be included in your answer

Grade boundaries

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