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pe review

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Answers

Exam-style questions

Adam Morton, Anna Snook and Keri Moorhouse

Answers to this issue's practice exam questions.

Sport and society (p. 6)

1 The development of sport on an international level.

Games, e.g. rugby, spread from public schools/universities in Britain.

Spread via church, military, colonialisation/empire.

Games played/taught to local people, e.g. in schools.

2 Growing public interest and spectatorship.

Therefore more media interest.

Professionalisation improved standards — better to watch.

More commercial opportunities and therefore more commercial interest.

Lead to greater advertising, merchandising, sponsorship.

3

Performers

Greater funding/support for elite athletes (opportunity to be professional/train full time).

Extra money reaches grassroots.

Commercial commitments may impact training or recovery time.

Media intrusion and greater pressure may increase risk of deviance.

More marketable athletes receive more money.

Pressure to perform increases risk of injury and deviance.

Audiences

Increased opportunities to view sport.

May increase participation.

May increase spectating but decrease participation.

Influence of media advert breaks and match times to suit TV.

Ethical concerns, e.g. gambling companies sponsoring football.

Cost of tickets or subscription TV.

Sport

Greater funding, profile, facilities and investment.

Professionalisation may increase standards of performance.

Media have greater influence (e.g. over kickoff times).

Less popular, less marketable sports are marginalised (e.g. women's and disability sports).

Exam focus: Muscle fibres (p. 15)

1 Slow-twitch oxidative fibres (type 1): high number of/larger mitochondria, high myoglobin content, high capillary density, high triglyceride content, high number of oxidative enzymes.

2 Fast motor neuron conduction, large motor neuron size, large motor units, large muscle fibre diameter, high phosphocreatine stores, high glycogen stores, high glycolytic enzyme activity.

3 Fast-twitch fibres/type 2/type 2a/fast oxidative glycolytic (FOG): moderate anaerobic capacity, high speed of contraction, high force of contraction/powerful contraction, moderate capacity to resist fatigue, capable of speed endurance.

4 Large motor unit size = increased diameter of fibres. Many fibres and large motor neuron leads to greater contractile ability and force-generation capacity.

High phosphocreatine stores = increased energy source for ATP production via the ATP-PC system.

High glycogen stores = increased energy source for ATP production via the anaerobic glycolytic system (AQA) / glycolytic system (Edexcel/OCR).

High myosin ATPase activity = increased enzyme activity for ATP production within the ATP-PC system.

High glycolytic enzyme activity = increased enzyme activity or ATP production within the lactate anaerobic system.

(Tip: note how this question is asking **how** the characteristics work — that's functional characteristics with an 'explain' command word — so two-part sentences for your point followed by explanation.)

5 Size of motor units recruited: need larger motor units for greater contraction, smaller motor units for less powerful contractions (give an example from your sport for a further mark).

Multiple unit summation: number of units recruited — more or less as required by the nature of the activity (give an example from your sport for a further mark).

Type of muscle fibre size determines force of muscle contraction: fast twitch fibres are recruited for more powerful contractions.

Wave summation: frequency of impulse/innervations increases.

Motor unit unable to relax/increase the force.

Tetanus/tetanic for powerful contraction.

Muscle spindles detect changes in muscle length/speed of contraction, sending information to brain/central nervous system.

Compares information to long-term memory to ensure correct force applied/past experiences.

Spatial summation: rotating the frequency of the impulse to motor units to delay fatigue/some work while other motor units rest.

Exam focus: Biomechanics and trampolining (p. 33)

Downward velocity: consider the athlete accelerates downwards due to gravity; 9.81 m/s/s

The athlete travels downwards 3 metres at a velocity of 9.81 m/s, therefore it takes 0.31 seconds to return to the trampoline.

The athlete is travelling for 0.31 seconds at a velocity of 9.81 m/s. So the average downward velocity of the trampolinist over the 3 m is 3.041 m/s.

Downward momentum on contact with the trampoline (0.31 secs of downward movement) = $50 \times 3.041 = 152.05$ kgm/s

Downward acceleration = acceleration due to gravity: 9.81 m/s/s

Force on contact with trampoline = $50 \times 9.81 = 490.5$ N