



Mark Scheme

AQA A-Level PE – Exercise Physiology

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in preparation for and during the live revision shows provided by James Simms in May 2022.

All questions/mark schemes are taken from ExamSimulator. Please note, there are hundreds of additional questions on ExamSimulator covering the AEI topics. Within the platform, the teacher is assisted with the marking and full diagnostic feedback is also provided. ExamSimulator is a premium resource available via TheEverLearner.com.

I hope this helps both students and teachers in their exam preparations.

James Simms

1. Compare the effectiveness of objective **and** subjective data.

Marking guidance

In order to be awarded both marks, both types of data need to be included in the answer. For example, do **not** award both marks for a response which talks about objective data only.

Marking points

(1) [AO 3] Objective data is highly suitable as it is based on facts/Fact based data is measurable/Data can be measured and therefore revisited to monitor progress

(2) [AO 3] Data is meaningful when feeding back to performers/Data can be trusted when making decisions about performance/Data provides an base for analytical conversations

(3) [AO 3] Subjective data is less suitable as it is based on personal opinions/Opinions lead to assumptions/Data can not be measured and therefore progress is difficult to monitor

(4) [AO 3] Data is less meaningful when feeding back to performers/Data can be misleading for the decision making process/Data leads to emotive conversations

2.

The Cooper run test is scored by a distance achieved in 12 minutes of running.
Describe this data.

Marking guidance

Not provided

Marking points

(1) [AO 1] The data is quantitative/Quantitative/Quantity

(2) [AO 1] Data is objective/Objective/Not subjective

(3) [AO 1] Factual information/Numerical data/Numbers

(4) [AO 1] Can be written down/Data can be recorded and compared to standardised data/Written down

3. Identify **three** methods of injury prevention that athletes use.

Marking guidance

Mark the first three answers only.

Marking points

(1) [AO 1] Screening

(2) [AO 1] Protective equipment/Protective clothing

(3) [AO 1] Warm up

(4) [AO 1] Flexibility training/Active stretching/Passive stretching

(5) [AO 1] Taping

(6) [AO 1] Bracing

4.

Explain how protective equipment and clothing can **minimise** the risk of injury. Use sporting examples to support your answer.

Marking guidance

In order to access marks, students **must** give suitable examples for all points. The list of examples given is **not** exhaustive and is merely there for reference.

Marking points

- (1) [AO 2] Mini tennis racquets reduce acute and chronic injuries on a growing skeleton/Kwik cricket sets reduce acute and chronic injuries for youths/Smaller football pitches put less strain on younger athletes
- (2) [AO 2] Tackle bags in rugby reduce impact injuries in training/Shoulder pads in American football reduce impact injuries/Head guards in boxing sparring reduce impact injuries
- (3) [AO 2] Basketball player wearing shooting sleeves to remove strain on the elbow joint/Tennis players wearing wrist straps to minimise strain on the wrist joint/Netballers wearing ankle braces to support sudden changes of directions
- (4) [AO 2] Cricketers wear pads to protect their legs/Footballers wear shinpads to protect their legs/Slalom skiers wear shin guards to protect their legs
- (5) [AO 2] Amateur boxers wear headguards to protect from concussion/Batsmen wears helmet to protect them from concussion/American footballers wear helmets to protect them from concussion
- (6) [AO 2] Cyclist wear wick base layers to remove sweat/Long-distance runners wear base layers to prevent overheating/Triathletes wear base layers to maintain thermoregulation
- (7) [AO 2] Badminton players wear badminton shoes to absorb impact and support change of direction/Footballers wear studs to help grip into the surface/Cricketers wear spikes to provide friction and avoid injury

5.

Rugby players use cryotherapy to support their post match recovery and rehabilitation. Evaluate the use of **cryotherapy** when rehabilitating from an injury.

Marking guidance

Not provided

Marking points

(1) [AO 3] Benefit is vasoconstriction of blood vessels decreasing blood flow/Vasoconstriction decreasing blood flow/Reduces blood flow to the site of an injury

(2) [AO 3] Reduction in the amount of swelling/Prevents too much swelling at the injured site/Restricts the amount of swelling possible

(3) [AO 3] Decreases pain from the injury/Reduces nervous activity lowering pain/Inhibits pain receptors

(4) [AO 3] Risk of cryotherapy is tissue or nerve damage/Can cause damage to nerves if in contact for too long/Can lead to tissue damage if applied for too long

(5) [AO 3] Skin abrasions can occur if protective clothing not worn/Damage to the skin without covering the joints/Could cause issues with the skin

(6) [AO 3] An uncomfortable process/The freezing temperatures can cause fear/Discomfort when inside the chamber

(7) [AO 3] Cryotherapy is very expensive and may not be available to all athletes/Expensive/Not accessible

6.

In a race to be fit for the 2017 Wimbledon Championships, Andy Murray had two ice baths a day.

Evaluate the use of **ice baths** to speed up recovery.

Marking guidance

Not provided

Marking points

(1) [AO 3] Benefit of an ice bath is vasoconstriction of blood vessels decreasing blood flow/Vasoconstriction decreasing blood flow/Reduces blood flow to the site of an injury

(2) [AO 3] Reduction in the amount of swelling/Prevents too much swelling at the injured site/Restricts the amount of swelling possible

(3) [AO 3] Decreases pain from the injury/Reduces nervous activity lowering pain/Inhibits pain receptors

(4) [AO 3] A risk of an ice bath is tissue or nerve damage/Can cause damage to nerves if in contact for too long/Can lead to tissue damage if applied for too long

(5) [AO 3] Skin abrasions can occur/Damage to the skin/Could cause issues with the skin

7. Evaluate the use of compression garments for long distance runners.

Marking guidance

Sub max of 2 marks for positives associated with the use of compression garments and sub max of 2 marks for negatives associated with the use of compression garments

Marking points

- (1) [AO 3] Advantage is it assists in blood lactate removal/Help to remove blood lactate when exercising/Reduce the amount of blood lactate when exercising
- (2) [AO 3] Reduces inflammation when exercising/Prevents as much inflammation when exercising/Lowers the amount of inflammation experienced when exercising
- (3) [AO 3] Disadvantage is there is mixed research on their effectiveness/Not a lot of scientific evidence on them/Mixed opinions on whether they work
- (4) [AO 3] Medical grade compression garments are very expensive/Proper compression garments are very expensive/Medical grade garments are not cheap

8.

Since Christian Eriksen collapsed from a heart attack at Euro 2021, the number of young sports performers being screened has increased.
Evaluate the use of screening for young athletes.

Marking guidance

Sub max of 2 marks for positives associated with the use of screening and a sub max of 2 marks for negatives associated with the use of screening.
Accept any other appropriate evaluative points regarding screening.

Marking points

- (1) [AO 3] Advantage of screening is that a ECG can be used to assess a person's heart/Heart screening can identify if any heart defects are present/ECG conducted can highlight any cardiac issues
- (2) [AO 3] Identify any musculoskeletal issues/Highlight any muscle injuries/Flag any skeletal defects
- (3) [AO 3] Assess a joint's range of movement/Look at a performer's flexibility/Mobility of the performer
- (4) [AO 3] Help prepare a conditioning programme/Develop a rehab programme with the results/Structures a programme to address issues
- (5) [AO 3] Disadvantage of screening is that results can be misleading/Tests can give false-positives/Tests could show issues that don't exist
- (6) [AO 3] May cause anxiety in the athlete/Make the athlete overly worried about the results/Athlete can stop performing due to worry if anything is wrong