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Examiners' Report
June 2016

GCSE Physical Education 5PE01 01

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Introduction

To be successful on 5PE01 candidates needed to recall and apply their knowledge to a range of question scenarios. They needed to demonstrate understanding and higher order skills of analysis and evaluation. There continues to be a need for students to develop their ideas, following a point through in greater depth for 'describe and explain' questions, rather than only providing a more generalised approach to their responses.

Questions are structured to elicit different levels of response from candidates: this is indicated through the number of marks available and the command words used in the question. For example, some recall questions will ask students for names or identification, whilst other questions will ask for descriptions, explanations or discussions. This format of questioning allows for greater differentiation between candidates, and examiners are better able to assess the depth of candidate knowledge and understanding.

QUESTION (Q) 1The majority of the multiple choice questions (MCQs) were designed to be accessible to all candidates: this series proved no different. However, some questions were more challenging than others, for example Q1(a) and Q1(c).

Question Q1(a) asked candidates to select the mental benefit of exercise. The options to choose from were fun, making friends, cooperation and social mixing. Some candidates incorrectly identified cooperation or making friends as a mental, rather than social, benefit of exercise. Q1(c) asked candidates to select a physical fitness benefit of exercise. The options were:

- reduced chance of osteoporosis
- reduced resting heart rate
- increase in serotonin
- reduced chance of obesity

This question was challenging for those candidates who were unable to differentiate between health, and fitness, benefits of exercise.

Question 2

Candidates were asked to give, and then justify, two reasons why an elite performer may go on to become a good coach.

This question differentiated well between candidates in terms of distribution of marks, although many responses were too vague for credit, reporting that this would mean they:

- were an experienced player
- had good experience of the game
- knew a lot about the game
- had good contacts

Those that did gain the mark(s) for identifying the reasons why playing at elite level may help when coaching, gave more precise responses. For example, correct responses linked to having a good knowledge of the rules or tactics, or that the ex-player would be skilful. Some candidates developed their responses further by providing a justification of why this would make them a good coach. Many correct expansions focussed on appropriate teaching, for example, noting that because elite performers were skilful, the skills they taught their team would be executed correctly, so they would pass on the correct way of executing the techniques. Other responses noted that elite performers could teach their players appropriate tactics, so that their team could go on to be successful.

2 Aron played basketball at elite level.

Give **two** different reasons why this might help Aron to become a good basketball coach. Justify each reason.

Reason 1 and justification

(2)

He knows all the rules and regulations so will be able to teach his ~~team~~ students the rules to avoid injury and fouls during game play

Reason 2 and justification

(2)

He is very skilled and knows techniques so will be able to increase the performance of his students by showing them and teaching them high quality skills.

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Examiner Comments

This response gained all available marks.

In this response, the candidate identifies two different reasons why playing at elite level could help when coaching. Each identified reason is also justified by linking to the impact on coaching. For example, knowing the rules so that their players avoid injury or committing fouls during game play.

4 marks

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Examiner Tip

Make a note of the instructions in the question. This question asks for a justification.

Note how this response gives a reason: 'He is very skilled and knows techniques'. Then the candidate justifies why this might help when coaching: 'so will be able to increase the performance of his students by showing them and teaching them high quality skills'.

2 Aron played basketball at elite level.

Give **two** different reasons why this might help Aron to become a good basketball coach. Justify each reason.

Reason 1 and justification

(2)

By playing at a very high-level standard, Aron would develop a very good understanding of the sport which would allow him, when coaching, to use effective tactics and training in order to get the best performance out of his players.

Reason 2 and justification

(2)

By playing at a high-level with his teamates, Aron would develop very good communication and cooperation skills which would allow him, when coaching, to effectively communicate his points to his players, which will ease their understanding of him and improve performance.

(Total for Question 2 = 4 marks)

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Examiner Comments

This response gains all available marks.

This response also identifies and justifies two different reasons why playing at elite level might help when coaching.

The reasons given are:

- Knowledge of relevant tactics, to increase the quality of the team's play
- Development of communication skills, which can then be used to ensure that communication with players is effective. This will ensure that they understand what they need to do to play well

4 marks

ResultsPlus
Examiner Tip

Make sure the reasons you give are clearly different.

In this example, the reasons are having knowledge of effective tactics and good communication skills.

Question 3 (a)

This proved to be a very challenging question because the majority of candidates were unable to access the available mark.

Candidates were told two of the common purposes of initiatives in the question and asked to identify the third, which increased the level of difficulty. Common errors in responses included using the common purposes already stated in the question, in particular, focussing on ways to increase participation, or general responses in relation to health and fitness.

Some candidates did make reference to increasing success, but without the link to elite level this could not be credited, because the level of success was not clear from the response. However, some candidates were able to identify correctly the link to increasing success at elite level. There were several ways candidates could have expressed the intent of the third common purpose of sports initiatives, for example:

- development of a talented performer
- talent identification
- providing opportunities to excel/reach elite level
- increased international success
- more gold medals

3 Two common purposes of sports initiatives are to increase participation and retain people in sport.

(a) Identify the third common purpose of initiatives.

(1)

To get people to an elite level so they win medals or competitions for their club.

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Examiner Comments

This response gains the available mark.

The third common purpose of sports initiatives is identified correctly as 'getting people to elite level'.

1 mark

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Examiner Tip

Do not use examples already given in the question in your response. For example, in this question no credit would be given for repeating the common purpose of retaining people in sport.

3 Two common purposes of sports initiatives are to increase participation and retain people in sport.

(a) Identify the third common purpose of initiatives.

(1)

Create opportunities for talented sportsman to succeed at a high level.

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Examiner Comments

This response also gains the available mark.

The third common purpose of sports initiatives is identified correctly as 'creating opportunities for talented sportsmen to succeed'.

Question 3 (b)

This question did differentiate between candidates, although a large proportion of candidates were unable to access the question. The question asked candidates to describe one way an initiative could focus on increasing participation for priority groups.

To gain credit, candidates needed to link to increasing access, either through resources, facilities or awareness of the activities, and then extend this by describing how this might be achieved.

Correct responses made reference to:

- use of role models
- increasing facilities
- leafleting to raise awareness
- increasing resources
- increasing access with disability ramps

Incorrect responses tended to name initiatives and their target group, but without stating how the initiative tried to increase participation.

(b) Describe **one** way an initiative to increase participation could focus on priority groups.

(2)

They could provide resources ~~and~~ and equipment such as ramps to allow wheelchair users to access a place to train.

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Examiner Comments

This response gains 2 out of a possible 2 marks.

The candidate identifies that the target group could be given access to a place to train, through the provision of resources and equipment such as ramps.

2 marks

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Examiner Tip

Note the command word and the marks available in the question.

This question ask for a description and is worth two marks, therefore your response must contain a linked statement to provide the required description.

(b) Describe **one** way an initiative to increase participation could focus on priority groups.

(2)

It could focus on a priority group that has low participation in physical activity e.g young females. Then they increase the participation of that priority group by getting a role model in to motivate them to do the sport.

(Total for Question 3 = 3 marks)

ResultsPlus
Examiner Comments

This response also gains both available marks.

Credit is given for recognition that role models can be used to influence a particular group to participate.

2 marks

Question 4

The majority of candidates either scored 0 or 2 marks for this question. The question tested candidates' ability to apply their knowledge. Those achieving both marks were able to link their response to give good descriptions of when reaction time would be used within a race. Candidates were told that a good reaction time was needed at the start of an 800m race and then asked when, during the 800m race a good reaction time would also be of benefit.

The most popular correct response described responding to an opponent who suddenly tried to overtake, and the reaction to this being to speed up to maintain position. Some candidates also made reference to taking evasive action if the runner in front fell.

Incorrect responses either repeated the information from the question, describing the use of reaction time at the start of the race, or described pre-planned tactics, or situations where reaction time was not required, for example the bell on the final lap, or dipping at the line, and therefore did not gain credit.

A good reaction time would help an 800m runner to get a good position at the start of the race.

4 Describe **one** other way an 800m runner could benefit from having a good reaction time during the race.

A good reaction time would help an 800m whilst running to see that a competitor is closing in on them, so they increase their speed in order to retain their position.

(Total for Question 4 = 2 marks)

ResultsPlus
Examiner Comments

This response gains both available marks.

Credit is given for identification of when reaction time would be needed during the race. In this example, this is in relation to an opponent attempting to overtake, and being prevented from doing so, 'to see that a competitor is closing in on them so they increase their speed to retain their position'.

2 marks

A good reaction time would help an 800m runner to get a good position at the start of the race.

4 Describe **one** other way an 800m runner could benefit from having a good reaction time during the race.

If another racer was to trip and fall ~~in front of~~ near them they will need reaction time to change the angle of their run quickly to prevent them falling ~~also~~ aswell.

(Total for Question 4 = 2 marks)

ResultsPlus
Examiner Comments

This response also gains both available marks.

Credit is given for identification of when reaction time is needed during the race, 'if another racer was to trip and fall near them they will need to change the angle of their run.'

2 marks

Question 5

This question differentiated well, with the majority of candidates achieving at least one mark. The question asked why a cyclist would use a bike in training.

The focus of the question was therefore on the principle of training: specificity. Many candidates were able to identify this link correctly, gaining credit for this, although relatively few were able to expand on it with sufficient clarity for further credit. For example, reference to improving their leg muscles was considered too vague because this could be achieved through a number of different training methods, whereas responses that named the relevant muscles or stated that this allowed the cyclist to focus on the correct muscles for his sport, gained further credit.

There were three different routes candidates could take to achieve all available marks. Reference to specificity was required (or the equivalent, eg matching the needs of the sport) but then candidates could focus either on specific fitness requirements or skill development, or a combination of both.

5 Explain why a cyclist would use a bike in their training.

They would use a bike in their training because one it is realistic to their sport so they can feel comfortable when they have done it in training they can do it in their sport. Second reason is that they can see if their bike works propoly if there is any faults and they can get used to the same bike for a race.

(Total for Question 5 = 3 marks)

ResultsPlus
Examiner Comments

This response gains 1 of the 3 available marks.

Credit is given for reference to use of the bike because it makes the training 'realistic to their sport'.

However, no further credit is given because references to 'Feel comfortable', 'bike works properly', 'get used to the bike' were considered too vague. They do not provide clear links to the technique required in the sport, or to the fitness required for the sport.

1 mark

5 Explain why a cyclist would use a bike in their training.

A cyclist would use their bike because it is specific to their sport, this follow the rule of speificity. Also training on the bike could train the muscles needed for that activity e.g hamstring and quadraceps. So they get used to the feeling and understand when to sprint or not. Whether to work aerobically or anaerobically.

(Total for Question 5 = 3 marks)

ResultsPlus
Examiner Comments

This response gains all available marks.

Credit is given for:

- identification that the bike would be used to make the training specific to their sport
- allowing the relevant muscles to be trained
- stating what some of these muscles are

3 marks

Question 7

This question differentiated well between candidates, with the majority scoring at least 1 mark. The question asked candidates to explain how the FITT (Frequency, Intensity, Time and Type) principle overlapped with the principle of progressive overload.

Many candidates began their response by defining one or both of the principles, and then explained how an aspect of FITT could be used to increase overload, thus many candidates were able to achieve two marks.

To gain the third mark, candidates also needed to indicate that the overload produced, through increasing either intensity, time or frequency, would need to be applied in small increments in order fully to match the principle of progressive overload.

7 Explain how the FITT principle overlaps with the principle of progressive overload.

Fitt overlaps with Progressive overload as one you have set the Frequency, intensity, time and type of training, in order to improve after you can complete the activity, you must gradually make it harder by increasing either time or intensity of activity to become better at that certain event.

(Total for Question 7 = 3 marks)

ResultsPlus
Examiner Comments

This response gains all available marks.

Credit is given for correct identification of the components of the FITT principle and then the explanation how time or intensity can be increased gradually to make the training harder.

3 marks

7 Explain how the FITT principle overlaps with the principle of progressive overload.

The & FITT principle stands for frequency; how often exercise is done, Intensity; how difficult and intense the exercise was, Type; what method of training was used and Time; how long the exercise ~~then~~ went on for. This overlaps with progressive overload because you would increase one of these each exercise session to gradually overload yourself.

(Total for Question 7 = 3 marks)

ResultsPlus
Examiner Comments

This response also gains the 3 available marks.

Credit is given for identification of all aspects of FITT and that any one of these (not true for type but accepted as is the case for the other named elements), can be increased gradually to bring about the required overload.

3 marks

Question 8 (a) – Question 8 (c)

Q8 tested candidates' knowledge and understanding of goal setting and SMART (Specific, Measurable, Achievable, Realistic, Time-bound/Time-phased) targets.

In (a) candidates were required to identify the SMART principle represented by 'A' in SMART. Almost 90% of the candidates identified this correctly as 'Achievable'. Incorrect responses often substituted another word beginning with A, for example, agility, average and achievement. Because the specific term was required, only recognised terminology was accepted.

In (b) candidates were required to identify the SMART principle that related to setting a deadline to complete a goal. Although fewer candidates gave the required response to this question, the majority did. Incorrect responses stated included time or deadline, rather than the required terminology of time-bound or time-phased.

Part (c) asked candidates why, other than setting clear deadlines, goal setting is important when planning a PEP (Personal Exercise Programme).

The majority of candidates were able to respond correctly to this question, although a smaller percentage than for part (a) of the question. One common error was to repeat reference to deadlines. This had already been stated in the question and therefore it could not be credited. Any other aspect of SMART target setting could be used in the response provided it gave a reason, rather than just stating the name of the principle.

Popular correct responses focused on motivation or providing a clear aim/target to provide a focus for training.

One reason for setting goals is to provide clear deadlines to help when planning a Personal Exercise Programme (PEP).

(c) State **one** other reason why goal setting is important.

(1)

To Motivate the Performer to improve (this can boost Self-Steem.)

(Total for Question 8 = 3 marks)

ResultsPlus
Examiner Comments

This response gains the available mark for stating that targets can provide motivation for the performer. This was a popular correct response.

1 mark

One reason for setting goals is to provide clear deadlines to help when planning a Personal Exercise Programme (PEP).

(c) State **one** other reason why goal setting is important.

(1)

TO Monitor progress and to See if the performer is improving.

(Total for Question 8 = 3 marks)

ResultsPlus
Examiner Comments

This response also gained the available mark.

The candidate identifies correctly that goal setting can be used to monitor progress, to check that the performer is improving.

1 mark

Question 9

This question asked candidates to explain two stations that would be included in a hockey circuit, to improve agility and speed and thereby to improve performance in hockey.

The answer space was divided into station 1 (agility), and station 2 (speed), to help candidates structure their response. To 'explain' the station that would improve performance in hockey, candidates were required to identify/describe the station they would use and then state how this would help performance. For example, an agility station could be dribbling a ball in-between a series of cones, so that in the game they could dribble more effectively around the opposition.

Although this was designed as a differentiated question, and it did provide differentiation between 0 and 2 marks, the majority of candidates were unable to access the full range of marks. This was because in most responses candidates identified fitness tests, rather than giving appropriate stations for a circuit training session. Very few candidates were able to apply the use of either component of fitness to performance.

Rose is a hockey player. She is designing a circuit to improve her agility and speed.

9 Explain **two** stations Rose should include in her circuit to improve her performance in hockey.

Station 1 (agility)

(2)

Speed bounce - bouncing over and object from left to right or vice versa

Station 2 (speed)

(2)

Shuttle runs - running from one point to other next in quickest time possible

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Examiner Comments

This response gains both of the available marks.

Credit is given for the description of the activity at each station. The candidate cannot access further marks because they do not explain how this would help performance in hockey.

2 marks

Rose is a hockey player. She is designing a circuit to improve her agility and speed.

9 Explain **two** stations Rose should include in her circuit to improve her performance in hockey.

Station 1 (agility)

(2)

Illinois Agility Test. This Station would allow her to Practise her agility through a course which is timed. She can then compare times to see her improvement as it encourages moving the body quickly whilst keeping it under control, which is important to dribble past a Player in hockey.

Station 2 (speed)

(2)

10m Sprints. Several of these would help as the goal is to get from Point A to B as quickly as possible. This is important in hockey to get to the ball first if in a race with the opponent.

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Examiner Comments

This response gains 3 of the available 4 marks.

The Illinois agility test is not credited because this is a fitness test. However, credit is given for the applied use of agility in a game situation.

Station 2 gains both available marks: credit is given for the description of the station and for the application to hockey.

3 marks

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Examiner Tip

Only give the names of fitness tests when specifically asked for them. They should not be used as a means of developing fitness, only for measuring it.

Rose is a hockey player. She is designing a circuit to improve her agility and speed.

9 Explain **two** stations Rose should include in her circuit to improve her performance in hockey.

Station 1 (agility)

(2)

Ladder movement side to side would increase her agility so she can manouver in and out of players.

Station 2 (speed)

(2)

Shuttle Sprints would improve her speed so she could get to the puck quicker in hockey

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Examiner Comments

This response gains all available marks.

The response identifies appropriate stations for each component of fitness (ladders and shuttle runs) and links these to an improvement in performance.

4 marks

Question 10

This was designed as a differentiating question, therefore designed to be challenging.

The question asked candidates to describe how interval training would be used by a 10,000m runner and a 100m sprinter. It was expected that candidates would find it more straight-forward to apply their knowledge of interval training to the 100m runner. This assumption was reflected in candidate responses, with more candidates being able to access one or two marks for their response, in relation to the 100m sprinter.

Those that were familiar with the concept of interval training were able to apply this knowledge to both performers. However, the majority of candidates often gave vague descriptions, for example, a description might be that the sprinter should sprint and then rest, with no reference to the need then to repeat this.

Interval training for the 10,000m runner was often confused with Fartlek training, or linked to specific components of fitness. For example, candidates would use interval training to increase cardio-vascular fitness, stating why they might use this type of training, rather than describing how they would use the training method to prepare for their event.

10 Describe how interval training would be used by each of the following performers:

10,000m long distance runner

(2)

It will help with the performers cardio vascular fitness and muscular endurance.

100m sprinter.

(2)

It will help with quick fire burst of speed and reaction time.

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Examiner Comments

This response gains zero marks because the candidate refers to the benefits of interval training in terms of fitness gains, rather than describing how the training method would be used to increase those aspects of fitness.

0 marks

10 Describe how interval training would be used by each of the following performers:

10,000m long distance runner

Interval training is were you have different stages of intensities (walking, jogging, sprinting) so the 10,000m runner is more likely to jog for a bigger distance then when he does the sprints section as the jogging/running is the main component of his race (with sprinting only being a small part for the sprint finish – the end. (2)

100m sprinter.

The 100m Sprinter would use interval to have Rests where he Sprints for an distance, but on the next part jog to let his oxygen debt get paid back and then continue Sprinting, Repeat this process. (2)

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Examiner Comments

This response gains both of the available marks.

Credit is not given for the part of the response relating to the 10,000m runner because it lacks the required clarity. This could equally be a description of Fartlek training.

Credit is gained for the 100m sprint. Reference is made to the intensity 'sprint' and that this is repeated after periods of rest, to allow recovery.

2 marks

10 Describe how interval training would be used by each of the following performers:

10,000m long distance runner

(2)

The Interval training would be done by periods of work and then rest. The work maybe a ~~350~~ 3 70 minute run with a 5 minute rest 3 times. This athlet would be working aerobicly.

100m sprinter.

(2)

The training might be 50 meter sprints done anerobicly with 10 second rest in between repeted 4 times.

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Examiner Comments

This is an example of a very good response.

The candidate applies their knowledge of interval training to the two contexts provided in the question.

Although not required, the response begins with a definition of interval training. This is good practice because it helps the candidates to focus their response.

For the 10,000m runner, there is reference to long work intervals with shorter rest periods, and the intensity of the exercise.

For the 100m runner shorter work periods with appropriate rest periods are given, and the intensity is correctly identified as anaerobic.

4 marks

Question 11

Approximately two-thirds of candidates were able to access marks for this question, the majority achieving one mark.

The question stated that a warm-up was carried out before physical activity to reduce the chance of injury. Candidates were asked to explain two other reasons for warming up.

Although stated in the question, many responses included reference to injury prevention, therefore this part of the response could not be credited. Some candidates stated appropriate reasons but did not explain these reasons and were therefore were limited to two marks. Popular correct reasons included 'gradually increase heart rate' and 'mental preparation'.

A warm-up is carried out before physical activity to reduce the chance of injury.

11 Explain **two** other reasons for warming up.

Reason 1

(2)

To get blood to your muscles and therefore reduce the risk of cramp.

Reason 2

(2)

To increase your heart rate and therefore be able to start working harder in a faster time.

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Examiner Comments

This response gains 3 of the available 4 marks.

Reason 1 – 1 mark is awarded for reference to reduced chance of cramp, although no credit is given for 'get the blood to your muscles'.

Reason 2 – 2 marks are awarded. Credit is given for the statement that a warm-up will increase heart rate so that the performer is ready to start working at a higher intensity sooner.

3 marks

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Examiner Tip

It is important that the point being made in a response is clear, ie that blood will already be flowing to the muscles. Reference therefore should be made to *increased* blood flow, rather than just blood flow.

A warm-up is carried out before physical activity to reduce the chance of injury.

11 Explain **two** other reasons for warming up.

Reason 1

(2)

Mentaly prepair for the task or game the player is about to do. # This get them in the corret frame of mind

Reason 2

(2)

They will * practice skills which they will ~~or~~ use in the game. This will be a recap on the skill and give them chance to perfect them.

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Examiner Comments

This is a good response and gains 3 of the available 4 marks.

The first mark is credited for 'mental preparation/correct frame of mind'. To gain further credit there needed to be a clear explanation of the advantage of this to the player, ie how it would help performance in the activity. For example, therefore they could focus on tactics, rather than feelings of apprehension.

The second reason is credited with 2 marks. The first is for identification of providing opportunity for skill practice, and the second is for the explanation that this would allow the player to recap and perfect the skill before the activity.

3 marks

Question 12

The majority of candidates achieved one mark for this question. The question asked candidates to describe the link between exercise and rest.

Many candidates were able to make the link accurately between the two concepts, identifying that rest was needed for time to repair damage to the body as a result of the exercise session. Other popular correct responses make reference to the fact that rest was needed to give time for the body to adapt and become stronger.

Some candidates linked an incorrect cause and effect, ie linked rest for repair with adaptation, rather than injury prevention. Those that achieved both marks tended to do so for identifying the need for rest to repair muscle damage caused during exercise. This would prevent injury so that exercise could continue, although some candidates did also make the link between rest and time for adaptations to take place, to increase strength.

To maintain a healthy lifestyle it is important to balance work, exercise and rest.

12 Describe the link between exercise and rest.

You must have rest periods when exercising to allow the body to repair any mild injuries or strains before exercising again. If you did not have rest, your injury would get worse.

(Total for Question 12 = 2 marks)

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Examiner Comments

This example shows a popular correct response, gaining both available marks.

The link is made between requiring rest to repair and mild injuries (after exercise) to prevent the injury from getting worse.

2 marks

To maintain a healthy lifestyle it is important to balance work, exercise and rest.

12 Describe the link between exercise and rest.

When you exercise you break down muscle and the body, So when you rest it gives time for the body to adapt and rebuild, but this time you will be stronger. This is called rest and recovery.

(Total for Question 12 = 2 marks)

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Examiner Comments

This response gains both available marks for making the link between needing rest after exercise for adaptation to take place, so that the body can gain strength.

2 marks

Question 13

This question differentiated well between candidates.

A large percentage of candidates gained a minimum of one mark for identifying why performance-enhancing drugs would be banned, for example, because it was cheating or provided an unfair advantage. Others were able to build on this and give specific examples of this unfair advantage. They explained fully why such drugs were banned, for example that anabolic steroids increase the ability to train and therefore increase muscle mass/strength.

Reference to the effects on health was less well known, but was still noted by a large number of candidates. Examples here tended to be more generic, rather than linked to a specific performance-enhancing drug.

13 Explain **two** reasons why performance-enhancing drugs are banned.

Reason 1

(2)

It brings an unfair advantage due to the fact it enables the athlete to supersede their natural ability

Reason 2

(2)

~~Taking the drugs decreases their~~ Using the drugs, especially over using, has side effects that can negatively ~~effec~~ effect health ~~eg. that can which can vary in severity~~ and decrease life expectancy for example anabolic steroids increase the chances of heart attacks and strokes.

(Total for Question 13 = 4 marks)

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Examiner Comments

This response gains 3 of the available 4 marks.

Reason 1 – the candidate states that performance-enhancing drugs provide an unfair advantage because they allow the athlete to perform better than their natural ability. A little more detail to explain this would have gained the second mark, eg by allowing the body to make better adaptations to the training therefore improving on their natural ability.

Reason 2 – both marks are achieved here. Reference is made to ill-health as a side effect and an example is given to reinforce this point, helping with the explanation.

3 marks

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Examiner Tip

When asked to explain something it is helpful to give an example to illustrate the point you are making.

In this response (Reason 2) a reason is given in relation to ill-health and expanded to demonstrate what could happen in relation to health, further explaining the point being made.

13 Explain **two** reasons why performance-enhancing drugs are banned.

Reason 1

(2)

They give an unfair advantage to Athletes who use them. an athlete that doesn't use performance-enhancing drugs ~~would~~ ~~as~~ ~~example~~ won't be able to perform as well as the athlete who does use them

Sporting example is: A long distance runner who uses EPO will be able to run for longer compared to a non user because EPO will have more red blood cells to carry more oxygen

Reason 2

Some Performance-enhancing drugs have dangerous ~~se~~ side effects, example: Diuretics cause the user to become dehydrated because it causes the kidneys to become more active, which in turn causes the person to urinate more. They also cause kidney damage

(2)

(Total for Question 13 = 4 marks)

ResultsPlus
Examiner Comments

This response is extremely detailed and gains all available marks.

Two different reasons are stated and then expanded via detailed examples to explain further the point being made.

In Reason 1, reference is made to an unfair advantage linked to the example and the impact of an endurance runner taking erythropoietin (EPO).

In Reason 2, the potential health risks are referenced, again with a specific example of the potential impact on health of taking diuretics.

4 marks

Question 14

Q14 tested candidates' knowledge of why low-density lipoprotein (LDL) increased blood pressure. To gain both marks candidates needed to refer to LDL building up, or blocking/ clogging the arteries, therefore reducing blood flow and increasing blood pressure.

Many candidates were able to link LDL with causing a blockage in the arteries, either through the build-up of plaque or fat. It was pleasing to note the number of candidates that also identified accurately the relevant blood vessel type. Incorrect responses varied.

There was a complete range of answers, for example:

- identification that these were the 'good cholesterol'
- that they were used in redistribution of blood flow
- that pressure increased as they collected in the veins or respiratory system
- that there should be more protein in the diet

Overall, the question differentiated well between those scoring zero, one, or two, marks.

14 Explain how low density lipoprotein (LDL) increases blood pressure.

This is because it higher cholestrol in the body which clogs up blood vessels making it harder for the blood to fit through the blood vessel, increasing blood pressure.

(Total for Question 14 = 2 marks)

ResultsPlus
Examiner Comments

This response gains both available marks.

Reference is made to cholesterol blocking the blood vessels, therefore making it harder for blood to 'fit through'.

2 marks

14 Explain how low density lipoprotein (LDL) increases blood pressure.

Low density lipoprotein is a bad type of cholesterol which builds up in the arteries. If too much of it builds up in someones arteries it makes blood flow harder and therefore increases blood pressure which can lead to heart attacks.

(Total for Question 14 = 2 marks)

ResultsPlus
Examiner Comments

This response gives more detail than the previous response and also gains the 2 available marks for the question.

Both key points are referenced, ie that the cholesterol builds up in the arteries and that this makes blood flow more difficult.

2 marks

Question 15

This was designed as a differentiating question and therefore it was designed to be challenging. The question did differentiate well, particularly between zero and three marks, allowing those with a greater understanding to be able to apply their knowledge, producing a higher-scoring response.

Many candidates were able to identify that the 100m sprint was anaerobic, also stating that the 15-minute walk was aerobic. Knowledge of the intensity of one or both of the activities gained a maximum of one mark.

To gain further credit, candidates needed to explain why the intensity of the event made a difference to the occurrence of an oxygen debt. Some candidates were able to develop this further, often explaining that this meant that additional oxygen was required after the 100m to compensate. Responses that stated simply that oxygen was required after the event did not gain credit. Given the question context, it was important that candidates identified that this was 'more' oxygen than would normally be required.

Some candidates also went on to give good explanations regarding why the 15-minute walk would not demand more oxygen after the event, normally by explaining that, unlike the 100m sprint, sufficient oxygen could be accessed during the activity to meet the demands of the activity and therefore an oxygen debt was not developed.

15 Explain why oxygen debt is more likely to be associated with a 100m sprint than a 15-minute walk.

Oxygen debt is the extra amount of oxygen needed after anaerobic exercise compared to rest. A 100m sprint is anaerobic exercise as the performer can not get enough oxygen to their working muscles during the event. So after the event they need to gain the oxygen back as they are in 'debt'. Whereas a 15 minute walk is a form of aerobic exercise as there is no shortage of air so they ~~do not~~ can take in as much oxygen as they need for their working muscles

(Total for Question 15 = 4 marks)

ResultsPlus
Examiner Comments

This is a very good response and gains all available marks.

The initial statement gives a definition of oxygen by way of an introduction. Credit is given for identification that the 100m sprint is 'anaerobic', and that this means the performer 'can not get enough oxygen to their working muscles during the event'.

The explanation continues stating that 'after the event oxygen is repaid'. The explanation is completed in the final statement where the comparison between the events is made, to confirm why this does not happen in the 15-minute walk.

4 marks

ResultsPlus
Examiner Tip

If asked to explain why something is more likely to happen in one situation than another, make sure you include a comparison between the two situations in your response.

For example, in this question, explain why oxygen debt occurs in a 100m sprint but also state a difference between the two events that means that it does not occur in a 15-minute walk.

15 Explain why oxygen debt is more likely to be associated with a 100m sprint than a 15-minute walk.

Oxygen debt is when the demand for oxygen is more than what is being supplied. In a 100m sprint, the performer works anaerobically, therefore does not use oxygen during the race. This means that after the race, the muscles will need a lot of oxygen, but the body did not supply enough for them during the race. However, a 15 minute walk is an aerobic activity, meaning oxygen is used. Therefore, the demand for oxygen won't be as high as in a 100m race, as the muscles are being supplied with oxygen while working.

(Total for Question 15 = 4 marks)

ResultsPlus
Examiner Comments

This response also gains all available marks and is very well written.

Credit is given for recognition that the 100m sprint is an anaerobic activity and therefore does not use oxygen during the race. The effect of this means that, after the race, additional oxygen is needed.

Again, the explanation is completed with a comparison to the 15-minute walk, thus explaining why oxygen debt is more likely in the 100m sprint than the 15-minute walk.

4 marks

Question 16 (a)

Q16(a) was designed to be accessible and was successful in this, with the majority of candidates achieving two marks for both parts of the question.

Popular correct responses in (a) were 'Hit head and helmet'.

The question contexts meant that (a), ice hockey, was slightly more accessible than (b) sailing, although specific knowledge of the activity was not being tested and, for most candidates, the images did provide the necessary information to apply their knowledge.

Where maximum marks were not achieved this was often due to a correct risk being stated but without a 'matching' risk reduction measure, for example, getting hit in the body with the stick – wear a helmet.

16 For each activity in **Table 2** identify a risk and a measure to reduce the risk.

You must choose a different risk and risk reduction measure for each activity.

Image of activity	Risk associated with the activity	Measure to reduce stated risk
(a) 	Clashing heads/ concussion (1)	wear helmets (1)

ResultsPlus
Examiner Comments

This response gains both available marks.

Credit is given for the identified risk of concussion (due to a clash of heads) and the linked risk reduction measure of wearing a helmet.

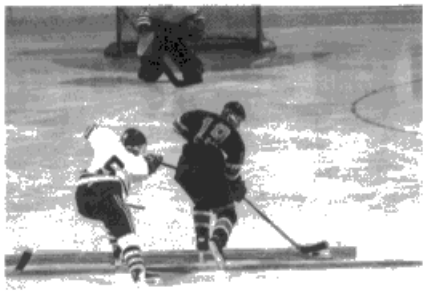
2 marks

ResultsPlus
Examiner Tip

Make sure any risk reduction measure will reduce the particular risk you have stated.

16 For each activity in **Table 2** identify a risk and a measure to reduce the risk.

You must choose a different risk and risk reduction measure for each activity.

Image of activity	Risk associated with the activity	Measure to reduce stated risk
(a) 	Fractured ankle (1)	ankle pads to be worn. (1)

ResultsPlus
Examiner Comments

This response also gains both available marks.

Credit is given for the risk of a fractured ankle, which could be reduced by wearing padding around the ankles.

2 marks

Question 16 (b)

Although the question contexts meant that (a), ice hockey, was slightly more accessible than (b) sailing, this part of the question was still very accessible, with a large majority of candidates gaining both available marks. The most popular correct responses in (b) were 'drown' and 'life vest'.

Although some leeway was given because candidates were not expected to understand the activities in detail, credit was not given for responses that would not be effective, for example, wearing seat belts to reduce risk of capsizing or falling overboard.

As with part (a), where maximum marks were not achieved this was often due to a correct risk being stated but without a 'matching' risk reduction measure, for example, capsizing (rather than drowning) and life jacket.

(b)

Drowning

(1)

Physical readiness

(1)

ResultsPlus
Examiner Comments

This response gains 1 mark.

Credit is given for 'drowning' as the identified risk, but the risk reduction measure is too vague for further credit.

1 mark

(b)

Fell and drown

(1)

life jackets

(1)

ResultsPlus
Examiner Comments

This response gains both available marks.

Credit is given for the risk of drowning and the risk reduction measure of wearing a life jacket.

2 marks

Question 17 (a)

Part (a) of Q17 tested candidates' knowledge of the need to complete a Physical Activity Readiness Questionnaire (PAR-Q), prior to exercising for the first time.

The question did differentiate between candidates, although the majority were able to achieve one mark. This was normally for identification of a PAR-Q as a procedure that should be completed before exercising for the first time. Candidates who explained that this was necessary to check on the individual's medical health also gained the second available mark. However, the number of candidates who made this link was significantly lower, the most popular incorrect response linking a PAR-Q to fitness, rather than pre-existing medical conditions.

Some candidates correctly identified an induction as a required procedure, possibly reflecting on their own experiences.

17 Dave has recently joined a fitness club and signed up for an advanced fitness class.

(a) Explain **one** procedure Dave's fitness instructor should follow before allowing him to exercise for the first time.

(2)

If Dave wants to use any fitness machines (such as a running machine) he should be instructed how to use the machines correctly in order to prevent injury, such as an induction trial to the machines before use.

ResultsPlus
Examiner Comments

This response gains both available marks.

Although not a popular answer, it is perfectly valid. Credit is given for reference to the need for an induction and the explanation that this is required to ensure that people know how to use the machines correctly, in order to prevent injury.

2 marks

17 Dave has recently joined a fitness club and signed up for an advanced fitness class.

(a) Explain **one** procedure Dave's fitness instructor should follow before allowing him to exercise for the first time.

(2)

They should create Dave a PAR Q to identify his health issues and other factors.

ResultsPlus
Examiner Comments

This response gains both available marks.

Credit is given for reference to a PAR-Q and the explanation that this is required to identify any health issues.

2 marks

Question 17 (b)

This question proved to be slightly more challenging than part (a). Candidates were asked to state two fitness tests that could be used to measure power.

Whilst many candidates demonstrated knowledge of at least one test to measure power, the majority had difficulty in identifying a second test. The vertical jump was often given as a correct response, being slightly better known than the standing broad jump.

Occasionally, candidates would give two alternative names for the same test, for example, the vertical jump test and the Sergeant jump test. Popular incorrect responses included descriptions of plyometric training, or identification of the grip dynamometer test.

The members of the fitness class are training to improve their power.

(b) State **two** fitness tests that are used to measure power.

(2)

Vehicle Test 1 Steering.

~~Vehicle~~ jump test.

Test 2

Hand grip dynamometer.

ResultsPlus
Examiner Comments

This response gains 1 mark.

Credit is given for stating the vertical jump test, but there is no credit for the grip dynamometer, because this test is used to measure strength.

1 mark

The members of the fitness class are training to improve their power.

(b) State **two** fitness tests that are used to measure power.

(2)

Test 1

Standing board jump

Test 2

Sergeant jump.

ResultsPlus
Examiner Comments

This response gains both available marks.

Two fitness tests for measuring power are identified: the standing broad jump and the Sergeant jump (test).

2 marks

Question 17 (c)

Q17(c) was another accessible question, with the majority of candidates achieving the available mark.

Candidates were asked to state a specific skill or technique from any games activity where power has importance. A clear contrast with candidate performance in previous years, was that the majority of candidates were specific when stating the skill or technique, for example, when taking a goal kick to get the ball into the other half of the pitch or when taking a penalty to beat the goalkeeper. The clarity of the example gave examiners the information they needed to be able to credit responses.

Overall, candidates understood the specific skills or techniques which required power for effective execution. Where candidates did not gain credit, this tended to be because they linked skills to athletics, swimming or gymnastics, rather than to games activities as required by the question. Other incorrect responses occurred when candidates were vague, for example, 'when kicking a ball' was considered too vague for credit.

(c) State a specific skill or technique, from a games activity of your choice, where power is important.

(1)

Activity [redacted] Sprinting.

Skill or technique where power is important

Power is needed to burst off the block when the gun/whistle goes off to gain a headstart on the opponents.

ResultsPlus
Examiner Comments

This response gains zero marks.

Credit cannot be given for this response because the link is made to sprinting, rather than to a games activity.

0 marks

ResultsPlus
Examiner Tip

Read questions carefully to make sure you apply your knowledge to the question context. This response does not gain credit because the example is from athletics, rather than games.

(c) State a specific skill or technique, from a games activity of your choice, where power is important.

(1)

Activity basketball

Skill or technique where power is important

To jump up and slam ~~dunk~~ dunk the ball

ResultsPlus
Examiner Comments

This response gains the available mark.

A game activity is selected. Credit is given for stating that power is required to jump in basketball to 'slam dunk the ball'. In order to execute this move, power would be needed to gain the required height.

1 mark

Question 17 (d)

In contrast to the earlier parts of this question part (d) proved to be challenging. Candidates were required to explain how weight training could be used to increase power.

Whilst many candidates stated that power = strength x speed, they were unable to use this knowledge and apply it to a weight training session in order to make the session valid for power production. Many responses did not gain credit because they only made reference to strength. Those candidates that did achieve marks often did so for the link to the use of heavier weights, with some going on to say that these should be lifted 'quickly'.

Relatively few candidates scored maximum marks for this question.

(d) Explain how weight training could be used to increase power.

(3)

Weight training could be used to increase power because Power = Strength x Speed so lifting heavy weights quickly with low ~~repetation~~ reperation increases power.

ResultsPlus
Examiner Comments

This response gains 2 of the available 3 marks.

The response begins with a definition of power and then explains how the weights could be used to match the definition.

To gain maximum marks, the response also needed to make reference to the need for recovery between sets, or that this would lead to muscular adaptations resulting in increased power.

2 marks

(d) Explain how weight training could be used to increase power.

(3)

Weight training could be used by doing low reps and high weights to improve muscle mass which in turn will improve power. They can use weight training on both the arms and legs to improve power over the body.

ResultsPlus
Examiner Comments

This response gains 2 of the available 3 marks.

Credit is given for identification that the weights would need to be relatively heavy to increase power (with fewer reps) and that this would increase muscle mass.

To gain maximum marks the response also needed to make reference to lifting the weights quickly, or the need for recovery between sets.

2 marks

Question 17 (e)

This question differentiated well between those achieving one and two marks.

The question asked why it was important to include light jogging in a cool-down after a training session.

Most candidates were able to identify one reason for cooling down and a number were able to expand correctly on this. Popular correct responses tended to focus on additional oxygen for lactate removal, or lactate removal to reduce risk of delayed onset muscle soreness (DOMs).

(e) Explain **one** reason why it is important to include light exercise (jogging) in the cool-down after a training session.

Having light exercise in the cool-down steadily brings your heart rate and breathing rate back down to their normal rate so it doesn't happen suddenly. Therefore the risk of blood pooling is reduced as there isn't blood being supplied in bigger quantities than is needed.

(Total for Question 17 = 10 marks)

ResultsPlus
Examiner Comments

This response gains both available marks.

Credit is given for stating why it is important, 'to slowly bring your heart rate down, so that it doesn't fall suddenly', and then for the further development of the point that this prevented blood pooling.

2 marks

(e) Explain **one** reason why it is important to include light exercise (jogging) in the cool-down after a training session.

(2)

After the main session, lactic acid is built up around your muscles which is not good. Jogging gets rid of waste products around muscles (lactic acid). If you didn't jog after a session you would experience soreness or muscle ache the next day.

ResultsPlus
Examiner Comments

This response also gains both available marks.

Unlike the previous example, credit is given here for recognition that a cool-down is important to remove any accumulated lactate from the muscles, so that they are not sore the next day.

2 marks

Question 18

Q18 was the first of the extended, levels-based responses. There was a good distribution of marks for this question across Levels 1 and 2, (0 – 4 marks), although candidates continued to experience difficulty in accessing the top marks. This was not surprising, because the levels reflect the quality of the response, rather than the number of 'knowledge points' made.

The demands of this question were similar to those of previous years and the impression from examiners was that more candidates appeared to be accessing Level 2 than in the previous series.

Candidates were asked to discuss why an elite sports performer would make sure they ate a balanced diet. In order to discuss this question, candidates needed to demonstrate their knowledge of the topic by providing content that related to a balanced diet. For example, they could have made reference to the components of a balanced diet, the ratio of the elements and then applied this knowledge by linking it to an elite sports performer. Candidates could discuss the need for carbohydrates to provide energy for performance, or proteins for growth and repair.

To extend the discussion point (and therefore the quality of the response), rather than just giving the role of the nutrient, some candidates also made reference to the impact this would have on performance. For example, they could cite an athlete's energy requirement so that the athlete could continue to work at an appropriate standard throughout the activity or training, or water for hydration to replace that lost through sweat whilst exercising.

Those candidates achieving Level 1 tended to do so due to their knowledge of balanced diets. They would make a number of relevant facts about a balanced diet but did not attempt to link this to the question context. Those that were able to apply this knowledge often achieved three marks at Level 2, demonstrating sufficient quality in their response to move to Level 2, due to a greater understanding of the question's demands.

Level 3 responses were factually accurate around a range of 'dietary' points, demonstrating knowledge, the ability to apply this knowledge and discuss the impact of the various food groups on the elite performer and their performance. In some instances, this was an accurate discussion about the need for elite athletes to amend their diet based on the demands of their activity, ie to move away from a balanced diet, to ensure that they ate what they needed to be effective in their activity. A popular correct response in relation to this was a discussion of carbohydrate loading for endurance athletes.

***18** Discuss why an elite sports performer will make sure they eat a balanced diet.

(6)

An elite performer will make sure they eat a balanced diet, this is because your diet can affect your performance. for example eating an ~~unhealthy~~ unbalanced diet could lead to too much weight loss or gain or a deficiency in ~~the~~ ~~Vitamins~~ vitamins.

A balanced diet should contain the right ratio of each food group for your

somatotype. for example an ectomorph would need more fibre whereas a mesomorph needs more carbohydrates.

An Elite performer would know that they need to play at their best to be able to impress and they cant do that if they are lacking energy thats why a lot of top athletes carbo load. Carbo loading is where you consume a lot of foods high in carbs within a week before the event the carbs are now stored as glucose in the body ready to be slowly released during the activity. This will allow the athlete to perform for longer at high intensitys.

An elite athlete will not intake more calories than they are burning off, this is because it stays in the body and becomes fat adding unnecessary weight to the athlete.

ResultsPlus
Examiner Comments

Good example of discussion point around dietary manipulation, in particular carbo-loading. Good application to question.

***18** Discuss why an elite sports performer will make sure they eat a balanced diet.

(6)

An elite sports performer will want an edge on their opponents. There are many ways to attempt this. A balanced diet is one way they will try and become even better to become a best. A balanced diet will help an elite performer to maintain high levels of health and fitness. There are many components of a balanced diet but elite performers will make sure they do it right. For example Carbohydrates will be expected to be eaten the most by elite performers. This will release slow burning energy. They will also have a lot of fruit and vegetables to keep them fit and healthy. This will give them the vitamins they need. Despite fats and sugars being unhealthy they will need to eat them to ensure a balanced diet. They are useful for giving a short burst of energy. Fats are a store of energy so performers will need that. An elite performer will also eat different amounts of each food depending on their sport. For example rugby players will have more fats and protein to increase muscular strength and weight. This is important for them as they use this throughout a game. However, a long distance runner will eat more

Carbohydrates to keep energy levels high throughout the run. I think it is essential for elite performers to have a balanced diet. This is because they need to be as fit and healthy as they can to compete at top levels. Overall balanced diets are essential for elite performers as they give them advantages in games. However, they may have different diets for different sports. This is to keep their diet specific to their sport.

(Total for Question 18 = 6 marks)

ResultsPlus
Examiner Comments

This is an example of a Level 1, two-mark response.

Credit is given for display of some knowledge of the components of a balanced diet, for example:

- carbohydrates/fats provide energy
- carbohydrates should form the largest part of the meal
- vitamins and fats are required as part of a balanced diet

There is also some attempt to link to the question context:

- rugby players will eat more fats and protein to increase their strength and weight (candidate does not state which effect links to which nutrient)
- long-distance runners would eat more carbohydrates

However, at no point does the response go into depth, to discuss any points.
For example:

- why does the long distance runner need more carbohydrate?
- what is the role of vitamins?
- how do vitamins help elite performers?

Although the candidate has written extensively in response to the question, they have not addressed the discursive needs of the question nor demonstrated sufficient knowledge to move into Level 2.

Fibre, fats, water, carbohydrate, proteins, minerals Pce.

***18** Discuss why an elite sports performer will make sure they eat a balanced diet.

(6)

A balanced diet contains different things like fibre, fats, water, carbohydrates, proteins and minerals and vitamins. each one provides different things that benefit your body. Carbohydrates provide long lasting energy e.g pasta. Fat provides short term energy e.g sweets. Protein provides repair and to damage tissues which would be good for an elite player because their body will need to repair after taking part in a game. Water keeps you hydrated and for a elite performer, it's key to stay hydrated because water is always lost through sweat. Minerals and vitamins provide bone growth which will benefit a elite player because their skeletal structure needs to be strong and healthy. Fibre allows waste products like poo to come out smoothly, this is important because the elite player will need a clear digestive system to stay focus on the game or training.

*, both carbohydrates and fats will benefit an elite performer because they both provide energy which will be needed for games and training.

ResultsPlus
Examiner Comments

This is an extract from a Level 2, three-mark response.

The response demonstrates knowledge of the nutritional requirements of a balanced diet, for example, all seven components are listed, and their role is stated.

This response moves to Level 2 because there are attempts to link and discuss the role of some of the nutrients in terms of an elite performer. For example, 'protein provides repair to damaged tissue, this is good for an elite performer because their body will need repair after taking part in a game'. This could have been extended further, linking to reduced risk of injury or improved performance in the next game, but there is partial, relevant discussion.

There is another attempt to discuss a point, this time in relation to water: 'Water keeps you hydrated, for an elite performer this is key...because water is always lost through sweat'. The impact on performance of not remaining hydrated could have been a means to develop this point fully.

The knowledge demonstrated and the partial success at applying and developing this knowledge places this response at Level 2.

***18** Discuss why an elite sports performer will make sure they eat a balanced diet.

(6)

A balanced diet is ensuring you eat the correct proportions of the correct foods based on your activity. The energy in = energy out therefore if elite sports performers are training and competing more, they will need more energy so will need to eat more food in comparison to someone who does little or no exercise.

They would need to eat carbohydrates, found in bread, pasta and rice, as these provide the most energy. This would be especially important for endurance athletes, such as Marathon marathon runners as it will mean they can continue running for long periods of time without tiring as much to complete the race. This is why carbo-loading is done before a large race to ensure they have the energy. They provide slow-release energy. However, a 100m sprinter may not need as much carbohydrates as slow release energy isn't needed due to the speed of the event.

Only a small amount of fat (and sugar) would be eaten. This is because fat only provides a secondary source of energy, but can easily ~~[illegible]~~ stay in your body and lead to weight gain. It's found in foods like fatty meat and cheese. This would restrict the ability of an endurance rower as fat could result in blocked arteries so a ~~less capable~~ less efficient heart. On the other hand, performers such as sumo-wrestlers where an endomorph ~~[illegible]~~ somatotype is needed, fat may be consumed more.

Sports performers will eat a lot of protein. This will help them to build and repair muscle so they can continue to train ~~[illegible]~~ with a decreased risk of injury. It's found in fish and dairy and eggs. Sports such as sprinting where a mesomorph body type is key may eat a lot ~~[illegible]~~ as it can help build muscle mass and strength, resulting in a greater power to run quicker.

Lots of vitamins and minerals will be needed by sports performers compared to normal people who don't participate as much. They help to maintain the immune system and help the body maintained. People doing weight-bearing activities - like rugby - may need a lot of calcium for strong bones to reduce risk of fracture in a scrum meaning they are unable to participate. Also, they will need a lot of vitamin D to absorb the calcium. People who don't do weight-bearing, such as swimmers, may need a lot to make up for the increased bone density they don't get in exercise to reduce their risk of osteoporosis.

(Total for Question 18 = 6 marks)

Fibre will be eaten by all sports performers to aid healthy digestion and help reduce cholesterol. Water will be drunk to prevent dehydration and control body temperature and transport nutrients. Elite performers would drink a lot to replenished water lost through intense exercise therefore decreasing the risk of dehydration or headaches preventing them from training.

ResultsPlus
Examiner Comments

This is a level 3, six-mark response.

The response contains several discussions points that link an aspect of a balanced diet to its role and importance for an elite performer, or the specific nutritional requirements for specific activities. For example, in the first and second paragraph there is discussion of the need for carbohydrates for energy and a balanced energy intake based on the energy demands of two different activities (long distance running and sprinting).

The third paragraph discusses the value of fats for energy, but the need to limit intake in order to avoid weight gain. To develop this point fully, a further link would have then been made to elite performance, rather than to health.

At the bottom of page one of the response, and top of page two, there is full discussion of the role of protein from an elite performer's point of view, culminating in discussion of the need for sprinters to eat more protein so they are more mesomorph, therefore stronger, and better able to generate more power to run at faster speeds.

The remaining paragraphs on page two discuss the relevance of vitamins/minerals and water to the elite performer.

This is an outstanding response.

Question 19

For the second extended question, candidates were given two images. The first showed a performer preparing to kick a ball, the second, once they had kicked it. Candidates were asked to explain how the skeletal and muscular systems worked together to allow the player to move from the first position to the second position in order to kick the ball.

This question was more challenging than the previous question on a balanced diet, potentially requiring more specialist knowledge from candidates.

There was a number of ways that candidates could have addressed this question fully. For example, candidates could explain how:

- movement was brought about at the hip, knee and/or ankle (although it is appreciated that the current specification is limited in relation to identification of muscles responsible for hip flexion and plantar-flexion at the ankle)
- the contraction of a muscle leads to movement of the skeleton, ie the use of tendons to link the two systems
- bones provide points for muscle attachment
- isotonic muscle contraction can bring about movement

Whilst most candidates attempted to apply their knowledge of antagonistic muscle action to the question, not all identified correctly the action of the stated muscles. Common errors in the responses included incorrect use of technical language, for example making reference to the flexion of a muscle rather than contraction, or the straightening of a joint rather than extending. Use of the correct technical knowledge is essential for these types of questions. Other common errors were mistaking the role of the specific muscles in antagonistic pairs, for example, identifying the hamstring as being responsible for knee extension.

Common correct responses focussed on the antagonistic muscle action at the knee. This was well known, with many responses explaining the movement of the knee from A to B, linking this to the correct antagonistic muscle pair, and muscle action. Candidates also demonstrated knowledge of the role of the gluteals at the hip and gastrocnemius at the ankle.

Level 1 responses tended to give a list of simple statements of fact about either the muscular system and/or the skeletal system. For example, muscles work in antagonistic pairs; the knee is an example of a hinge joint; the skeleton provides support; these types of responses demonstrated some knowledge related to the question but without application.

Candidates progressed to Level 2 for appropriate application of this knowledge, and then from Level 2 to Level 3 for responses where this application of knowledge was over a greater range of points. For example, candidates:

- gave a correct analysis of the two body systems at one or more of the joints and an explanation of how the systems worked together
- discussed muscle attachment to the skeleton via tendons, which, when the muscles contracted, allowed movement as they pulled on the bones
- gave an explanation of the nature of the type of muscle contractions taking place during the movement

Figure 1 shows a footballer kicking a ball.

Position A

Position B

Figure 1

***19** Explain how the skeletal and muscular systems work together to bring about the kicking action shown in **Figure 1** as the striking leg moves from **Position A** to **Position B**.

(6)

The skeletal and Muscular system work together to provide Movement in sport. Here I will explain How they work together to produce the kiching movement in the figure 1.

In Position A, the skeletal and Muscular System work together to extend the leg at the hip. Extension at the hip is when the leg is Moved backward and behind the body. This movement is produced by the Gluteals contracting and the ball and Socket hip Joint Extending. This movement is used in Position A to bring the leg into the preparation Phase of kicking the football by bringing the leg back ready to Move forward and strike the ball.

in Position B the Muscular and skeletal System work together to produce Flexion at the hip. Flexion at the hip is where the upper leg Moves Forward and in front of the body. This movement is produced by the lower abdominals contracting and the ball and Socket hip joint flexing. This Movement is used in Position B to bring the leg Forward and gain Momentum to strike the ball with power.

in Position A the Muscular and Skeletal System work together to produce Flexion at the knee. Flexion at the knee is where the lower leg bends inwards to bring the lower leg back. This movement is Produced by the hamstring contracting to cause flexion at the Hinge joint in the knee. This movement is used in Position A to bring the lower leg backward to prepare to extend and strike the ball at Power.

(Total for Question 19 = 6 marks)

TOTAL FOR PAPER = 80 MARKS

AS you can see, the Muscular and Skeletal system can work together to produce effective Movements in figure 1

ResultsPlus
Examiner Comments

This is an example of a Level 2, three-mark response.

The first paragraph gives a general introduction. However, the second paragraph begins to explain the movement. Extension of the hip has been identified correctly as taking place at A and linked to the correct muscle, ie the gluteals. Knowledge is also shown of the type of joint at the hip.

On the second page, the response explains the joint action at the hip as the leg moves to position B. This is the extent of the expected level of knowledge of the hip based on the current specification. The remainder of the response explains the action at the knee, although only in relation to position A.

There is sufficient evidence here to warrant placing the response at Level 2. The question is not addressed fully, but the response demonstrates knowledge and the ability to analyse the images and apply this knowledge.

Figure 1 shows a footballer kicking a ball.

Position A

Position B

Figure 1

***19** Explain how the skeletal and muscular systems work together to bring about the kicking action shown in **Figure 1** as the striking leg moves from **Position A** to **Position B**.

(6)

The skeletal system consists of bones, it protects vital organs; maintains structure and aids movement. The muscular system is made up of voluntary and involuntary muscles. Bones are attached to each other via ligaments, where two are attached to muscles via tendons. Muscles contract to pull on bones, in order to bring about movement, they also relax. Muscles work in antagonistic pairs, as one muscle contracts the other relaxes and vice-versa. The hamstring is made up of three muscles (bicep

femoris, semitendinosus and semimembranosus.)

In position A, the quadriceps is relaxed, whereas the hamstring, (which is connected to the femur via tendons) and the gluteals are contracted. This creates flexion at the knee joint and abduction at the hip. The abdominals provide stability. The quadriceps and hamstrings are an antagonistic pair. As the hamstring relaxes, the quadriceps which is made up of four smaller muscles (vastus femoris, vastus medialis, vastus intermedius and vastus lateralis) contracts, pulling on the femur in order to create flexion at the knee joint. Contraction of the left leg contracts in order to bring the player onto her toes, this generates more force, meaning the player can kick the ball harder. The abdominals create flexion at the trunk, as they are attached to the hips and sternum. As the ball is kicked in position B ✓ the gluteals, hamstrings are relaxed, whereas the quadriceps is contracted, along with the abdominals. The knee uses the extension and flexion as it is a hinge joint, whereas the hip joint is a ball and socket joint. Synovial fluid reduces the friction in the joint.

In conclusion, in order to transition from position A to position B, the player had to use an antagonistic pair of voluntary muscles, attached to bone via tendons to bring about movement during contraction and relaxation. Extension, flexion and abduction and adduction all occur. The muscular and skeletal systems work concurrently to bring about movement.

(Total for Question 19 = 6 marks)

ResultsPlus
Examiner Comments

This is an example of a Level 3, 6-mark response.

The first paragraph gives some general statements about both systems, eg the functions of the skeleton and then goes on almost immediately to link the two systems as an explanation of how movement is possible, 'Bones are attached by ligaments ... they are attached to muscles via tendons. Muscles contract and pull on the bones to bring about movement'.

There is then a description of antagonistic pairs, with extended detail of the muscles that make up the hamstrings.

The next section of the response explains the muscle action to achieve position A – although this is not required by the question – before explaining in depth the action at the knee to achieve position B. The correct action at the hip is explained in terms of the action of the gluteals and the joint action at the hip, the extent of the expected level of knowledge of the hip based on the current specification.

This response demonstrates the required knowledge, understanding and ability to apply knowledge required for Level 3.

Paper Summary

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

- Read all questions carefully to ensure the instructions are followed
- Identify key words in a question – sometimes these can be in **bold** to draw attention to them but this is not always the case
- Make sure examples are as clear as possible – so the examiner can picture the example being given
- Make sure you apply your answers to the correct context given in the question
- Pay attention to the command word used in the question and the mark allocation – describe, explain, discuss will need more detailed, linked, responses and will be allocated more marks

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:

http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

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