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AS

# PHYSICAL EDUCATION

7581/W Factors affecting participation in physical activity and sport  
Report on the Examination

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## General Comments

This was the first 7581/W AS Physical Education paper and overall the students have been well prepared by schools/colleges with the mean mark being 43 out of 84. Both the specification content and the style and demand of questions were understood. It was very pleasing to see that many teachers and schools/colleges have adapted their teaching to focus on the assessment objectives (AOs) to allow students to access the marks on this more rigorous style of assessment. Students and staff are reminded of the AO weightings with AO1 (demonstrate knowledge and understanding), AO2 (apply knowledge and understanding) and AO3 (analysis and evaluation) each equating to 20-25% of the overall assessment. In addition, the greater demand for application is also required in the shorter questions as well as the extended responses.

There were a very small number of items unanswered and little evidence that students had run out of time. Students performed best on Section A – Applied Physiology and worst on Section B – Skill acquisition and sports psychology. Questions that tended to differentiate best were 05, 06, 13, 14 and 21. The main areas for improvement are ensuring students read the question to ascertain the context and to identify the command word to ensure the focus and detail of a response matches the question. Students must then structure their responses to match the context and demand.

The multiple-choice questions were answered well, although there was evidence of differentiation on them with the mean mark ranging from 69-95%. Responses to the 8 mark extended response items were mixed but it was encouraging that a number of students showed some clarity, structure and focus in their responses, showing a clear understanding of the AOs, in particular the ability to demonstrate knowledge (AO1) and apply it to the question (AO2). The ability to analyse or evaluate (AO3) was less understood and demonstrated by students in the extended responses. Schools/colleges should be aware that if students demonstrate excellent knowledge and understanding along with application to the question with no analysis or evaluation, the maximum mark awarded was five marks due to the weighting of the AOs.

Structuring of the paper with regards to certain questions signalling where students should write their responses (eg by having numbers in the lines) was clearly understood by most students and allowed for clearer demonstration of knowledge. Although marks were not lost for not abiding by the separation of points, students and teachers are advised that it is best practice for students to demonstrate their understanding by using the pointers given on the lines of the question paper. A number of students were unable to complete the multiple-choice questions as directed in the paper and instead circled, ticked or crossed in the box. Again, although students did not lose marks for not completing the multiple-choice items correctly, teachers should ensure that students follow the instructions as best practice.

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## Section A – Applied physiology

### Questions 01 and 02

86% of students correctly identified the correct statement that described Starling's law of the heart. Validity was less well understood with 70% identifying the correct statement. Those who did not get the mark most often confused the correct answer with the description of reliability.

### Question 03.1

The majority of students were awarded either one or two out of the three marks available. The least known point on the mark scheme was the tibialis anterior as the agonist for the action shown by the athlete hurdling in Figure 1.

### Question 03.2

69% of students achieved the two marks available, demonstrating their ability to identify the correct plane and axis for the athlete hurdling.

### Question 03.3

Most students were able to identify the second-class lever for one mark with this being the most common mark given. Only 1% of students achieved full marks. This question is an ideal example to illustrate to students and teachers that knowledge must be applied to the context of the question (ie in this instance the hurdler) in order to access the full range of marks available. Furthermore, the command word 'explain' signals to students the amount of detail required to access the marks. Some students simply stated the mechanical advantage as knowledge in isolation without putting it in context of the hurdler. The majority of answers contained no reference to the hurdler, ie the mechanical advantage for this athlete. Other contexts were rarely provided to show some understanding of mechanical advantage applied but where this did occur, a mark was not awarded, as it was not relevant to the question. A small number of students stated disadvantages of the third class lever, which was also irrelevant to the question. Schools/colleges must encourage students to apply their knowledge and understanding to the context of the question. It is good practice for students to identify this on the exam paper as a reminder when constructing their answers.

### Question 4.1

This question was very well answered with 69% of students scoring the two marks available, showing that they clearly understood what the heart rate labelled A represented on the two graphs in Figure 2. For a small number of students cardiovascular drift was confused with anticipatory rise, showing a lack of understanding. If students scored one mark only, it was mostly because they were only able to identify adrenaline as the hormone and did not use the term anticipatory rise specifically.

### Question 4.2

This question was also very well answered, with 74% of students scoring 3 or 4 marks. The training method of continuous training for athlete 1 was very well known. However, the justification for some pupils was vague and was the most common mark not accessed. Simply stating that heart rate stayed the same was not enough, as this does not imply heart rate is elevated during training. Steady state was deemed a technical term.

For athlete 2, interval training was the most common training method identified. It is good practice for schools/colleges to make students aware that if a question states use a figure to answer a question, students must identify what the Figure is showing and then clearly refer to it in their answers. With this question, Figure 2 was showing heart rate graphs and so it was expected that students would refer to heart rate specifically in their justifications.

For a small number of students, methods of training were also confused with types of practice and some confused athlete 1 with athlete 2. Care must be taken when reading information from graphs and writing answers in the spaces clearly identified in the question paper.

### **Question 05**

This was a discriminatory question with marks being distributed across the full mark range, with the modal mark being 2. When students applied their knowledge of an identified physiological effect of smoking to its effect on the respiratory system, and were then able to explain the impact on performance for endurance athletes, there were some really pleasing responses seen and full marks were awarded. The 5% of students achieving the full four marks clearly demonstrated application of knowledge, which is required with this new specification.

In relation to physiological effects, many students did not access the mark as they were too simplistic in their language, for example tar blocking the lungs. Moreover, some students stated diseases, such as lung cancer, which were also inappropriate to the question so were not creditworthy. A number of responses were too vague in their explanations of the impact on performance so students need to ensure they are more specific, ie not just change the amount of oxygen being delivered to muscles but specifically that it is reduced. For the impact on performance, simply stating there was a decreased performance was too vague. Students had to be more specific in relation to the impact on the endurance events and performance specifically, which is the context of the question, eg through a slower time or increased fatigue, which is another important point for students and teachers. A number of students were able to access one mark through correctly explaining the impact on performance, most commonly with reference to fatiguing quicker even if they were unable to identify and explain a physiological effect.

### **Question 06**

This was the first of the extended response 8 mark questions in the paper. It required students to analyse how a sprinter is able to achieve a fast start using Newton's first and second laws of linear motion and knowledge of the neuromuscular system. The mean mark for this question was 3.17 marks with the most common mark awarded being 3 marks corresponding to level 2 in the marking grid. This was the worst answered longer response question. However, it was the best discriminatory question on the paper, with 2.2% of students achieving level 4, which equates to 7 or 8 marks. This was higher than the other extended response questions, which saw only 0.8% and 1.3% of students getting into level 4 respectively. This was particularly pleasing as the question was synoptic and so required students to combine their understanding of Newton's laws and the neuromuscular system to produce a coherent analysis. This meant that in their analyses, students had to combine their knowledge of both topics rather than analyse each in isolation.

Most students were able to demonstrate some application of their knowledge and understanding to the sprint start (AO2). Newton's laws were better known and more commonly applied to the sprint start compared to the neuromuscular system, which in a number of responses was not understood or included. Instead, many analysed the movement of the sprint start demonstrating secure

knowledge of the joint actions and agonists, which was irrelevant to the question. In addition, some students incorrectly described Newton's third law instead.

In order to demonstrate analysis, students were required to explain the impact of how the sprinter could achieve a fast start in relation to their application of knowledge. For example, to demonstrate knowledge a student could describe slow and fast twitch muscle fibres that contract. To apply this knowledge, they could then detail how fast twitch fibres would be used in the start. To then demonstrate analysis, they would link the characteristics of the fast twitch fibres to how a fast start could be achieved. This type of approach should be encouraged when answering the extended response questions as they are always required to demonstrate (AO1) and apply (AO2) knowledge and then analyse and/or evaluate (AO3). The assessment objective weighting is the same for all 8 mark extended answer questions and will remain the same for future series.

## **Section B – Skill acquisition and sports psychology**

### **Question 07 and 08**

Question 07 was the best answered multiple choice question on the paper, with 95% of students correctly identifying mechanical guidance. Question 08 was the worst answered multiple choice question on the paper, with 69% being able to correctly identify competitive trait anxiety. The most common wrong answer was competitive state anxiety.

### **Question 09**

This question required students to identify, describe and give a sporting example to access the full four marks available. Marks varied, with 28% of students achieving 2 marks with the same amount scoring 4 marks. Some students simply gave examples without a description and vice versa.

The most common forms of feedback identified were positive and negative. The main downfall was in the description of the type of feedback. Some descriptions gave the aims of the feedback, ie to motivate rather than to describe what the feedback is. Many students identified and described extrinsic feedback, which was not creditworthy. The question related to feedback given by a coach, and so all feedback was deemed extrinsic. Positive and negative reinforcement, verbal and visual feedback, intrinsic feedback and visual guidance were all irrelevant answers seen. Students should be reminded to read the question and when it states to use sporting examples to support your answer, only appropriate ones will be credited.

### **Question 10**

This was a poorly answered question with 36% of students achieving zero marks. Students did not analyse the information in Figure 3 to identify specifically where optimal arousal occurred for each of the theories labelled A and B. The use of Figure 3 was vital in order to achieve the 2 marks available. Theory A related to the catastrophe theory and many students referred to medium or moderate arousal levels in their responses, which was assumed knowledge rather than using the information from Figure 3 specifically. Figure 3 did not refer to medium or moderate levels of arousal and so this was not creditworthy. Many students did not refer to Figure 3 and gave descriptions about each theory in relation to arousal and performance, which although highlighted sound subject knowledge, was not applied to the context of the question. Students who marked directly on to Figure 3 where optimal performance occurs were given the marks and students are

recommended to use this approach on similar questions in the future. More students were able to correctly identify optimal arousal for theory B, the drive theory.

### **Question 11**

Many students were not able to apply their understanding of negative and zero transfer to the context of the question, with only 11% achieving 3 or 4 marks. Instead of stating that Vicky's progress in tennis will be hindered by her experience in badminton in their explanations, most students gave a general definition about the transfer of learning in sport, ie the learning of skills in one sport will hinder the learning in another sport. Some answers referred to other sports to explain the different types of transfer, which clearly illustrates students are able to apply their understanding. However, it is vital that this is always done to the context of the question in order to achieve the marks. Sporting examples relating to tennis and badminton were sometimes well known, which explained why 40% achieved 1 or 2 marks. When students did correctly apply their knowledge to badminton and tennis, often the terms 'negative effect' and 'zero effect' were used, which also prevented marks being awarded. Students should be reminded that they should not regurgitate the words in the question. Lastly, sporting examples that did not relate to the learning of skills specifically, but were related to tactics, were not relevant to transfer of learning.

### **Question 12.1**

The mark scheme allowed students to classify the corner kick in football on either end of both the continua so long as the classifications were justified appropriately. The self-paced justification was well known by students and most commonly used. Both the classification and justification were needed for the mark for each continuum to be awarded. Students should be reminded of this demand in future series. Furthermore, students must ensure they link their justification to the sporting skill within the question, ie in this case the corner kick, and to be aware that simply stating the description of the type of skill does not demonstrate a justification. This was seen on occasions when students were justifying the open-closed classification by simply referring to the environment being stable. Students must again relate their answers to the question and so describe the environment of the corner kick specifically.

### **Question 12.2**

The high-low organisation skill continuum is a new inclusion within the specification. The question elicited mixed responses but was largely not understood by students, with 58% achieving zero marks. The most common mistake was that students got low organisation and high organisation the wrong way round. In addition, a number of students referred to the number of subroutines.

### **Question 12.3**

The majority of students achieved the mark for giving an example of a low organisation skill in football. On occasion students identified a skill from a different sport to football and so did not receive the mark. Sporting examples must relate to the context of the question.

### **Question 13**

This was another question that was not understood by many students, with 43% achieving zero marks. A high number of students were able to acknowledge the feeling of psychological discomfort for 1 mark, with many using examples to try and explain cognitive dissonance.

However, they did not describe what cognitive dissonance was through their examples and so were not given marks.

#### **Question 14**

This extended response question required students to evaluate the use of massed and distributed practice when coaching a group of beginners, in a game such as basketball. The mean mark for this question was 3.17, with 23% of students achieving level 3, which equates to 5 or 6 marks.

In order to demonstrate application, students had to relate their knowledge of massed and distributed practice to a specific game. There was excellent knowledge of the advantages and disadvantages of massed and distributed practice, and their use with beginners but often this was not then applied to the context of a game. The best answers included a discussion on the merits of both types of practice whilst then using this to make a decision about which was better in the circumstances, and then justifying their decision. The command word 'evaluate' means students had to judge from available evidence. Therefore, as to clearly demonstrate their ability to evaluate, it was expected that students would make a justified decision. This is an area that schools/colleges can develop with students when practising these longer responses that require evaluation. Those students that used terms like 'therefore' and 'in conclusion' made it clearly apparent to the marker that they were evaluating.

### **Section C – Sport and society and technology in sport**

#### **Question 15 and 16**

91% of students were able to correctly identify the correct description of urbanisation in question 15. The use of indirect calorimetry to measure aerobic endurance was less well known, with 74% achieving the mark.

#### **Question 17**

This was a well answered question with 50% of student achieving 3 or 4 marks. Most students were able to identify the types of activities that the upper and lower class engaged in with reference to real tennis and mob football respectively. Marks were not given when students simply described the characteristics of popular and rational recreation and did not link their descriptions to explain why these activities were suited to either class. Again when explaining it is good practise for students to build on their points with connectives such as 'this means that' or 'due to'.

#### **Question 18**

This was another question which demanded students to demonstrate a variety of skills in order to access the full marks. They were required to define, explain and give sporting examples in relation to both discrimination and stereotyping. 49% of students achieved 4, 5 or 6 marks, indicating overall that students were able to access this question. Definitions of discrimination and stereotyping were well known, as were sporting examples of stereotypes. Students found sporting examples for discrimination more difficult, along with the explanation of how each can cause low participation rates amongst underrepresented groups. Many students confused discrimination with racism.



The students that worked through this question logically and made themselves familiar with the three parts needed for each term achieved high marks. Some answers strayed into role models, media, sponsorship and funding.

### **Question 19**

59% of students achieved 2 or more marks on this question. Rules and the competitive nature were a common, well-known characteristic of sport. Students were not able to access the full marks when they only acknowledged characteristics and did not link them to tennis.

### **Question 20**

Most students achieved at least one mark in this question. The physical health benefit was better explained than the social health benefit, which a number of students confused with mental health benefits. Students were generally aware of what was required in this question in regards to what was the benefit but again they need to take it one stage further to explain what will be the result of the benefit.

### **Question 21**

This extended answer question was marginally more accessible than the other 8 markers, as indicated by the slightly higher mean mark of 3.21. In addition, only 2% of students scored zero marks as opposed to 7% on the other two 8 mark questions. It required students to consider how commercialisation and the improvement in technology for sports analytics have affected performance in the 100 metres at the Olympic Games. Furthermore, students had to use the data in Table 1 to support their answers, which a significant number did not do. It is crucial to show application and analysis of the context, which is something teachers must prepare students for when data is presented in a question. The effect of commercialisation was better explained. Many students referred to the increased media coverage, sponsorship and disposable income of sprinters, which resulted in the decrease in the 100m sprint times over the years. Again, it was important that the students related their answers to the 100m, which was the context. Many students simply showed knowledge of commercialisation by referring to its impact generally in sport and not specifically the sprinter.

Students often confused sports analytics with the improvement in technology through discussing improvements in tracks, clothing, timing and equipment, which was not relevant to the question. Instead, where sports analytics was understood, students were able to acknowledge the ability to analysis technique to improve performance in sprinting.

### **Use of statistics**

Statistics used in this report may be taken from incomplete processing data. However, this data still gives a true account on how students have performed for each question.

### **Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.

### **Converting Marks into UMS marks**

Convert raw marks into Uniform Mark Scale (UMS) marks by using the link below.

[UMS conversion calculator](#)