

# Physical Education

Advanced GCE A2 H554

Advanced Subsidiary GCE AS H154

## Report on the Units

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**June 2010**

**HX54/R/10**

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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**Advanced Subsidiary GCE Physical Education (H154)**

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## **Chief Examiner's Report**

In this series there were 17,000 AS and 10,000 A2 candidates. It was the first significant cohort of A2 candidates for both the theoretical and coursework components. Presently the AS G451 theoretical component is marked on-line whilst the A2 G453 component is marked in the traditional paper based manner.

It was regrettable that in the A2 G453 examination paper incorrect data was presented in one part of the Exercise Physiology question; however this was addressed in the standardising of the mark scheme and the marking of the paper, thereby ensuring that this did not impact on candidates. More detail about this can be found in the G453 Principal Examiner's Report to Centres.

The Principal Examiners for both G451 and G453 comment on candidates' exam technique. They stress the importance of good, detailed and relevant practical examples in candidates' responses. They also stress the need for candidates in the extended answer questions to ensure that they meet the demand of the command word, which will require candidates to develop their responses as they explain, critically evaluate, discuss etc. It is also essential that candidates plan for these extended answers.

At both AS and A2 some candidates find it difficult when questions are set within the context of a balanced, active, healthy lifestyle and centres are reminded that this concept is an essential feature of this new specification. Candidates can be required to apply and exemplify concepts within the context of a healthy, active, balanced lifestyle as well as in relation to participation.

In the coursework elements it was again pleasing for moderators to see many outstanding performances at both AS and A2. It is disappointing, however, that moderators continue to find a large number of administrative errors in some centres' paperwork, often to the disadvantage of candidates. Centres need to ensure that their paperwork is thoroughly checked after completion. Centres also need to check regularly on the OCR web site to ensure that they are applying the correct criteria when assessing candidates as the criteria are reviewed after each series. This is still not the case with some centres who continue to disadvantage candidates by utilising incorrect, out of date assessment criteria.

Centre should also be aware that at A2 in unit G454 that the assessment criteria, in the top band, encompass the stretch and challenge element of the specification and the A\* element. Not all centres appeared to be aware of this in their placement of candidates in the top band.

## Unit G451: An introduction to Physical Education (Written Examination)

### General Comments

In many ways candidates are now responding more successfully to G451 questions with the most able giving the most encouraging responses so far. As expected, however, with a large cohort (17,000) including a substantial number of candidates re-sitting for the second time, there were also some disappointingly low marks.

On a positive note, many candidates interpreted questions well and showed evidence of breaking down questions to focus on essential terms including:

- **Command words** eg identify, describe, explain, evaluate.
- The **subject being examined** eg centre of mass, CHD, schema theory, Whiting's model of information processing, the sports development pyramid and, crucially.
- The **subject qualifier** (or specific aspect(s) of the subject being examined) eg how **changes in the position** of centre of mass affect performance, or how nineteenth century public schools helped to **promote** and **organise** games.

Candidates must continue to note even more closely the number of marks available for each question, as many fail to give sufficient succinct, separate points reflecting question weightings. Parts a-d tend to have a maximum of six marks and as such often consist of two parts. Candidates should be reminded to cover all parts of each question and answer accordingly.

The trend of answers to the 10-mark part (e) questions is upward with clear evidence of many candidates having been well prepared. There was also more evidence of planning and the inclusion of practical examples with a varying degree of success. That said, many candidates are still finding the 10 mark questions particularly challenging and give predominantly knowledge-based responses. Only a limited number of the best scripts show real evidence of explanation, discussion or development of knowledge points (which is one of the five key criteria for these extended questions). Candidates should carefully apply practical examples to the exact question, particularly when it relates to balanced, active, healthy lifestyles, as in 2e which required candidates to: **Discuss the advantages and disadvantages of motivational strategies that can be used to encourage disaffected young people to participate in a balanced, active and healthy lifestyle.** The majority of examples offered here related to learning skills rather than to participating in a balanced, active, healthy lifestyle and as such were irrelevant. Remembering the five criteria for the extended questions, candidates should continually be encouraged to make a number of points which they then develop and apply.

Few candidates scored consistently well in all three sections. Socio-Cultural Studies tended to elicit the highest marks, followed by Anatomy and Physiology and then Acquiring Movement Skills which candidates found the most challenging and which had the most nil responses.

## Section A: Anatomy & Physiology

1(a)

**Fig. 1 shows a gymnast holding a position on the rings. Use your anatomical and physiological knowledge to complete the table below for the hip joint.**

**The gymnast in Fig. 1 must keep his shoulders in a fixed position. Name two muscles in the rotator cuff group which aid the stability of the shoulder joint. [5]**

The movement analysis table was, again, generally well answered, particularly the joint type and movement. Most also correctly identified the **iliopsoas** as the agonist, although with many spelling variations. It was disappointing to see how few candidates knew the names of the **rotator cuff muscles** with most relying on their knowledge of the main muscles of the shoulder and so incorrectly listing deltoid or trapezius. Very few scored a max of five here.

1(b)

**A performer's mix of fast and slow twitch muscle fibres is genetically determined. How might the mix of muscle fibre types determine the success of a performer?**

**Identify two structural characteristics of muscle fibre types associated with athletes participating in endurance events. [5]**

This question is a prime example where candidates needed to ensure that they answered both parts of the question appropriately. The second part asked for **two** structural characteristics of endurance fibres, in addition to covering the first part of the question on a mix of muscle fibres. Although lines were limited, candidates needed to make a comment on the impact on performance of fast twitch fibres, of slow twitch fibres **and** a mix of both fast and slow twitch fibres to access all three available marks. Few managed this.

The second part of the question asked for **structural** characteristics of slow twitch fibres. A number of perhaps weaker candidates identified irrelevant **functional** characteristics instead or as well.

1(c)

**Explain the effects of altitude on the respiratory system and how these effects impact on the performance of an endurance athlete performing at altitude. [5]**

This was generally well answered with most candidates appreciating a lack of oxygen at altitude has a negative effect on endurance athletes. However, there were three common errors:

- Candidates being too vague when describing oxygen levels in the air at altitude. Many described the air as "thinner" when it was a decrease in the **partial pressure** of oxygen that was required.
- Secondly, in any question relating to the respiratory system candidates must be encouraged to remember the two types of respiration - external and internal - and must be specific about which type they are writing about. So, simply saying there is a low concentration gradient without referring to the site of diffusion is too vague.

Finally the most common error was in noting the phrase "**effects of altitude**" in the question and incorrectly writing about acclimatisation/the positive effects of training at altitude prior to performing at sea level – which was not required.

1(d)

**Using an example from PE or Sport explain how changes in the position of a performer's centre of mass can affect performance. [5]**

It was pleasing that some were able to give a good practical example here along with one or two of well expressed theory points to access four of the five marks. However, on the whole this question was poorly answered. Many deviated from the focus (centre of mass) and wrote about

maximising stability. Those who understood the biomechanical concepts behind the correct answers often missed marks by failing to link their answers to the **position of centre of mass**.

**1(e)**

**People who have a poor diet and are inactive are at risk of developing coronary heart disease.**

**Describe the characteristics of coronary heart disease.**

**Explain how an active healthy lifestyle can help prevent coronary heart disease. [10]**

Most candidates made a competent attempt at this question, which proved to be a good discriminator. Most scored at level 2, with plenty of evidence of level 3 answers. Answers were generally well structured with a brief introduction and conclusion.

Candidates knew the characteristics of coronary heart disease and successfully described the specific conditions identified in the specification - arteriosclerosis, atherosclerosis, angina and heart attack. The better candidates also showed good development.

It was pleasing that a number of candidates showed detailed knowledge of the type of exercise that helps to prevent CHD. Most could link a balanced, active, healthy lifestyle to a reduction in coronary risk factors with the best going into detail of the types of cholesterol, comparing HDL and LDL.

Answers would have been enhanced with a better balance of positive effects of activity **and** positive effects of a healthy diet - many focused on just one of these factors.

Candidates who scored less well relied on general knowledge and failed to name or describe specific CHD conditions as identified in the specification.

**Section B: Acquiring movement skills**

**2(a)**

**Describe gross motor abilities and psychomotor abilities and give a practical example for each. [4]**

This question was well answered on the whole with most candidates able to describe and give an example of both types of ability. A common error was to describe the characteristics of gross skills instead of gross motor abilities. Examples given by weaker candidates were often too vague and were not a clear identification of a specific gross motor or psychomotor ability.

**2(b)**

**Explain open loop control and explain why it is often linked to the autonomous phase of learning and performing movement skills. [4]**

Candidates showed a reasonable knowledge of open loop control, most frequently identifying lack of feedback. Similarly, although a large number of candidates wrote about lack of conscious thought, few achieved the sub-max of two for the link with the autonomous phase of learning. Very few mentioned memory trace of capacity to attend to peripheral stimuli.

**2(c)**

**Describe schema theory using practical examples.**

**[6]**

This fairly straightforward question discriminated well, with the minority able to achieve maximum marks very efficiently by describing each of the four theoretical concepts and supporting them immediately with a practical example. On the whole this question was not well answered and elicited many nil responses. While many offered the notion of schema as a generalised motor programme, few could write in any detail about schema **theory**. While some identified recall and recognition schema and went on to identify the four components, relatively few managed this in the right order and most examples for each stage were too vague (TV). Without examples, candidates could score a maximum of four.

**2(d)**

**Outline Whiting's model of information processing and explain how the perceptual mechanism can affect the performance of physical activities.**

**[6]**

Most candidates gained some marks for the first part of the question. This specific question on Whiting's model (rather than information processing as a general theme) required exact Whiting terminology. Weaker candidates, who wrote generally about the stages of information processing missed marks; likewise candidates who talked about the stages in the incorrect order.

Few successfully explained how the perceptual mechanism affects performance and if they did score they included points 12, 13 and 17 most frequently. Part (d) questions will usually require application of knowledge as was the case here.

**2(e)**

**Many feel that more young people than ever follow an inactive and unhealthy lifestyle. Discuss the advantages and disadvantages of motivational strategies that can be used to encourage disaffected young people to participate in a balanced, active and healthy lifestyle.**

**[10]**

This was poorly answered on the whole with candidates' responses tending to be very narrow. Most focused on just extrinsic rewards and positive reinforcement with role models, education and goal setting as other strategies that were sometimes mentioned.

A number of candidates simply discussed the advantages of motivational strategies as a whole without direct reference to particular strategies. A disappointingly large number failed to do what was asked and listed advantages only rather than **discussing** potential advantages **and** disadvantages.

As in previous G451 AMS questions, candidates who included examples usually related them to the performance of movement skills rather than to a balanced, active, healthy lifestyle. Centres are strongly encouraged to emphasise the need for candidates to look carefully at the focus of the question and give examples accordingly.

A surprisingly large number answered this question from a socio-cultural slant and unsuccessfully included points that would have scored well on question 3e - January 2010.

### Section C: Socio-cultural Studies relating to participation in physical activity

#### 3(a)(i)

**Describe the foundation, participation and performance levels of the sports development pyramid.** [3]

This straightforward start to the socio-cultural section was well answered with many achieving maximum marks.

#### 3(a)(ii)

**Describe how esteem could affect a person's placement on the sports development pyramid.** [2]

Some thought was needed to access both marks here. Candidates needed to consider how **high** esteem enables higher placement on the pyramid and how **low** esteem (as a restricting factor), limits performers to the lower levels. Candidates who failed to access marks here did not refer to the **level** of esteem or link it back to placement on the pyramid.

#### 3(b)(i)

**Identify characteristics of high level sport other than high levels of skill, fitness and funding.** [2]

This was generally well answered with many achieving maximum marks if precise terminology was used. Centres should keep reinforcing the need to use appropriate qualitative wording to describe characteristics of high level sport, i.e. that it requires **high levels of** commitment, rather than just commitment and **specialist** coaching or facilities or equipment rather than just coaching, facilities or equipment.

#### 3(b)(ii)

**Describe the different sources of funding for high level sport.** [3]

The specification lists the difference sources of funding (for physical activity) as **public, private** and **voluntary** so these focus words were required here. Many candidates failed to link their ideas (eg sponsorship or government money) to one of the three stated sources thus achieving no marks.

#### 3(c)

**Compare gamesmanship and deviance in sport and explain reasons for the use of drugs in sport.** [5]

Here, with the command word 'compare', candidates had to make a point about **both** gamesmanship **and** deviance to gain each mark. It was pleasing to see that a majority attempted this even though only a limited number supported their descriptions with examples. It was fairly common for weaker candidates to confuse gamesmanship with sportsmanship. The second part of the question was also well answered and good knowledge was shown on the reasons for drug use in sport.

**3(d)**

**Explain how nineteenth century Public Schools helped to promote and organise sports and games. [5]**

This question was generally well answered, especially by candidates who carefully noted the number of marks available and offered that number of separate, concise discussion points. Weaker candidates too often simply 'told a story' describing life in nineteenth century Public Schools while failing to link their knowledge to the exact question.

**3(e)**

**Explain why sport has such a high status in Australia. [10]**

Pleasingly, the full range of marks was awarded here with many level 3s given. Candidates who scored in this top level included a range of reasons why sport has such high status in Australia, and referenced background, political/ economic and social factors (the three mark scheme areas).

The best candidates identified a point and then explained it to achieve development credit. Candidates who scored in level 2, showed good knowledge of these factors but tended to simply state a number of facts without developing or explaining their ideas/knowledge. The limited answers of weaker candidates relied on general knowledge and much irrelevant detail about Aussie Rules football.

## Unit G452

The second year of the new specification and the first examination of the G454 unit in which candidates are assessed in one activity proved challenging for the moderation process. The change to candidates being assessed in one activity at A2 has been well received by candidates and centres but many centres appeared unaware of the implications of stretch and challenge and A\* on assessment in G454.

It was pleasing, as usual, to see many fine performances by excellent candidates at moderations. It was also pleasing to note the enthusiasm and commitment of many teachers to organising moderations and to ensuring that candidates had a worthwhile and enjoyable experience. The moderating team is very grateful to teachers for their time, effort and enthusiasm, in particular that of the host centres.

Moderators were privileged to listen to many excellent oral responses from candidates who were well prepared for this aspect of their coursework as well as being skilled in evaluating performances and action planning to improve weaknesses. They showed excellent knowledge of their activities.

Many centres took the opportunity to submit criteria to assess candidates in activities not on the list of approved activities. Some of these activities have since been added to the approved list and criteria for them will be available on the OCR website from early September.

**It is vital that centres regularly access the GCE Physical Education section of the OCR website in order to keep up to date with developments in the materials provided to support the assessment of the qualification.** Many of the amendments made were in response to feedback from centres and there are again a range of amendments, improvements and clarifications to the coursework guidance being made now ahead of the 2010-11 academic year and there is an emphasis on centres to keep up to date with these developments, as although a GCE Physical Education Notice to Centres is again planned for this September, it was clear that the September 2009 Notice did not reach the relevant department(s) within many centres at the start of this past academic year.

As with previous series, centres proved, in the main, to be accurate in their assessments of performance activities at both AS and A2 with the majority of adjustments to marks being caused by the inaccuracy of oral response marks and administrative errors. There was some over assessment in band 1 of G454.

Centres are reminded that in all activities the quality of the performance is assessed. This means that in a gymnastics routine it is essential that the candidate performs all the skills identified in the rubric but it is also how well those skills are performed that determines the mark awarded. This is also the case in activities such as Mountain Walking and Life Saving in which some centres are assessing simply on the basis of the skills being successfully performed rather than on the quality of the performance. This approach usually leads to over-assessment. The following sections give feedback on the different units.

As previously stated centres were generally accurate in their assessment of performance activities. Most centres have adjusted well to the changes in the assessment criteria which have brought in levels of physical and mental fitness as well as the understanding and application of rules and regulations.

Problems associated with accuracy of assessments in performances were mainly the failure of some centres to take on board the changes in the assessment rubric of activities such as mountain walking, trampolining, dance, gymnastics and particularly circuit training. Moderators

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again experienced problems with circuit training where some candidates did not meet the revised rubric requirements in the structure of their circuits. Some candidates also failed to cover all the aspects required in their logs and in some cases aspects covered lacked the necessary details and depth required.

Centres are reminded to ensure that they are conversant with the assessment criteria and assessment rubric for the activities in this specification. The coursework guidance material is available via the OCR website. This has been updated after the 2010 series as indicated in the introduction to this report.

To help moderators in activities in which the candidate assessment is a composition from component marks i.e. athletics – two events; swimming – two strokes, centres are required to assess each component using the full range of banded descriptors and then divide by the number of components to get a mark out of thirty. It is also essential that these component marks are included on the relevant assessment sheet.

Some candidates chose to be assessed in the routes of coaching and officiating as an alternative to being assessed in a second performance activity. It is pleasing to find that candidates who have interests and involvement in these pathways do well and gain credit for their skills, knowledge and expertise. Centres were more accurate in their assessments of these routes in this series.

Internal standardisation is a requirement for all centres thereby ensuring that all candidates in that centre are treated fairly. This internal standardisation process must not only include all performance activities but should also encompass coaching and officiating thereby ensuring comparability across all activities and all assessment routes.

The oral response, Evaluation and Planning for the Improvement of Performance (EPIP) produced not only a wide range of marks awarded but also a wide range in the accuracy of the application of the assessment criteria. Many centres produced candidates whose responses were excellent and accurately assessed.

As with the oral response at A2 (E & A) candidates are expected to observe a performance, evaluate it and action plan to improve it. It is viewed as the candidate's opportunity to apply their knowledge of the activity they are observing.

The candidates should produce a structured response in which they discuss the following aspects:

The strengths of the performance in relation to skills, tactics/compositional ideas and fitness.  
The weaknesses of the performance in relation to skills, tactics/compositional ideas and fitness.  
The weakness of the performance they would prioritise for improvement.

An action plan to improve this major weakness of the performance which includes detailed coaching points, detailed progressive practices and a timescale

Opportunities locally and nationally for performers to participate and progress in the activity.  
The health and fitness benefits of the activity.

The focus should be on the performance they are observing. The response should not be pre-determined. The assessment criteria indicate that the accuracy of the observations will determine the mark which the candidate is awarded and therefore a predetermined response which bears no relationship to the performance observed will severely disadvantage candidates. It is not possible to quantify the strengths and weaknesses which a candidate needs to identify as this will be determined by the performance they are observing. Candidates who simply identify one strength and one weakness in each area of skills, tactics and fitness when there are

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clearly more in the performance they observe fail to meet the band 1 and band 2 descriptors which are 'all' and 'most' respectively.

The banded assessment criteria also indicate that to access the top two bands (Marks 11 – 20) candidates should not have supplementary questions in order to complete their response. If centres therefore structure their assessment of the oral response as a question and answer or interview-style scenario they effectively restrict their candidates to be assessed within bands three and four (0-10 marks).

Candidates should observe a live performance of a fellow candidate and then when they feel they have observed long enough to form a valid opinion they should start their oral response. Candidates are permitted to make notes as they observe the performance. They are not allowed to bring any notes to the assessment. Notes made are to enable candidates to structure their response and to provide reminders for them of points they have observed. They are not an opportunity for candidates to write out their response and then simply read it out. The format of the assessment does not permit candidates to observe the performance and then have time to structure and write their response. It must be a continuous process. The response should be spontaneous.

Some DVD evidence viewed apparently indicates that candidates have type written notes to refer to and this is clearly in breach of the prescribed assessment procedures. It is not appropriate for candidates to observe elite performers.

Centres should also note that there is no requirement in the EPIP for candidates to apply theoretical concepts to their evaluative comments and action plan. The application of theory within the EPIP is encompassed in the participation and progression discussion and their coverage of the health benefits of the activity.

Some candidates cover the progression aspect of their activity well using the performance pyramid as their base and showing good knowledge of the opportunities for development. Often, however, the participation element is not covered as well. Candidates in this area should show knowledge of local opportunities, comment on facilities, accessibility/costs, comparison of local to national participation and opportunities.

It was disappointing that the requirement for centres to submit their DVD evidence of this aspect of the course is still recognised by so few centres. This requirement, also in the A2 coursework, is to allow moderators access to further assessments by the centre in addition to those they listen to at moderation. This ensures that the decision on the accuracy of the centre's assessments is based on a sufficient sample of evidence.

In relation to the G452 unit centres should therefore ensure that they:

- Ensure that they are conversant with the assessment requirements for all activities. These requirements have been updated after this year's experiences.
- Internally standardise across all performance activities and the coaching and officiating routes.
- Ensure that candidates who are required to submit logs are aware of the content needed and cover it in adequate depth and detail. Candidate logs should also have the candidate's name, candidate number and centre number to ensure that it can be identified by the moderator.
- Structure the assessment of the EPIP to allow candidates access to the full range of marks.
- Submit DVD evidence by the dates required.
- Ensure that the DVD evidence for the EPIP includes footage of the performance observed by the candidate.
- Ensure that DVD evidence for performance activities relates to the assessment requirements of the activity.

## Unit G454

The challenge in assessing the coursework at A2 was to adjust from assessing out of thirty marks to assessing out of forty marks and to build in stretch and challenge and the A\* grade. As this was the first assessment of this unit grade boundaries had yet to be set but the notional target threshold boundaries of 80% for Grade A and 40% for Grade E indicated that a mark at the top of band 2 i.e. 32 would provisionally be a grade A.

This then leaves scope for excellent performers to be given an A\* mark notionally 36 and our exceptional performers to be awarded marks in the 37-40 range. Some centres built this into their assessments whilst others simply transferred their legacy specification assessments and awarded their top performers full marks. These latter centres must come to terms with the fact that in reality a mark at the bottom of band 1 is likely to be a grade A and is a very good mark.

Where centres assessments were adjusted it was, in the vast majority of cases due to inaccurate assessment of the Evaluation and Appreciation component. Many centres are excellent in their teaching and assessment of this aspect of the coursework and their candidates produce excellent, well structured responses with detailed action plans and relevant theory which is accurately applied.

However, some centres still continue to teach candidates a prescribed, rehearsed response which is unrelated to the performance which they observe at moderation. In many cases the theory they talk about is not applied or related to the performance observed but simply a potted version of all they have learned during their course. Centres are reminded that this is not the purpose of the oral response. It is about the candidate evaluating the performance they are observing and action planning for a major fault in that performance which they have identified. If they do not evaluate and action plan they have nothing to apply the relevant theory to.

Historical aspects may be included in the response but as with answers to questions in the G453 unit they must be applied to present day and specifically to the performance observed. Some candidates may find it less challenging to apply theoretical aspects from their G451 Socio-cultural studies which allows them to fulfil the assessment criteria.

Centres are reminded that in this specification, Unit G454, assessment criteria have been updated and centres need to be conversant with these changes. Coursework guidance material for this unit is available via the OCR website.

### ADMINISTRATION

The vast majority of centres produce documentation which is accurately completed and submitted according to OCR submission dates. This makes the moderating team's work much easier. However, this year, as in previous years it is of great concern that there are a large number of errors in the documentation. These errors can seriously disadvantage candidates. Centres should note that the errors fall into the following categories:

1. Arithmetical errors adding up the figures on the Final Practical Activity sheet.
2. Arithmetical errors on the Practical Activity sheet where calculations are required eg athletics/swimming.
3. Transcription errors when transferring marks from the Practical Activity sheets to the Final Practical Activity sheet but more often when transferring marks from the Final Practical Activity sheet to the MS1 form.
4. MS1 form – shading in the lozenges incorrectly.
5. MS1 form – not filling in the mark column.

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Centres are requested and reminded to ensure that all documentation is thoroughly checked.

Centres are also reminded that where candidates are assessed in activities that can be submitted by 15<sup>th</sup> May they need to submit these activity assessment sheets, together with the appropriate DVD evidence and an updated Final Practical Activity sheet to the moderator.

There is now a definitive list of activities in Unit G452 which are available for assessment by the 15<sup>th</sup> May in the Coursework Guidance booklet. This should reduce any confusion and ambiguity. A concern at moderations was the number of candidates who failed to wear the correct equipment. This applied to footballers who failed to wear shin pads and trampolinists and dancers who failed to wear appropriate clothing. The failure of candidates to wear appropriate safety items is of particular concern and centres should be aware that the teacher accompanying candidates is responsible for the health and safety of their candidates.

It also shows in many cases that centres have failed to take into account in their assessment of candidates the descriptor in each band which indicates the level of the candidates understanding and application of the rules/regulations of the activity which obviously includes the prescribed safety equipment.

Centres should also note that candidates not having the correct equipment may be denied the opportunity to participate and would therefore be deemed to be absent from the moderation. Centres are reminded that they should ensure that their candidates at moderation warm up and cool down adequately for their activities.

Candidates, centres and moderators are all to be congratulated on making the moderation process an enjoyable, if demanding, experience.

## **Unit G453: Principles and concepts across different areas of Physical**

### **General Comments**

This is the second examination series of the new specification at A2. The majority of candidates who sat this examination were generally well-prepared. This paper is wide-ranging with three different topic questions having to be chosen from five on the paper. There were few rubric infringements with one or two candidates answering more than the three questions required. Some candidates seemed to have run out of time and most of these were unable to complete one of the 20 mark questions and therefore lost out on gaining valuable marks. Candidates are reminded to manage their time effectively so that equal amount of time is spent on each topic area. Some wrote far too much in at least one of the 20 mark questions, especially for the Historical Studies topic, and consequently were unable to catch up on this time. Only material that is relevant and seeks to answer the question set should be included as a response to the extended 20 mark questions. Centres are advised to include in their schemes of learning time to practise answering questions in a reasonable allocated time so that they are better able to manage their time in the external examination.

This A2 paper is designed to test not only the knowledge and understanding related to Physical Education theory but also applied knowledge, including the ability to critically analyse and evaluate Physical Education material from the studied topic areas. The majority of candidates chose the questions on Historical Studies, Sports Psychology and Exercise and Sport Physiology. Relatively few candidates attempted the Comparative Studies question and even fewer the Biomechanics question.

The quality of written communication was adequate overall although in the extended responses, candidates often showed little planning and their answers therefore became incoherent and lacked structure. The use of technical vocabulary by the many candidates was good, reflecting good preparation by centres.

The most able candidates, who had clearly practised responding to examination questions, timed their responses well and wrote shorter sentences that were then briefly but accurately expanded often with relevant practical examples. Centres are reminded that candidates should be fully prepared to give practical examples not just from sport and physical education, but also for regular exercise, a balanced diet and the avoidance of unhealthy or dysfunctional behaviour for example smoking or a lack of exercise.

The 20 mark questions set at the end of each topic area were much better answered than in the January session, with candidates responding in detail and developing their answers sufficiently. The 20 mark questions are marked using a levels of response mark scheme, similar to those that have been used for the A2 papers from the legacy specification. This means that candidates' responses are not judged only by their number and relevance but also by their depth and development. Centres should re-visit the mark schemes used in this examination, the January session and in the specimen examination materials to review the descriptors used for candidates to access the top bands.

When the 20 mark questions contain two or more strands, it is important that candidates visit all of these strands in their answer otherwise they are unlikely to score the higher levels marks. Some candidates scored very well indeed, showing good preparation and effective learning of many areas of the specification. These better candidates often made a valid point and then developed it using appropriate technical terminology and, if required, relevant practical examples. These candidates often wrote a short plan before their response and they visited all

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aspects of the question. Candidates should be made more aware of the meanings of command words used in questions because many candidates described rather than explained and gave an outline rather than a critical evaluation when required.

Some candidates scored few marks when responding to questions asking for practical examples because they often wrote a brief and under-developed practical example or no example at all.

With the questions with fewer marks allocated, the better candidates stuck to the question asked and gave relevant material that dealt with all parts of the questions. The weaker candidates often did not answer all the strands of the question and some also ignored the request to use practical examples in their answer. Centres should remind candidates to read each question very carefully and to identify the command words in each part of the question and to make sure that their answers fully address all aspects of each question. The weaker candidates also repeated material rather than use separate points. In the lower mark questions it is usual for a mark to be given for each point made and sometimes there is a practical example required before the mark is awarded. Therefore a four mark question is likely to score four marks if the answer included four separate points, rather than two points repeated in a slightly different way.

Data tables and conceptual models will be a continuing feature of this examination so it is important that candidates have enough practice in interpreting such stimulus material and in explain models using practical examples for sport and for following a balanced, active and healthy lifestyle. This specification includes aspects that are related not just to sport performance but also to wider aspects of adopting a healthy lifestyle.

Unfortunately the data table used in question 5d of the examination showed an incorrect placement of two values. The value stated for the Alactic energy system in the 100 metres event should have been 56% and that given for the Lactic Acid energy system in the same event should have been 39%. The data provided in Figure 3 in the G453 June 2010 question paper was for use as stimulus by candidates rather than it showing definitive values from a specific source. Our intention was that the stimulus material for this question showed alactic as the predominant energy system, as the focus of the specification in this topic area is on identifying predominant energy systems in relation to types of exercise rather than applying specific figures to the percentage contribution of each system.

The examining team reviewed candidate responses and addressed the mark scheme to take into consideration the different approaches candidates had taken to answering question 5d in the light of the error in Figure 3. Feedback from examiners reported that candidates were able to answer the question unimpeded. Some candidates recognised and stated in their responses that these figures were not as they expected and gained credit for this. Candidates were given credit both in instances where they referred to trends which they were familiar with for the 100m rather than those given in the table for that event, where the Alactic energy system would usually be given as the predominant energy system, or where they used the data in the table for that event as it was shown. Indeed this question proved to be one of the highest scoring questions on the paper.

## Comments on Individual Questions

### Historical Studies

#### 1(a)

Describe three features of the 1950s programme of Physical Education for state schools ('Moving and Growing' and 'Planning the Programme'). Outline one difference between the 1950s programme and the programme for Physical Education in state secondary schools today. [4]

Most candidates could give three valid features of the appropriate programme, with most identifying the holistic and heuristic aspects of this programme. Some candidates only gave two features and therefore were unable to score full marks. A few candidates confused this programme with ones that prepare young people for war or to simply get young people fitter. Some candidates ignored the command for only one difference to be identified between the programme of the 1950's and the programme for today. Examiners are instructed to mark the first response only where just one has been asked for in the question and so those candidates who wrote many aspects down in the hope that one might be valid were unable to score the mark unless it was their first response.

#### 1(b)

Popular recreations in pre-industrial Britain had certain characteristics. In what ways was Real Tennis different from most other popular recreations? Account for limited participation in Real Tennis today. [5]

Some candidates spent valuable time in setting out the characteristics of other popular recreation activities such as mob football rather than answering the question and identifying the ways in which Real Tennis was different. Some candidates confused Real Tennis with Lawn Tennis and scored few marks but most performed well on this question.

#### 1(c)

Cricket in public schools had very high status in stage three. Explain how participation in cricket could develop values in public school boys at this time. Explain barriers to achieving these values through cricket in schools today. [6]

This question proved to be the lowest scoring for this topic area. Many candidates simply listed the values that were said to be features of public schools at that time and scored few marks. Those that used cricket as the context, as required by the question, scored well. The best candidates explained how cricket developed values, for example, some recognised that working together effectively in cricket is important and therefore the value of co-operation and teamwork was developed at that time. Some were able to explain the barriers to achieving these values today by stating that there is little time to be able to develop these or that the organisation of the game is mostly led by PE staff rather than the pupils themselves thus leadership opportunities are few and far between.

**1(d)**

**Evaluate critically the impact of socio-cultural factors that have influenced the growth and development of association football from 1850 to today. [20]**

This question was generally well answered with many candidates showing good knowledge and understanding of the development of association football from the 1850s. Unfortunately many candidates dedicated a considerable amount of time writing about the development of the game before this time and gave long and detailed accounts of the development and characteristics of mob football. Candidates are reminded to read each question carefully and to make a short plan relating some ideas to the demands of the question set. Some candidates gave detailed knowledge of the growth of football in the 19th century but did not refer to features of the present-day game.

Centres are reminded that for this aspect of the specification to be a valid area of study candidates are required to relate historical developments to current or contemporary features of sport and physical education. Candidates that did not refer to contemporary features were unable to access the higher levels of marks. Candidates are reminded to answer all aspects of the question. The best candidates developed their points related to transport and its impact on fixtures and communication and how fewer working hours and the Saturday and Wednesday half days accommodated the growth of the game. Some candidates wrote excellent points about how the improvement of literacy impacted on the development of rules and the increase in teams associated with factories and churches. Candidates, when they did relate to today's features, did so with good explanations. For example, explaining how transport has been developed further to enable international competition and that minority groups and the women's game have also developed recently. Some good answers also recognised the importance of technology in the advancement of equipment and facilities.

**Comparative Studies**

**2(a)**

**In most countries, participation and performance in physical activity are affected by historical and geographical factors.**

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**Outline historical and geographical factors in the UK and in Australia that affect participation and performance in physical activity. [5]**

This topic was less popular as a choice of question than the Historical Studies topic. This question was generally answered well with the majority of candidates scoring at least three marks and many scoring the maximum of five marks, showing good coverage of this area by centres who prepared their candidates well. Most identified the size and topography of each country as factors that affect participation as well as historical aspects such as colonial influences in Australia and the impact of the public schools in the UK.

**2(b)**

**Compare strategies to promote mass participation in Australia with those in the UK. [5]**

The main requirement of candidates in this topic area and the focus of this topic is for candidates to be able to compare physical education and sport in the UK with Australia and the USA. Unfortunately it is still the case that many candidates are not making direct comparisons. Many merely list the features of the UK and then the features of another country (in this case Australia) rather than to make any comparison points. The better candidates actually did make attempts at some comparisons and scored well with comparisons such as that both countries have

government initiatives to promote mass participation for example in the UK the sport action zones and in Australia Active Australia.

**2(c)**

**Describe Physical Education in American high schools. Compare school Physical Education in the USA with that in the UK. [5]**

The descriptions of Physical Education in American high schools were generally quite good, although many candidates described sport rather than physical education. It is important that candidates are reminded to read the question carefully in this section to ascertain whether Physical Education or sport is being referred to and in some cases it might be both. Again the lack of comparisons led to low scoring by some candidates. This is a five mark question and yet many candidates gave little in response and many gained only two or three marks. The best scoring candidates did not just recognise that the National Curriculum is not part of USA Physical Education and that Physical Education in the USA has a lower status than that enjoyed in the UK, but also that there are many similarities for example decentralised administration or that both are inspected by other authorities.

**2(d)**

**Compare how schools and colleges in the USA help to prepare young people for participation in professional sport with those in the UK.**

**Evaluate the effectiveness of both systems.**

**[20]**

This 20 mark question was generally poorly answered although some candidates did make successful comparisons between the USA and the UK. Many reverted to rote-learned facts about the USA that at times had little to do with schools and colleges and more just about professional sport.

The better candidates planned their answer, writing a short plan – sometimes in the form of a table showing areas for comparison. These candidates either gave the evidence to support the success of the USA system in preparing young people for professional sport and then compared each point in a separate paragraph about the UK, or compared point by point which proved to be the more coherent of the two methods. For example in the USA there is a ‘pro-draft’ system when outstanding players in the USA colleges sign up to professional teams. This is different when compared to schools and colleges in the UK, where there is no such system although academies such as a football academy can be linked to local clubs, with the school or college educating young professionals as well as giving them opportunities to train. The better candidates also included elements of evaluating the effectiveness each system as required by the question, with the majority agreeing that the USA were more effective at preparing young people for professional sport. Some candidates misunderstood the requirements of the question and wrote little about the UK provision and therefore could not make effective comparisons, limiting the marks which they could achieve.

## Sports Psychology

### 3(a)

The 'need to achieve' is often viewed as necessary for good sports performance both for individuals and for members of a team.

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Using practical examples describe the features of a 'need to achieve' performer. **[4]**

The sports psychology option was one of the most popular on this paper. For this question the majority of candidates scored well as long as they used practical examples to support their evidence. A list of need to achieve characteristics was not enough to answer the question set. Some made some creative but largely incorrect assumptions about the characteristics of a need to achieve sports individual. For example, all need to achieve people are extroverts. Others were more selective about the evidence they gave with the best candidates answering with relevant practical sports examples and giving at least four separate points to be sure of the four marks available. Candidates are advised to look at the marks allocated in all but the part d) questions to assess how many separate points to make to be sure maximising their marks.

### 3(b)

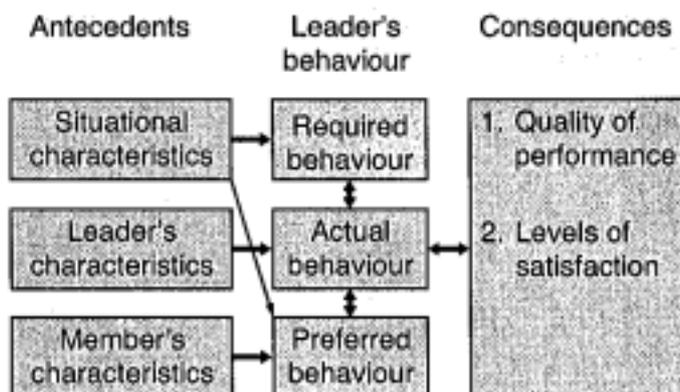
Explain the effects of having low self-efficacy on sustaining a balanced, healthy lifestyle. Describe **two** strategies to raise self-efficacy to enable a young person to adopt a balanced, active and healthy lifestyle. **[5]**

Many candidates did not relate their answers effectively to sustaining a balanced, healthy lifestyle. Answers from the better candidates mentioned learned helplessness as a concept and the feeling of failure being inevitable and therefore that they are less likely to take up exercise or to follow a balanced, healthy lifestyle. The better candidates also recognised that low confidence can drive people to leading a dysfunctional or unhealthy lifestyle such as drug taking or smoking.

Some candidates ignored the second part of the question. Candidates must read each question carefully to ensure that all parts of each question are answered. In this case the second part of the question asked for two strategies and examiners would therefore only mark the first two because examiners can then differentiate between those that have selected the most appropriate responses against those that are merely 'hedging their bets'. The better candidates identified strategies to raise self-efficacy such as using positive reinforcement and encouragement or educating by showing the negative consequences of an unhealthy lifestyle.

**3(c)**

Fig. 1 shows Chelladurai's multi-dimensional model of leadership.



Source: Page 312 Advanced PE and Sport 3rd Ed Nelson Thornes ISBN 0748775293  
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**Fig. 1**

Using the model in Fig. 1 explain how effective leadership can encourage participation. [6]

This model proved to be too difficult to explain by many candidates and this served to be an excellent discriminating question with those who had a broad overall knowledge of sports psychology scoring well and those that were merely guessing at what the model meant scoring very few if any marks. Weaker candidates relied on a general description of the model which did not answer the question set. Many used the same words/phrases from the model and showed little individual understanding of the relationships between the various aspects of this model.

The best candidates shone in this question and not only gave examples of what was meant by each element of the model to illustrate their answer, they also recognised that consequences of appropriate actual leader behaviour is more likely if the needs of the group and the situational demands are both met, with the most effective leaders being flexible in their approach and more likely to be effective if recognised as an effective role model. Candidates who had been prepared well by centres had obviously worked with this model before and had scenarios to offer to show effective leader behaviour. Centres should note that if models and concepts are listed in the specification, then at some point they are likely to be used in questions which ask the candidates to explain the model/concept and possibly to critically evaluate it. Centres are advised to use these models and concepts as stimulus material for teaching and homework assignments / assessments.

**3(d)**

Describe theories related to personality and how they affect sports performance. Evaluate critically personality profiling in sport. [20]

This was generally a well-answered question with many candidates showing an in-depth knowledge of personality theories. Nature and nurture theories were well represented and the better candidates developed each point about each theory, rather than merely listing them. Weaker candidates were very superficial in their responses and many gave little or no critical evaluation of personality profiling and therefore could not get into the top levels of the mark scheme. The better candidates recognised both the positive and negative aspects of personality profiling and sports performance with some excellent accounts of different sorts of profiling with research methodology problems as well as some general points about how profiling can help

coaches motivate their athletes and help them to prepare mentally for competition in a more effective way.

The strongest candidates gave lots of practical examples that were relevant and well explained. Weaker candidates gave few or no practical examples and drew from a narrow range of sources to describe theories related to personality. Some candidates confused social learning theory with the significance of others to reinforce behaviour and the interactionist approach which indicates that personality traits are triggered through certain environmental or situational cues. The best candidates showed good knowledge and understanding of sports psychology through their accurate use of technical vocabulary. Centres are urged to remind their candidates that credit is given for good use of technical vocabulary and this should be regularly reinforced in lesson resource materials.

## **Biomechanics**

### **4(a)**

**Sketch a free body diagram showing all the forces acting on the hockey ball as it is being flicked.**

**Using Newton's Laws of Motion, explain the effect of the resultant force acting on the hockey ball. [6]**

Relatively few candidates answered the Biomechanics question. In this question, most candidates could sketch accurately a free body diagram showing the weight acting downwards from the centre of mass and some also showing correctly the force acting from the back edge of the ball and that the air resistance acts in the opposite direction of the force indicated on their diagrams.

Many explained well the effect of the resultant force acting on the hockey ball, not only using Newton's Laws of Motion as instructed by the question but also giving the correct application when a hockey ball is flicked. Weaker candidates merely quoted the Laws and therefore were unable to score many marks because there was no effect on the hockey ball recognised.

### **4(b)**

**Describe the factors that affect the fluid friction acting against a swimmer during 100m backstroke. [5]**

This was answered very well in the main, with many candidates describing factors such as the body shape adopted by the swimmer, the reduced frontal cross sectional area and most got the point about the surface of the swimmer needing to be smoother by using appropriate swimwear and hats. The weaker candidates were only able to describe one or two factors. There are five marks available for this question and candidates should be reminded that in parts a, b and c generally separate points will attract separate marks, therefore enough different points need to be made to score well.

**4(c)**

Compare the shape of the flight path of a shot putt with that of a fast moving badminton shuttle. Explain the reasons for the differences in their respective flight paths. [4]

This was very well answered by most candidates. Most recognised the two different flight paths as being parabolic (shot) or non- parabolic (shuttle). The majority then went on to give reasons for these differences. Good use was made by many candidates of clear and simple diagrams. Weaker candidates drew unclear diagrams to support their answer that scored few or no marks.

**4(d)**

What is meant by the terms Angular Velocity, Moment of Inertia and Angular Momentum and sketch a graph showing their relationship when a gymnast performs a somersault from take off to landing.

Compare a gymnast's use of the analogue of Newton's First Law of Motion to control the performance of a somersault with that of a skier performing a turn during a slalom. [20]

The nature of this topic area lends itself to a part d question having a number of different elements. Centres are advised to emphasise to their candidates the need to identify all aspects of the part d question. If all parts of the question are answered then candidates have got a chance to get into the top level of the mark scheme. If part of the question is left out then candidates are not showing the required breadth and depth of knowledge of this topic area and therefore are unlikely to score high marks.

Not many candidates were able to accurately define angular velocity, moment of inertia or angular momentum. The better candidates were not only able to define these but also to accurately name their units of measurement. Many candidates sketched a clear and accurate graph showing their relationship, although some candidates confused their relationship and drew graphs incorrectly.

When comparing a gymnast's use of the Analogue of Newton's First Law of Motion in the control of a somersault with that of a skier performing a slalom turn, the better candidates identified both similarities and differences, either in the same paragraph comparing each point but more commonly through separate paragraphs. Many candidates gave generalised answers that did not relate to the different phases of each technique. The best candidates referred to the different technique phases, for example the start of the rotation for the gymnast and the start of the turn for the skier. These better candidates wrote in short sentences making clear points and used accurate technical vocabulary.

## **Exercise and Sport Physiology**

**5(a)**

Define the term  $VO_2$  max and identify three factors that affect a performer's  $VO_2$  max. [4]

Most candidates attempted this section and overall scored well on most of the questions set. In this part of the question, candidates were mostly unable to give an accurate definition of  $VO_2$  max. One or more of the key words (maximum, oxygen, utilised) and the time frame of one minute were left out or were confused, for example writing "air" instead of "oxygen". Candidates are reminded that definitions need to be accurate and they are also often required to give units of time of measurement.

Many candidates, however, were able to give the three factors required that affect a performer's VO<sub>2</sub> max. Most identified age, gender and activity levels, although many recognised other relevant factors. Candidates are reminded that when a number of responses needed are identified in the question then examiners will mark up to that number. In this case examiners would only mark the first three points made by the candidate because the question required three factors.

**5(b)**

**Interval training is a popular method of training. Describe an interval training session designed to improve maximal strength.**

**Explain the benefits that interval training has over other methods of training. [5]**

This was largely answered well by many candidates. Weight training was identified by most as the relevant method of interval training designed to improve maximal strength. Some candidates wrote generalised answers about a session by stating that there should be 'few reps' or 'not many sets'. These responses are not accurate enough to score marks. Those who gave repetitions as one to six or sets from three to five were awarded marks because it shows a good understanding of the training method.

Most recognised that the intensity should be high with a work-relief ratio of 1:3. The better candidates were then able to explain the benefits that interval training has over other methods for example that the onset of fatigue can be delayed and that there is variety in this method which prevents boredom and can be flexible enough to meet the needs of the performer. Some candidates gave little material to support their explanation or simply left or forgot to answer this last part of the question.

**5(c)**

**What is meant by the term obesity and to what extent does being obese impact on the health of an individual? [6]**

This question carries a weighting of six marks and therefore it is expected that candidates should give enough points that deserve these marks. Some candidates were too sketchy in their responses and only gave one or two points related to the impact of obesity. Many candidates, however, answered this question well and gave an accurate definition of obesity, often quoting the BMI measure of 30+. These candidates then went on to give four or more points showing how obesity can affect health. Most identified the negative effects on the heart and vascular system as well as creating joint problems. Some candidates also correctly identified the possible psychological problems associated with being obese for example having low self-esteem.

**5(d)**

Examine the information in Fig. 3 and explain the changes in the contribution of each of the energy systems for the three different athletic events.

Explain why the percentage contribution of each energy system would probably change for a recreational runner performing the same distances.

**(20 marks)**

As explained in the introduction of this report there was an unfortunate error in the examination paper showing incorrect values. The data table used in question 5d of the examination table showed an incorrect placement of two values. The value stated for the Alactic energy system in the 100 metres event should have been 56% and that given for the Lactic Acid energy system in the same event should have been 39%.

Examiners on the paper reported that there was no evidence which indicated that the error inhibited candidates, who used a combination of the data provided and their own knowledge of different sources and figures from this topic to answer the question effectively.

Some candidates recognised and stated in their responses that these figures were not as they expected and gained credit for this. Candidates were given credit both in instances where they referred to trends which they were familiar with for the 100m rather than those given in the table for that event, where the alactic energy system would usually be given as the predominant energy system, or where they used the data in the table for that event as it was shown.

Candidate responses focused on the broad trends in energy system contribution, recognising the distinction between anaerobic and aerobic systems, the contributions of the 3 systems within these categories and the relationship between duration and intensity of exercise and the energy systems employed.

As there is no definitive set of values for the contribution of energy systems to the performance of different events due to the range of possible variables which could effect the use of the different systems, candidates who questioned the data provided for the 100m were in fact beginning to access the points for the second part of the question, which addressed why the contributions might be different for a recreational runner. This question was one of the highest scoring questions on the paper, showing that centres had prepared candidates well for developing the knowledge and understanding associated with the energy continuum.

Weaker candidates were unable to apply their answer to the three distances given and many did not effectively complete the second part of the question to explain why the percentage contribution of each system would probably change for a recreational runner performing the same distances. The best candidates identified the contribution of the energy continuum and related this to the intensity and duration of exercise. The better candidates also gave detailed physiological reasons why the recreational runner might use different energy systems at different times because of lower fitness levels. For example that the recreational runner cannot work at the same intensity for as long and therefore has a lower alactacid/PC threshold. The better candidates used accurate technical vocabulary and presented their answer in an ordered and well planned development of relevant points. The weaker candidates showed un-planned and superficial responses with few references to exercise and sports physiology.

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