GCSE
PHYSICAL EDUCATION

8582/1 The human body and movement in physical activity and sport
Report on the Examination

8582/1
June 2023

Version: 1.0

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GENERAL COMMENTS

This was a challenging paper and consequently the mean mark was lower than in 2022; this may also be because in 2022 centres were provided with pre-released material to better prepare students for the examination. Although challenging, it was perfectly accessible to all students with some excellent responses to questions, particularly the level of response questions.

There was a surprising higher percentage of 'not attempted' responses for questions 15.3,16.1 and 16.2.

Many students again appeared to struggle to interpret the key command words used in the questions, therefore not hitting the correct assessment objective in their responses. This is a key area that centres need to address for future years as it can have a significant impact on marks for the AO2 and AO3 questions. On too many occasions the students merely stated a response where an explanation was required.

There was no evidence that students did not have sufficient time to complete the examination.

QUESTION 1-6

Overall, the multiple choice questions (MCQs) were answered very well. It is still surprising that some students fail to attempt these questions.

QUESTION 7

Most students attempted this question and answered it correctly.

The most common incorrect answer related to identifying the fibula. Many responses referred to fibia, tibia or tibular which were not credited.

A few students when identifying the sternum, stated the rib cage, again failing to gain a mark.

Students need to be more accurate, when looking at a diagram of the skeleton, as to which bone is being selected for them to identify.

QUESTION 8.1

The action of flexion at the elbow was clearly recognised by students and therefore identified correctly in most responses.

QUESTION 8.2

The main antagonist, bicep, was not always correct as it was often mistaken as triceps. This may be the case of students not reading the question correctly.

QUESTION 8.3

Identifying the type of isotonic muscle contraction was poor. There were many incorrect answers and blank responses. The most popular response was 'concentric.'

This may possibly suggest that this area of the specification has not been covered well or students find this more difficult to understand.

QUESTION 9

Very few students achieved maximum marks for this question.

Most students provided a definition, but not always correctly stating 'repeated contractions or movements' but referring to a long period of time. Many referred to 'strength whilst moving.'

The understanding of dynamic strength in rowing for 1000m was not always clear, with many students implying that the rower would be stronger and exert more force on the oars.

Those that did fully understand the concept of dynamic strength applied this to the time taken to complete the race, being able to perform at optimal levels for longer and delaying the onset of muscular fatigue.

QUESTION 10.1

The question was attempted by nearly all students with the majority gaining two marks.

Most correctly plotted the heart rate, however there were some that failed to connect the points plotted with a line and therefore were not providing a 'line graph' as the question demanded.

Many lines were drawn freehand (no ruler), although these were not penalised provided the line intersected the plotted 'x's.

Some students, after plotting the points, drew a line connecting the first and last plotted coordinates only and therefore did not go through the other plotted points, and could not be awarded a mark.

Labelling of the axis was often omitted by students, and it appeared more students lost a mark on this than the drawing of the line graph.

QUESTION 10.2

The most successful correct answers referred to the anticipatory rise, the effect of adrenaline or that the performer was excited, stressed or aroused.

There were many students that explained that the heart rate was elevated because a warm-up had been undertaken, however, many that gained a mark for this went on to describe the parts of a warm-up and consequently gained no further marks.

QUESTION 10.3

This question was not well answered by students.

The main reason for this was that students just stated (AO1) e.g. cool down or drink fluid. Students did not apply the term, explain, but merely stated facts.

Where students did provide more detail in their response, it was merely describing the factor, such as what should be included in a cool down, or what type of diet should be consumed e.g. protein. This does not indicate the effect, therefore not providing an (AO2) response, which links to the command word in the question; 'explain.'

The most common correct responses were – cool down to speed up the removal of lactic acid, and the manipulation of diet to repair muscles or replenish energy stores.

There were very few students that related to Chris's age or the fact he was an experienced runner and how this would impact on his speed of recovery.

QUESTION 10.4

Students did not answer this question well.

The definition of tidal volume was not always given correctly or clearly. The lack of inclusion of 'one breath' or 'inspired/expired' was mostly omitted.

Some students referred to tidal volume being linked to the circulatory system, as the heart was mentioned in many responses.

Explaining the changes in tidal volume during the 800m was poorly answered by many students.

The best responses related to the demand for oxygen, in students explaining that the muscles needed to be supplied with more oxygen. Few went on to explain that tidal volume increases due to an increased depth of rate of breathing.

Responses just stating that tidal volume would increase could not be credited as this is not an explanation.

Overall, the responses given to this question leaves the impression that students struggle to understand this topic in the specification.

QUESTION 11

Most students answered this question extremely well.

There was clear understanding of the pathway of blood around the heart, and a very high number of students gained full marks.

Many answers were detailed, including the main blood vessels through which blood enters and leaves the heart and naming the valves that pump the blood between the chambers of the heart.

Students also included details regarding oxygenated and unoxygenated blood appropriately. Unfortunately, none of this information gained a mark, however, most of the students that included this information did achieve full marks.

QUESTION 12

Most students identified the cause of EPOC as anaerobic exercise.

The best responses linked the build-up of lactic acid after intense exercise, such as after sprinting.

Oxygen debt was mentioned; however it was not always clear that the students understood that it needs to be repaid.

The biggest weakness in the students understanding, in making an appropriate correct response, was linked to the breathing rate. Students would often state that the breathing rate would start to increase, when they should be stating that an elevated breathing rate needs to be maintained to repay oxygen debt.

QUESTION 13.1

Although answered well, many students often failed to mention the 'midline' of the body in the definitions or referred to muscles and joints, not a limb.

The examples stated often failed to mention the limb involved or the relevant phase of a sporting move/action.

The most common example was a goalkeeper in football saving a shot, but this needed to identify the phase/limb where abduction was taking place to be creditworthy. Other common examples were the upward phase of a star jump. Many answers included tennis shots, but they required the phase to qualify for a mark.

QUESTION 13.2

A very well answered question, with most students correctly naming the ball and socket joint.

Those students who failed to get a mark stated an example eg the shoulder.

The very small number of students that wrongly identified the type of joint named a hinge joint.

QUESTION 14

This question asked students to evaluate (AO3) and was poorly answered because a lot of students tended to explain or describe (AO2) the use of ice baths.

Those students who gained marks mostly did so by explaining the way in which an ice bath causes vasoconstriction and then after leaving the ice bath, vasodilation of the blood vessels, thereby helping to speed up the removal of lactic acid. However, using the correct terminology of vasoconstriction and vasodilation was poor.

Other marks were gained by students giving alternatives such as massage or low intensity exercise, as it was more pleasant, cheaper, or more beneficial.

QUESTION 15.1

The majority of students correctly identified the 3rd class lever system. This is an improvement on previous years.

QUESTION 15.2

In drawing the diagram, students did understand how to present a lever in diagram form, but even those who had correctly identified the correct lever, the fulcrum was in the incorrect position in quite a few cases.

QUESTION 15.3

Most students were able to give one correct response, in either explaining that the effort arm was shorter than the resistance arm or giving this as a fraction.

Where students failed to gain no marks, but wrote a response, it was just stating that the effort arm is short.

QUESTION 16.1

Most students just stated that the weightlifter should perform a one rep max. Only 20% gained a mark for stating a percentage of an IRM.

There were also a high percentage of responses that stated the method/formula for calculating the aerobic/anaerobic training zones and maximum heart rates.

QUESTION 16.2

There were a high number of un-attempted responses for this question.

Again, a high number of students referred to calculating the aerobic or anaerobic training zones. A surprisingly low number of students gained two marks on this question.

Those students that did answer correctly mostly referred to ‘low weights and high reps’, and working below 70% of one rep max.

Few students mentioned the appropriate reps and sets.

There were also a high number of students that explained how training would be adapted or progressed to improve muscular strength.

QUESTION 16.3

Students did identify that a gymnast required strength in some gymnastic disciplines. These were typically when performing certain moves on the rings or vaults. They gained credit for this.

It was common for students to suggest that gymnasts did not undertake weight training, so the one rep max test was not relevant. Again, if explained, this was credited.

Many indicated that other components of fitness such as balance or flexibility were more important and gave alternative tests the gymnast could undertake for these components. This was credited.

Because of the student's perception of the skills required for gymnastics, many obtained marks for discussing how other tests would be more relevant for a gymnast, as the mentioned skill would be key to success in gymnastics.

QUESTION 17.1

Most students correctly named the 30m Sprint Test.

In describing this test, students generally stated that the distance is marked out with two cones. They also explained that the time is taken between the two cones and that someone times them.

Not many students described the flying start aspect. Many stated that the timing was from when someone started running from the first cone when a whistle was blown, until they passed the second cone. There appeared to be a lack of understanding that a flying start is required to allow the sprinter to be at maximum speed, over the 30m.

Credit was also given for those students that stated that Poppy would run as fast as she could.

There were also many students that stated the times would be compared to national averages, which does not describe the test.

The two most common incorrect answers given were the Bleep Test or Illinois Agility Test.

QUESTION 17.2

This was a well answered question.

Most students gave the correct definition of reaction time.

In most cases where an incorrect response was given, it was due to the omission of the word 'stimuli' or omitting to include the word 'time.'

A few gave examples, rather than the definition.

When stating why reaction time is important to Poppy (sprinter), most recognised that a quick reaction to the starting pistol would give a quick/fast start. Some referred to getting ahead of other runners, or more chance to win the race.

In teaching reaction time, it would be advisable to encourage students to not use the term 'react' in a definition, but to state 'to initiate a response' as given in the specification.

QUESTION 18

This was a well answered question.

The example of a marathon runner was the most common example. Credit was given for any aerobic activity.

When describing the process, most students recognised and stated that there was less oxygen in the air and were credited for this. However, giving the height above sea level (2000m+) could not be credited, as this fact did not describe the process.

A high percentage of students also were credited for answering that training at high altitude would allow the body to make more red blood cells. Few described further that it was the body's way of compensating for the lack of oxygen in the air, to allow the performers oxygen carrying capacity to be increased.

Most students did not gain a possible further mark for describing that the process allows athletes to perform at greater intensity/more efficiently for longer at sea level.

QUESTION 19

Most students were able to access level 2.

The majority of responses were able to define both agility and flexibility (AO1).

Where students did consider the importance in swimming, they mostly gained marks at (AO2) applying flexibility to a swimmer, rather than agility. However, the greatest weakness in all the responses was in evaluating (AO3). Agility was rarely covered. However, students did cover flexibility better.

It was also clear from many responses that many students lacked the basic understanding of the mechanics of swimming strokes and correct technique.

A surprisingly high percentage of students were not even able to relate, or appeared not to know what constitutes a 200m freestyle race, where students suggested there was no need to turn so agility was not important.

There were a few references to synchronised swimming, water polo and open water swimming or even the swimming element of triathlon. This linked to students explaining that having good agility meant you could get out of other swimmers' way or stop bumping into other swimmers.

In general, students nearly always related agility to being beneficial in the tumble turn. Making it easier to change direction, but there were few who developed this point to how it could potentially help increase the speed of the turn and a faster overall time.

There were few who explained how poor agility would impact on the swimmer, in slowing them down when turning.

Some, students' evaluations suggested that agility was not needed, as swimmers swam in a straight line/lane.

It was generally stated that flexibility was probably required more in swimming, with most students suggesting that this related to the action of the arms.

Weaker students stating that as the arm action was carried out in a circular action, flexibility around the shoulders was required so the swimmer could get their arms out of the water.

The more knowledgeable students evaluated the importance of flexibility in the shoulder joint resulting in the swimmer being able to reach further, therefore helping to generate more speed. However, flexibility was rarely linked to the efficiency of the stroke by preventing over rotation and/or keeping the body streamlined. There was very little evidence of students mentioning other joints such as ankle or hips.

Some of the students whose responses were at Level 3, often suggested that Speed, Co-ordination and Muscular Endurance were of more importance to a swimmer and justified this in their responses, but lacked evaluations of these components.

QUESTION 20

This question was answered well by students particularly at level 3.

Level 3 responses correctly identified the principles of training, applying them to relevant components of fitness that would/could be improved through a training programme. This enabled them to explain how a games player would benefit by improvements in their game play. Typically, students selected muscular endurance and strength to highlight both how the principles of training, especially progressive overload would be applied, and analysing the benefits**,** such as making longer passes in a game and playing at a high intensity for longer.
Some students also understood that hypertrophy and bradycardia would be a result of a good long term training programme.

Level 2 students tended to use the idea that performance would be better when training focussed on game related skills (specific) and suggested that training types should be varied to avoid tedium. Students at this level were not as proficient at explaining how progressive overload could be utilised in a training programme to facilitate long term benefits. The long-term benefits mainly focussed on improved skills and stamina.

Level 1 students found it difficult to link both principles of training and long-term benefits. In answers at this level, they stated the principles of training and gave some indication that if these were applied to training, levels of fitness would improve, particularly stamina/cardio-vascular fitness, allowing a games player to play for longer at a higher standard. Unfortunately, at this level some students did not relate back to a game's player, but mentioned marathon runners linked to cardiovascular fitness or boxers/weight lifters if referring to improved strength. They also referred to training methods instead of long-term benefits.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.