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Answers

Exam-style questions

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Check your answers to the questions in this issue.

Acute effects of altitude (pp. 2–5)

1 Altitude is the height or elevation of an area above sea level.

2 As altitude increases, the diffusion gradient decreases.

3 Why a triathlete may choose to spend time training at altitude (1 mark for each and maximum 3 marks):

- Increase in the number of red blood cells.
- Increased concentration of haemoglobin.
- Increased blood viscosity.
- Increased capillarisation.
- Enhanced oxygen transport.
- Increased lactate tolerance.

Could cheats prosper? (pp. 6–8)

Discussion of the view that performance enhancing drugs (PEDs) should be allowed in elite sport (1 mark for each of the below points. Maximum of 5 marks overall, with a maximum of 3 marks per sub-section):

Agree (yes, they should be allowed):

- The development of new PEDs is a scientific development just like any other legal training aid/supplement, so should also be allowed.
- It would ensure the use of PEDs is safer and under the control of medics.
- Levels the playing field; makes it a fairer competition if everyone is allowed to take PEDs.
- It would raise standards of performance; increased entertainment; athletes can reach their 'full potential'.
- Possibility of increased financial rewards (linked to improved standards).
- Save money/resources, which could be better invested elsewhere.
- Removal of testing regime would stop any 'false tests'/'false accusations'.

Disagree (no, they shouldn't be allowed):

- Increased health risks; increased side effects (e.g. addiction).
- Loss of 'true sports traditions'; loss of morality.
- Sets a poor example to non-elite/young people (i.e. negative role models).
- Less income/revenue (e.g. due to sponsors being unwilling to associate themselves with drugs).
- Unfairness/inequality in terms of access to PEDs – not all elite performers have the same access to PEDs.
- Elite athletes may feel forced to take PEDs even when they don't want to.
- Decline in the number of 'clean' athletes as athletes would be unlikely to succeed without taking drugs.
- Fans/spectators may be less interested in elite sport if it becomes associated with drug taking.

Warming up (pp. 20–23)

1 For example, swimming:

- Progressive refers to an increase in intensity throughout the warm-up, from low to moderate levels of activity to race pace.
- For example, a swimmer might start with a pulse raiser that involves swimming at slow to moderate pace and finish their warm-up with a skill rehearsal (potentiate) stage that includes race starts and some higher speed swimming at race pace.
- Specific refers to making the warm-up specific to the demands of the activity to be performed and the needs of the individual athlete.
- For example, a freestyle swimmer would warm up by swimming mainly freestyle and would include tumble turns and race starts as part of their skill rehearsal and specific shoulder mobility exercises and dynamic stretches that might also address areas of previous injury. This would be different to a footballer who would focus on running based movements and include ball skills.

2 Neuromuscular benefits of warming up:

- Increased muscle temperature.
- Decreased muscle viscosity and improved flexibility.
- Decreased reaction time.
- Increased strength (maximal force developed).
- Increased power (rate of force development).
- Improved coordination.

3 Explanation of how the cardiovascular and respiratory responses to a warm-up would benefit an endurance athlete (the answer must address all three parts of the question for full marks):

- Identify cardiovascular responses: e.g. increased heart rate, stroke volume and cardiac output, increased blood temperature.
- Identify respiratory responses: e.g. increased rate and depth of breathing, increased gaseous exchange.
- Explain benefit: e.g. leading to increased blood flow to the working muscles and increased gaseous exchange (also via increased temperature and Bohr Shift). This leads to increased oxygen delivery to the working muscles, so the performer is able to work at a higher aerobic intensity.

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