BTEC

L3 Lead Examiner Report 1906

June 2019

L3 Sport & Exercise Science
Unit 2:Functional Anatomy

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June 2019
Publications Code 31814H_1906_ER

Grade Boundaries

What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

Grade boundaries for this, and all other papers, are on the website via this link:

http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html

Unit 2: Functional Anatomy (31814H)

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	17	27	37	47

Introduction

This is the third series of external examinations with regards to the new specification. Centres and learners should be acknowledged for their preparation. Overall, most learners were prepared and knowledgeable on various content from the specification for this assessment

The paper was divided into 12 questions. The questions were designed to progress from the lowest number of marks gained to the highest marks, in order to develop learner confidence whilst progressing through the paper. Questions 1 – 9 allowed learners to address questions from 2 to 6 marks, whilst question 10 to 12 ranged from 8 to 14 marks; requiring an extended response from the learners. Each question was based on functional anatomy, allowing the learner to demonstrate knowledge and understanding of a range of specification content. Questions 1 to 10 generally addressed sections A to E of the specification; whilst questions 11 and 12 allowed the learner to demonstrate their knowledge and understanding of the interrelationships of the muscular and skeletal systems in movement analysis.

Questions 1 to 9 on the paper were assessed using a traditional points based approach, where a mark was given for each appropriate point (more information can be found below in the individual question section of the report).

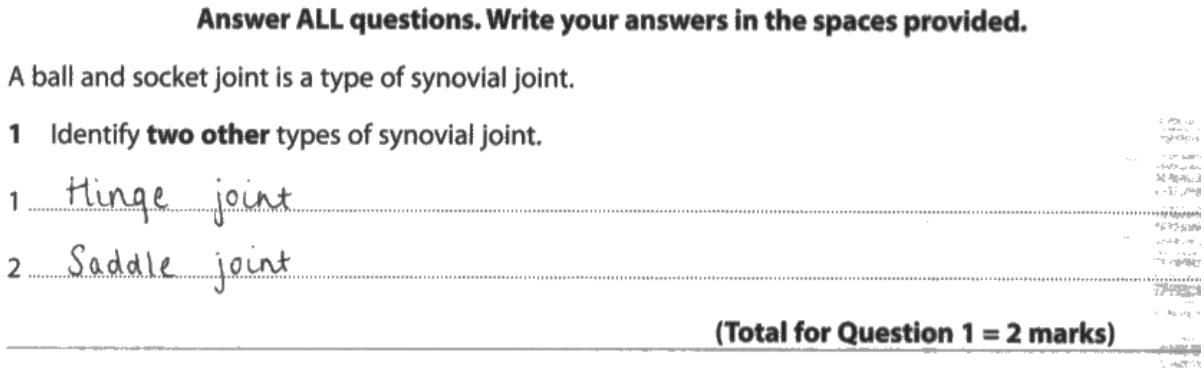
Questions 10 to 12 required an extended response, and these were marked using a 'levels based' approach to assessment where the overall quality of the response was considered rather than number of facts stated alone.

Individual Questions

The following section considers each question on the paper, providing examples of learner responses and a brief commentary of why the responses gained the marks they did. This section should be considered with the live external assessment and corresponding mark scheme.

Q1

This was an accessible question with the vast majority of learners achieving the full two marks for identifying two types of synovial joint in the human body.



Answer ALL questions. Write your answers in the spaces provided.

A ball and socket joint is a type of synovial joint.

1 Identify **two other** types of synovial joint.

1 Hinge joint

2 Saddle joint

(Total for Question 1 = 2 marks)

This response gained 2 marks

Two types of synovial joint were accurately stated.

An occasional error amongst learners was they would state 'ball and socket' which had already been given as an example in the question, or they would state two other types of joints such as fixed and cartilaginous rather than types of synovial joint.

Q2(a)

The responses for this question had a much more consistent approach than 2b. A high proportion of learners were able to state that the bicuspid valve prevents backflow of blood from the left ventricle to the left atrium.

This is shown in this response

2 State **one** function of the following anatomical structures found in the heart.

(a) Bicuspid valve → left

(1)

Prevent back flow of blood from ~~the~~ between left ~~the~~ ventricle and left atrium.

Q2(b)

This question had an array of responses. For a high proportion of learners there was confusion about the function of the coronary arteries and learners would answer providing a statement accurate of arteries such as 'they carry blood away from the heart'. In the heart anatomy these would be therefore correct for the pulmonary artery or the aorta.

(b) Coronary arteries

(1)

supplies oxygenated blood to the heart

(Total for Question 2 = 2 marks)

This response gained 1 mark

One mark gained for correctly stating the arteries are important for supplying oxygen to the heart (muscle).

(b) Coronary arteries

(1)

~~take oxygenated blood to the body~~ takes blood away from the heart

(Total for Question 2 = 2 marks)

This response gained 0 marks.

It is very typical of the confusion with 'arteries', as explained above.

Q3

This question was very accessible to learners. The vast majority achieved two marks for correctly identifying the function of synovial fluid; to lubricate a joint to prevent friction. Many would also qualify that, movement at the joint therefore becomes easier, smooth or free.

Synovial fluid is found in a synovial joint.

3 Describe **one** function of synovial fluid.

To lubricate the joint and reduce friction between the bones at a joint

(Total for Question 3 = 2 marks)

This response gained 2 marks

The learner has correctly described the fluid lubricates the joint in order to reduce friction.

Synovial fluid is found in a synovial joint.

3 Describe **one** function of synovial fluid.

Synovial fluid if found in joints to allow the joints to move easier. The fluid allows the joint to glide instedd of rub against other bones+ muscles

(Total for Question 3 = 2 marks)

This response also gained 2 marks

The learner has correctly described that movement is easier; movement is qualified. The response continues to say the bones would not 'rub against each other' which was creditworthy for 'reducing friction'.

Q4

This question was very accessible to learners and used a table format that had proved successful in the previous series. The vast majority of learners achieved two marks for correctly identifying two other muscle types. Learners were then able to gain a second mark for each muscle type by using the example provided in the question, to state an accurate characteristic.

Table 1 shows an example of a muscle type and one of its characteristics.

4 State **two other** muscle types **and** a characteristic of each, in **Table 1**.

Muscle type	Characteristic
Smooth	Involuntary
Skeletal	Voluntary
Cardiac	involuntary

Table 1

(Total for Question 4 = 4 marks)

This response gained 4 marks

The learner provides the two other muscle types. They use the example provided to accurately state whether that muscle type characteristic is either voluntary or involuntary. Some learners would also state fatiguing or non-fatiguing which was also creditworthy.

Table 1 shows an example of a muscle type and one of its characteristics.

(4) State **two other** muscle types **and** a characteristic of each, in **Table 1**.

Muscle type	Characteristic
Smooth	Involuntary
cardiac	Involuntary
hard	Voluntary

Table 1

(Total for Question 4 = 4 marks)

This response gained 2 marks

The learner states cardiac (1) and involuntary (1). In order to credited with the characteristic, the correct muscle type was required. It is clear in this response that skeletal is omitted therefore 'voluntary' was not be awarded

Q5

This question asked learners to explain the role of Acetylcholine during muscle contraction

This question was answered by a high number of learners by explaining that muscle contraction occurs due to an impulse being received from the nervous system. The connection with the nervous system had already been stated in the introduction to the question.

The response required by the learners was to explain the role of Acetylcholine with the impulse, in order for muscle contraction to be produced. As the command word was 'explain' the learners needed to provide linked explanative points.

A guide for a question is to consider what Acetylcholine is, where it is stored; both of which impact on its role, and finally the outcome it is trying to achieve in order to initiate muscle contraction.

The muscular system works with the nervous system to produce muscle contraction.

5 Explain the role of acetylcholine during muscle contraction.

A cetylcholine is released into the muscle fibres which gives them energy to contract and to contract a whole sarcomere. It also ~~release~~ stimulates the release of calcium ions into the muscle fibres.

(Total for Question 5 = 3 marks)

This response gained 1 mark

This learner was able to explain the outcome of Acetylcholine; stimulate the release of calcium ions.

The muscular system works with the nervous system to produce muscle contraction.

5 Explain the role of acetylcholine during muscle contraction.

When the nervous system sends an impulse to a motor neuron in a muscle to contract the impulse is first carried down a synapse. Acetaylcholine is the neurotransmitter that travels from the synaptic cleft over to the motor neuron creating action potential. It is here that in the presence of calcium, ions release to ~~allow~~ tropinin to allow myosin & actin to contract

(Total for Question 5 = 3 marks)

This response gained 3 marks

The learner shows knowledge that Acetylcholine is a neurotransmitter (what), which travels over the synaptic cleft (where) in order to cause calcium ions to be released (outcome).

The muscular system works with the nervous system to produce muscle contraction.

5 Explain the role of acetylcholine during muscle contraction.

Send nerve impulses from the ~~[illegible]~~ medulla oblongata to the brain, so contraction occurs.

(Total for Question 5 = 3 marks)

This response gained 0 marks

This was typical of the type of response seen frequently for this question when learners opted to state the connection between the nervous system and muscular system via nerve impulses.

Q6a

This question was a highly accessible question and assessed learners' knowledge and understanding of the respiratory system; lung volumes.

Figure 1 shows a spirometer trace.

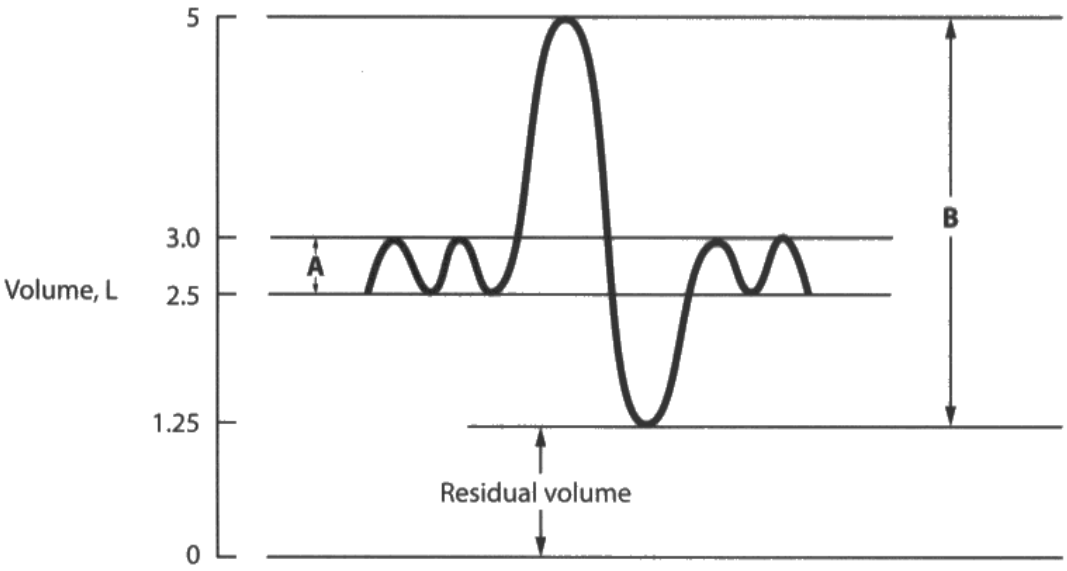


Figure 1

6 (a) Identify the lung volumes labelled **A** and **B**.

(2)

A tidal volume

B vital capacity

This response gained 2 marks

The volumes on the spirometer trace are correctly identified.

Figure 1 shows a spirometer trace.

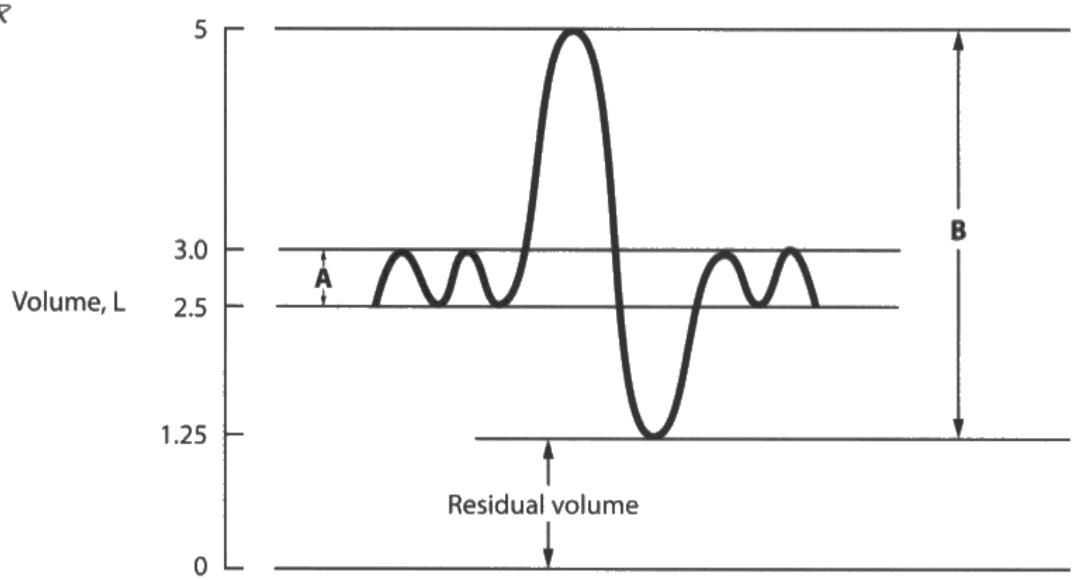


Figure 1

6 (a) Identify the lung volumes labelled **A** and **B**.

(2)

A Tidal Volume.

B Expiratory Reserve Volume

This response gained 1 mark

There were varied responses from learners in this question for lung volume B and knowledge on Vital Capacity varied, as shown in this response.

Q6b

This question was linked to the spirometer trace and assessed learners' knowledge and understanding of the function of the lung volume; residual volume.

The command verb is describe. Therefore, to achieve full marks, learners are required to identify the function and expand their answer with linked descriptive points. This question was answered well at all levels as most learners were able to describe the function of

preventing the lungs from collapsing, as it was a volume of air which remained in the lungs after maximum expiration.

(b) Describe the function of the residual volume.

(3)

Residual volume is the amount of air left in the lungs after a full expiration. This left over air within the lungs prevents the lungs from collapsing in on themselves

(Total for Question 6 = 5 marks)

This response gained 3 marks

This learner has accessed all 3 marking points; the amount of air left in the lungs (1) after full expiration (1) to prevent the lungs from collapsing (1).

Q7

This question used an image of an athlete serving the ball in a tennis match. The command verb is explain. Therefore, to achieve full marks learners are required to identify why two different muscle fibre types are recruited and then support their answer with an accurate application to tennis. This explanation point could have been either a characteristic of the chosen muscle fibre type which links it clearly to that fibre type or a clear explanation of how that fibre type is used in a tennis match.

A high proportion of learners gained either two marks for identifying two correct muscle fibres. They were able to identify Slow Twitch (Type 1) muscle fibres, Type 11x or Type IIa. Learners were more comfortable with applying Type I and Type IIx to tennis. Many would select Type IIa but would struggle to expand and show clear application to being used for repeated muscle contractions in a rally or sprint or working at a moderate intensity.

Some learners would simply state Fast Twitch/Type II muscle fibres which was too vague for credit.

7 Explain why **two** different muscle fibre types are recruited when playing tennis.

Type 2x would be used when swinging to hit the ball as it is a quick movements with a lot of power.

Type 1 would be used over the course of the match as the player would be working for an extended period of time.

(Total for Question 7 = 4 marks)

This response gained 4 marks

A mark has been gained for identifying Type 2x muscle fibre type, with a further mark linking them to swinging to hit a ball in a quick/powerful movement.

The learner then correctly identifies Type 1 and links the being able to work for an extended period of time in order to last the match.

Figure 2

7 Explain why **two** different muscle fibre types are recruited when playing tennis.

Type I muscle fibres would be recruited, as they work for long periods of time without tiring and getting fatigued which benefits a tennis player as a match could last a long time. Type IIa fibres would also be recruited as they work for a short amount of time and would be needed when generating power to return the ball or make a serve.

(Total for Question 7 = 4 marks)

This response gained 3 marks

This response shows one of the common errors when selecting Type IIa. The fibre type is correct but there no further credit available as the expansion would be an accurate expansion for Type IIx.

There are two marks awarded for the first part of the response; Type I (1) working for long periods of time (the tennis match) without tiring (1).

7 Explain why **two** different muscle fibre types are recruited when playing tennis.

Type Ia muscle fibre types are recruited. This, creates ~~allows~~ an power which allows the tennis player to serving ~~explosive~~ to with short explosive energy.

Type IIb muscle fibre type allows the tennis player to maintain energy throughout the event without feel fight.

This response gained 1 mark.

There were many learners that would use Type Ia. This was not credited, and it is an incorrect muscle fibre type. Without correct identification of a muscle fibre type the expansion point could not be credited.

The learner in this response has then correctly identifys Type IIb (1). The expansion however is inaccurate.

Q8a

This question was a highly accessible question and assessed learners' understanding of the minerals required in bone growth. The majority of learners answered with calcium, a small proportion opting for either vitamin D or phosphorus.

8 (a) Identify a mineral that is required for healthy bone growth.

(1)

Calcium

This response gained 1 mark.

Q8b

The command verb for this question is describe. Consequently, in order to gain full marks, learners should provide a logical description of how the osteoblasts support the process of bone growth.

This question was designed to be accessible but with sufficient scope to stretch and challenge learners to apply their knowledge and understanding of this part of the unit content. There were some excellent answers. The learner responses to this question were varied and showed a confident application of the processes involved in bone growth. Some learners would refer to bone health, i.e. stronger bones, offsetting brittle bones, preventing osteoporosis. These were not creditworthy as the question was asking for a descriptive process about the growth of bones, not health.

(b) Describe how **osteoblasts** support the process of bone growth.

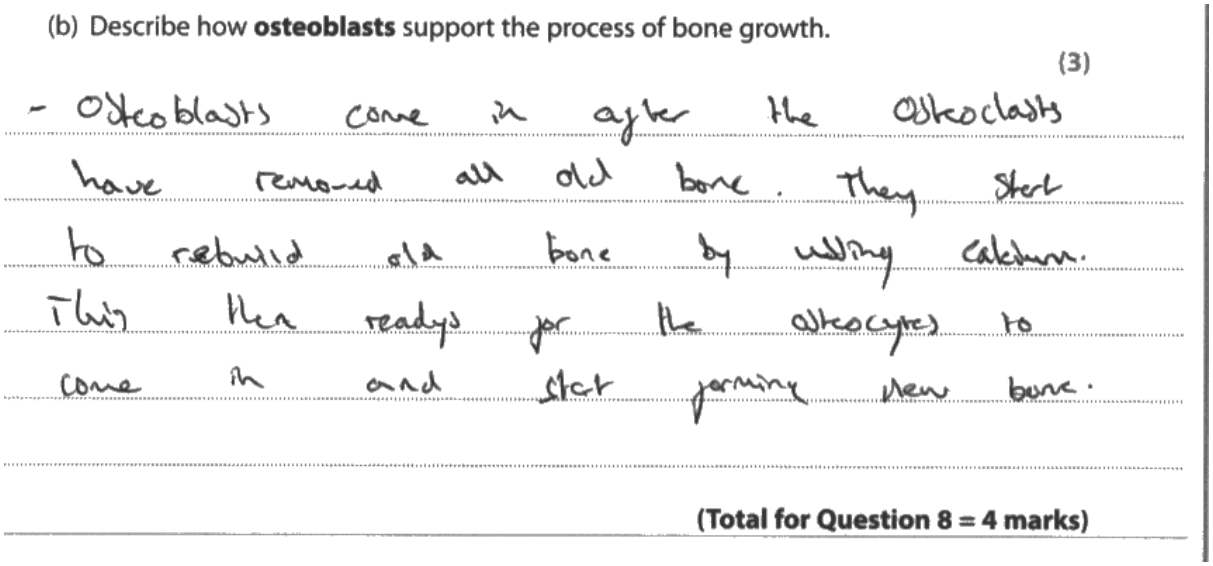
(3)

Osteoblasts repair and rebuild new bone they lay down the collagen and minerals needed for bone growth and then they turn into osteocytes which are the new bone cells.

(Total for Question 8 = 4 marks)

This response gained 3 marks

This learner shows a response that is typical of the excellent answers seen. The learner correctly describes that osteoblasts rebuild new bone (1) by laying down collagen (1) to turn into osteocytes. This also demonstrates the interchangeable nature of the responses within the mark scheme.



(b) Describe how **osteoblasts** support the process of bone growth.

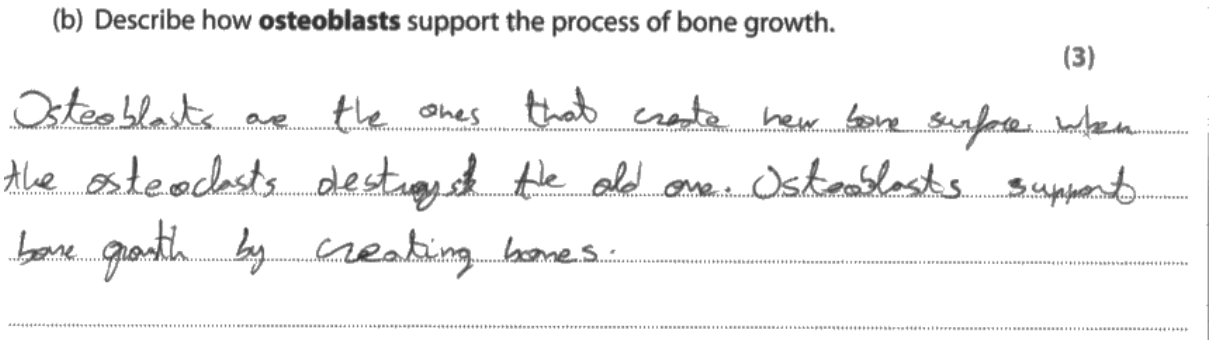
(3)

- Osteoblasts come in after the Osteoclasts have removed all old bone. They start to rebuild old bone by using calcium. This then readys for the osteocytes to come in and start forming new bone.

(Total for Question 8 = 4 marks)

This response gained 3 marks.

This response also demonstrates an accurate application. The learner shows understanding of osteoblasts following osteoclasts removing old bone (1) to rebuild old bone (1) by using calcium (1). This response also refers to osteocytes being used afterwards. This was also creditworthy.



(b) Describe how **osteoblasts** support the process of bone growth.

(3)

Osteoblasts are the ones that create new bone surface. When the osteoclasts destroyed the old one. Osteoblasts support bone growth by creating bones.

This response gained 2 marks.

This response is very typical of the two main marks learners accessed in this question; creating/forming/building/replacing/rebuilding new bone (1) after osteoclasts have destroyed/removed old bone (1).

Q9

This question was designed to be accessible but with sufficient scope to stretch and challenge learners around their knowledge of why vasodilation takes place in the working muscles. There were some excellent answers and overall the learner responses to this question were pleasing and reflected a sound understanding. At pass level, learners would explain vasodilation was required to increase blood flow. Those learners accessing a higher mark range explained the increased blood flow was as a result of an increased demand for oxygen, in which more oxygen was then delivered to meet this demand via blood redistribution. They would access the final marking point by linking this purpose of this to provide energy, or to prevent fatigue or to remove waste products such as carbon dioxide and lactic acid.

9 Describe why **vasodilation** takes place in working muscles during exercise.

During exercise more oxygenated blood is required by the working muscles, therefore the blood vessels vasodilate to allow an increase of blood to flow through them. This allows more supply to the muscles to help remove waste products and replace them with oxygen. By vasodilating the blood vessels become wider so there is more space for blood to pass through and it helps cool down the body.

(Total for Question 9 = 4 marks)

This response gained 4 marks

The response has started with inferring the working muscles demand more oxygen (1), therefore vasodilation allows for an increased blood flow (1), to remove waste products (1) and replace with oxygen (1) which infers more oxygen is being delivered to meet the demand.

It is worth noting that this response concludes about cooling the body down. A high proportion of learners opted to talk about vasodilation of blood vessels towards to skin for thermoregulation and to cool the body down. These responses were not creditworthy as the question was specifically asking about the working muscles.

.

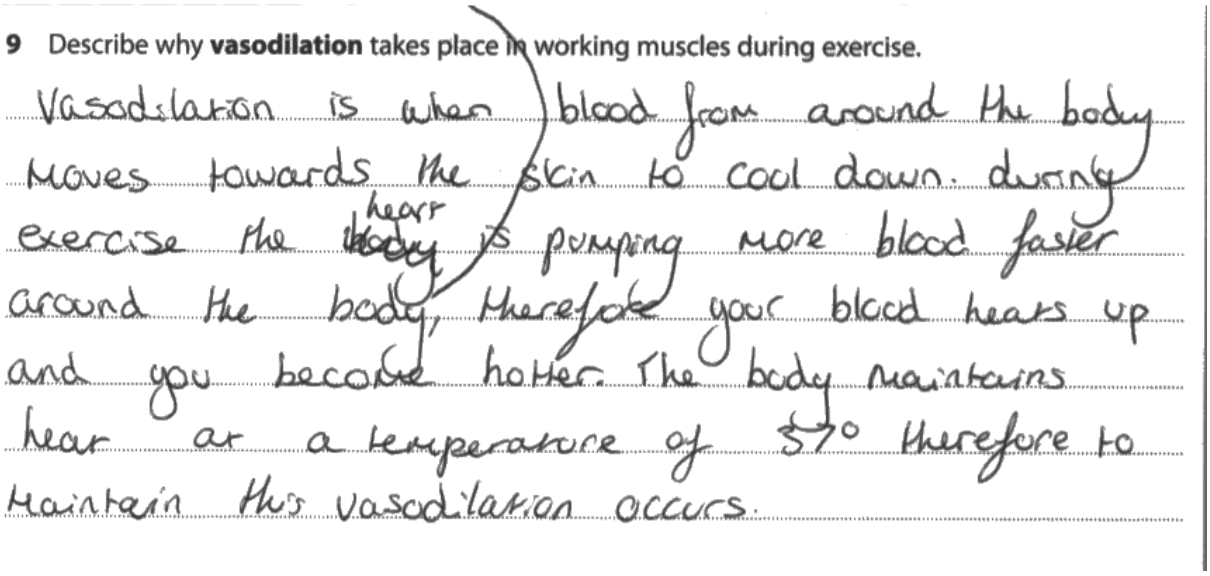
9 Describe why **vasodilation** takes place in working muscles during exercise.

Vasodialation is the ~~th~~ expansion of blood vessels to allow more blood through. This has the effect of increasing blood flow. Vasodialation takes place in the working muscles because these muscles require oxygen ~~xxx~~ in order for the ~~xx~~ to operate. In order for vasodilation to occur, the blood vessels to the unused areas must vasoconstrict. This increases the blood supply to the working muscles.

(Total for Question 9 = 4 marks)

This response gained 2 marks

This response is very typical of responses achieving just 2 marks. Learners would show an understanding of why vasodilation takes place in order to allow for more blood (1) because the working muscles required (demanded) oxygen (1).


9 Describe why **vasodilation** takes place in working muscles during exercise.

Vasodilation is when blood from around the body moves towards the skin to cool down. during exercise the heart body is pumping more blood faster around the body, therefore your blood heats up and you become hotter. The body maintains heat at a temperature of 37° therefore to maintain this vasodilation occurs.

This response gained 0 marks

This response is evidence of the responses whereby learners would show understanding of thermoregulation which did not answer the question, as explained above.

Q10

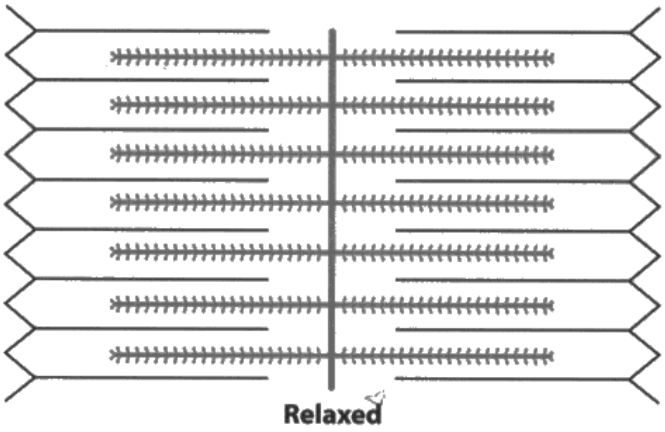
Responses to extended answer questions are marked using levels-based mark schemes, with the quality of the response determining the level. There are four levels; level 0 where there is no rewardable material presented and then levels 1, 2 and 3; the higher the level the better the quality of response.

This question uses the command verb analyse. This requires learners to examine a topic in detail, breaking it down into its component parts and explaining how each part contributes to the other.

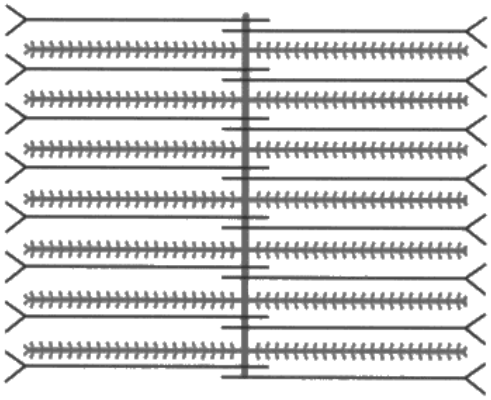
The question asks learners to analyse how the sliding filament theory accounts for muscle contraction having shown an image of a both a relaxed and contracted sarcomere. These diagrams are typical of the illustration's learners will see when learning this theory.

The sliding filament theory accounts for the process of muscle contraction.

Figure 3 shows a relaxed sarcomere and a contracted sarcomere within a muscle fibre.



Relaxed



Contracted

There were many learners who chose to not attempt this question. The blank responses are evident of the challenge within this topic area. However, in contrast there were some excellent answers, breaking down in accurate detail the process of the sliding filament theory to achieve a contraction within a sarcomere.

For those learners attempting the question they were confident with the basic principles of the sliding filament theory; release of calcium ions which activate actin and myosin to connect.

It was then pleasing to read responses where they were able to give additional detail from the indicative content, primarily the role of troponin, the changing shape of tropomyosin to expose binding sites and in doing so, the sarcomere shortening and the Z lines moving inwards.

This was typical of a level 1 response.

10 Analyse how the sliding filament theory accounts for muscle contraction in a sarcomere.

(8)

The actin pulls on the myosin causes then the sarcomere is relaxed which causes the muscle to contraction.

This response gained 2 marks

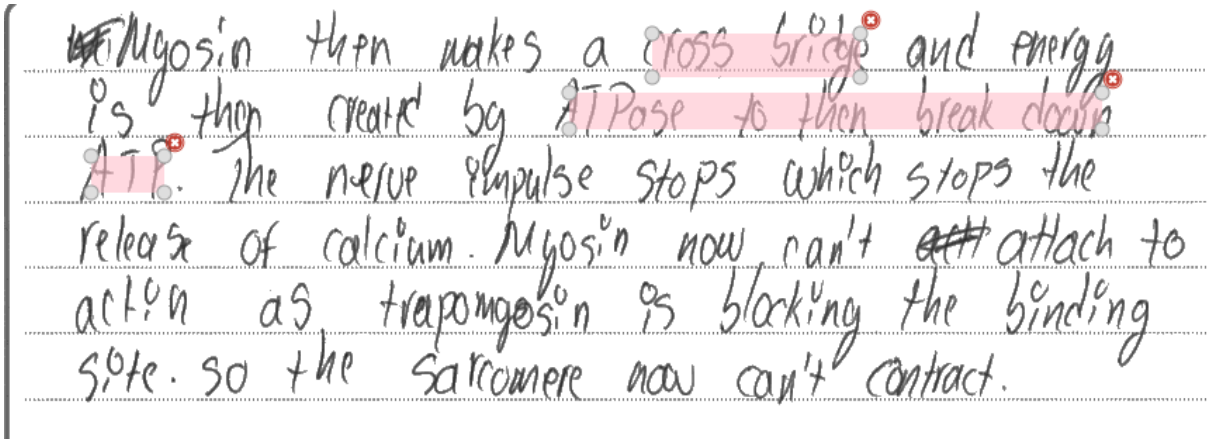
This response is typical of a basic level 1 response. It was response seen regularly amongst pass learners within the series and it was clear learners were able to show isolated knowledge of actin and myosin existing with a myofibril.

Figure 3

10 Analyse how the sliding filament theory accounts for muscle contraction in a sarcomere.

(8)

In the sliding filament calcium sticks to troponin and the myosin binding site is exposed. Then Sarcomere the contract and the length of the myofibrils are reduced, myosin the attachs to the myofibrils and then if calcium is present myosin then ~~act~~ attaches to the ~~action~~ actin protein


Myosin then makes a cross bridge and energy is then created by ATPase to then break down ATP. The nerve impulse stops which stops the release of calcium. Myosin now can't attach to action as tropomyosin is blocking the binding site. so the sarcomere now can't contract.

This response gained 8 marks

This is an example of a fairly typical level 3 response seen in this series. The learner has referenced accurate material from the indicative content as shown by the colour highlighting. Correct technical language is used throughout and the learner demonstrates clear understanding of how the highlighted factors all relate to achieve muscle contraction.

Q11

This is another extended answer question using a levels-based mark scheme. Learners achieved a good spread of marks for this question. The most accessible marks here were for knowledge of the types of joint involved and the articulating bones at these joints.

A number of learners found the ankle more challenging to analyse and had difficulty with all aspects of this joint during a star jump movement. Planes of movement for all three joints presented the challenge in this question. Accurate analysis of the correct plane differentiated between learners and was credited accordingly.

Almost all learners achieved at least marks in the Level 1 grade descriptor for this question. A good proportion of learners demonstrated a sufficient breadth and depth of accurate knowledge and understanding to achieve marks from the Level 2 grade descriptor. It was promising to see a high proportion of learners providing a full analysis that demonstrated sustained knowledge of interrelationships and linked these to the context of the question in order to get into the Level 3 grade descriptor.

A very small number of learners still made reference to the muscular system detailing antagonistic muscle pairs and the types of contraction taking place in each. It was positive to

see that centres and learners are however not doing this and responding to lead examiner report. The question only asks about the axial and appendicular skeletal system so no credit could be awarded for parts of the learner responses related to the muscular system. The space provided to answer this question should be a guide of the amount of detail the learners are expected to include.

11 Analyse how the axial and appendicular **skeletons** allow the movement necessary at the:

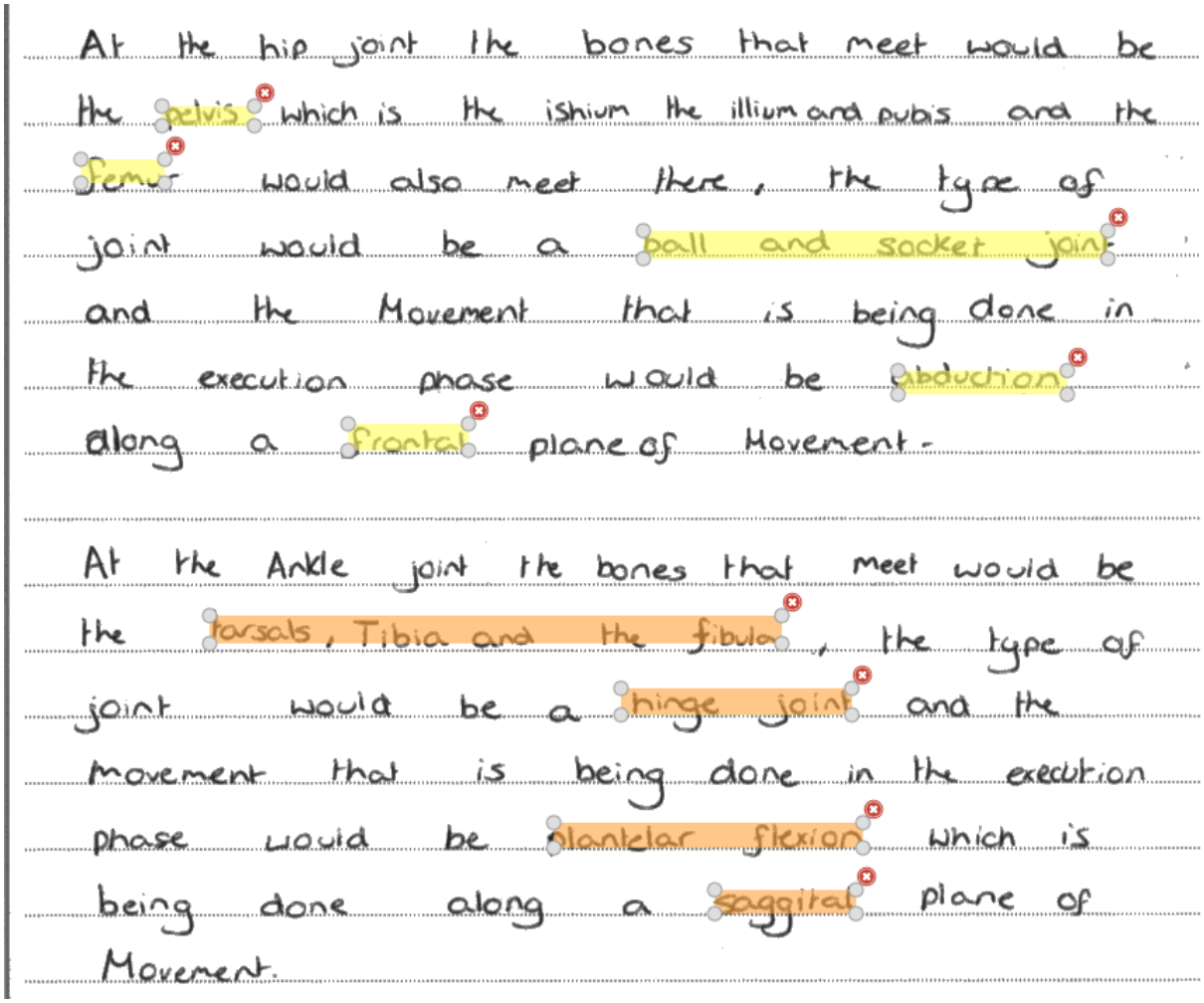
- shoulder
- hip
- ankle

S	H	A
- Scapula, Humerous	- Pelvis, Femur	- Tarsals, Tibia, Fibula
- B&S Socket	- B&Socket	- Hinge
- Abduction	- abduction	- plantar flexion
- Frontal	- Frontal	- Saggital

(8)

to **move from** preparation to execution.

At the shoulder joint the bones that meet would be the Scapula, Humerous and the Clavicle, the type of joint would be a ball and socket joint and in the execution phase the movement that is being done is abduction which is being done along the frontal Plane of Movement.

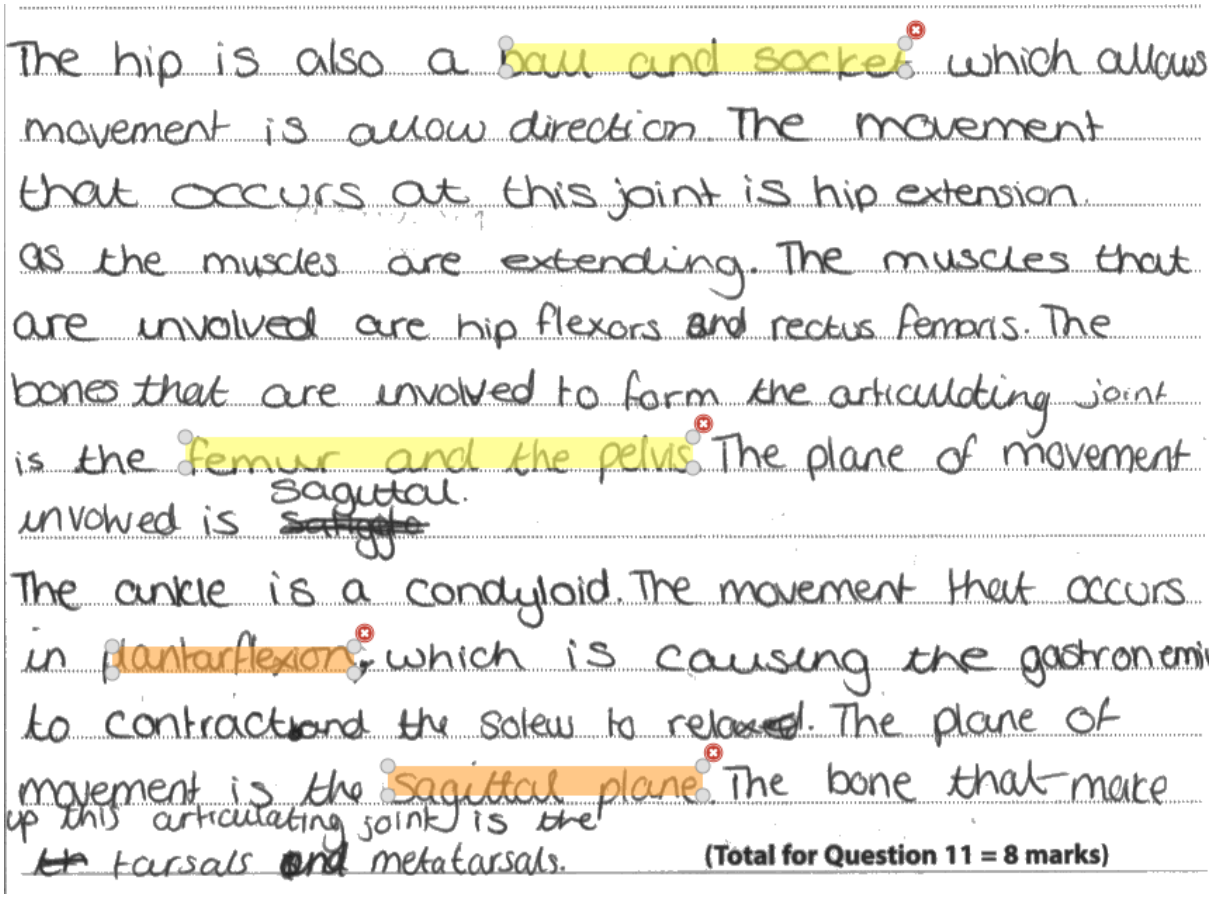


This response gained 8 marks

Learner has provided a full analysis for all 3 joints. The type of joint, articulating bones, joint and plane of movement are all evident and contextualised for the star jump. The learner has shown good linkage and integrated the correct plane for all three joints.

During the movement from preparation to execution, ~~the~~ ~~from~~ for the movement to occur they need the help of the shoulder, hip & Ankle joint.

The shoulder joint is a ball and socket which allows movement in all direction. The articulation of ~~these~~ this movement is adduction which is adding movement to the midline. The shoulder ~~is~~ joint is formed by articulating bones humerus ~~and~~ Clavicle and scapula. The plane of ~~muscle~~ movement. is a Frontal. The muscles involved are Anterior Deltoids.


The hip is also a ball and socket which allows movement is allow direction. The movement that occurs at this joint is hip extension. as the muscles are extending. The muscles that are unvolved are hip flexors and rectus femoris. The bones that are unvolved to form the articulating joint is the femur and the pelvis. The plane of movement unvolved is ~~saffigle~~ sagittal.

The ankle is a condyloid. The movement that occurs in plantarflexion, which is causeing the gastronemi to contract and the solew to relaxed. The plane of movement is the sagittal plane. The bone that make up this articulating joint is the ~~th~~ tarsals and metatarsals. (Total for Question 11 = 8 marks)

This response gained 5 marks

The shoulder joint is analysed accurately with the type of joint, articulating bones and plane of movement. Identifying the 'frontal' plane demonstrates relevance to the star jump and credited accordingly. The type of movement is incorrectly analysed. The hip joint analysis includes the type of joint and articulating bones only and the ankle has also only been partially analysed to include the joint movement and plane of movement. It is mostly accurate knowledge and the contextualisation varies, therefore demonstrating a level 2 response.

Q12

This question is intended to be one of the most demanding on the paper. The question requires learners to analyse the movement of the elbow, trunk and knee to achieve the position shown from preparation phase to execution phase when defending a shot in netball.

Again, learners seem to have been prepared to answer movement analysis questions and have plans and systems in place to help them do so.

A high proportion of learners have delivered a structured response based on a pre-planned strategy, often shown by tables that were drawn at the start of the learners' response or the diagram being annotated.

A number of factors make this question accessible with suitable stretch and challenge to learners. All joints have been assessed before and generally learners accurately analysed the two types of joints involved at the elbow and the knee, the articulating bones and the joint movements. A number also included the correct antagonistic muscle pairs, types of contraction or planes of movement and this was written in a succinct analysis with only focus on the execution phases as requested by the question.

The antagonistic muscle pairs at the elbow and knee were stated, although occasionally the agonistic pairing was analysed the wrong way around with eccentric muscle contraction provided. The muscles involved at the trunk seemed to prove slightly more challenge to learners. Similar to Q12, where these were identified they were credited accordingly.

Some learners still delivered a response that tackled an analysis of the position at preparation followed by another full analysis of the position at execution, rather than addressing the movement between the two phases.

A pleasing number of learners were able to accurately analyse with the sufficient detail as per the mark scheme most of the component parts that are working together to create the defensive position from preparation to execution and achieved marks in the level 3 grade descriptor.

- joint///
- bones///
- movement///
- contraction///
- Against///
- Antagonist///
- plane///

Figure 5

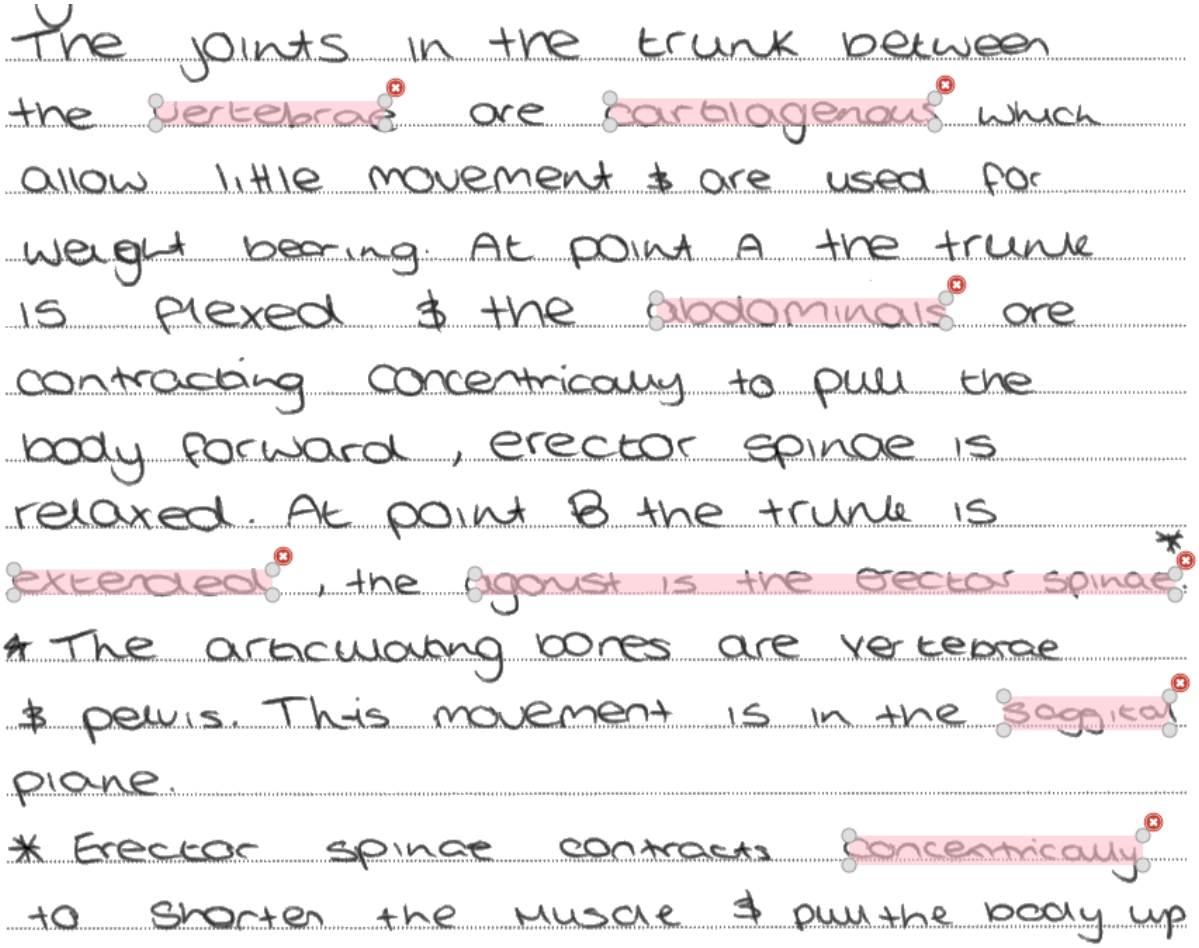
12 Analyse the required movement at the (14)

- elbow
- trunk
- knee

for the netballer to **move from** preparation to execution.

Elbow joint is a hinge which allows flexion & extension. Articulating bones are the humerus, radius & ulna. The movement is extension created by the tricep as the Agonist, it contracts concentrically to shorten

The knee is a hinge joint, the articulating bones are the femur, patella, tibia & fibula. The movement created is extension which is the created by the quadraceps as the prime mover with a concentric contraction & the antagonist relaxing which is the hamstring. The synergist is the gastrocnemius & the fixator is the gluteals to support the movement.



This response gained 13 marks

This is an example of a learner who has opted to analyse just the execution phase. The learner demonstrates almost full analysis of each joint breaking down each component into equal parts and linking to the context of the movement. The purple highlighting demonstrates full analysis for the elbow. The agonist and antagonist are clearly identified and matched up with the correct type of muscle contraction. The green highlighting shows the almost full analysis for the knee and pink highlighting for the trunk. Therefore, it receives a mark which represents a level 3 grade descriptor.

Figure 5

12 Analyse the required movement at the

(14)

- elbow
- trunk
- knee

for the netballer to **move from** preparation to execution.

From preperation to execution the netballers elbow goes from flexion to vertical extension the agonist in this movement is the tricep and the antagonist is the bicep. It is a sagital plane of movement using a hinge joint.

The knee goes through a from flexion to extension, the agonist is the quadricep and the antagonist is the hamstring the movement happens on a frontal plane and the joint is a hinge.

This response gained 7 marks

This learner does not seem to have planned or executed a particular strategy to answer this question however has focussed on the execution stage only.

This response demonstrates some accurate knowledge as per the level 2 descriptor.

Elbow; the learner has completed an almost full analysis, but the type of joint and articulating bones are omitted.

At the knee; the learner has identified the correct movement, antagonistic pair and type of joint.

There is no analysis of the trunk.

The response only breaks down two out of the three joints and correlates with a level 2 descriptor.

Summary

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

- Recognise that this paper is assessing knowledge of anatomy. Whilst an understanding of general principles and functions of the body is required, the majority of the marks on this exam are awarded for detailed anatomical knowledge. This will usually include the location, and structure of the component parts of the systems included in the specification, and their specific role in the functions of those systems.
- Read all questions carefully to ensure full understanding of what is being asked.
- Identify keywords in a question - possibly underline or highlight these to draw attention to them.
- Understand the different command verbs (e.g. describe, explain, analyse) in order to establish the requirements of each question.
- Understand terminology used in the specification as these words will be repeated in the exam paper.
- Use appropriate technical language throughout responses as this will support the demonstration of accurate anatomical knowledge.
- Use the number of marks as a guide to the depth of response required.
- Refer to the previous exam papers in order to become familiar with the structure of the exam and expected responses, particularly for question 11 and question 12.
- In question 11 and 12 focus on the movement from the preparatory phase to execution phase of the movement for analysis and use this report to appreciate what is required for full analysis for each joint asked in the question.

- In question 12 ensure analysis includes the correct agonist and antagonist muscle, in the correct order to create the movement required at the joint.