3.9 Reducing the Risk of Injury: Environmental Factors, Clothing and Technique: 30-minute Pack

AQA 8582 · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A school is choosing footwear guidance for an indoor volleyball lesson on a polished wooden floor. Which type of sole is most appropriate to reduce slip risk in this lesson?

- ☐ A) Non-marking indoor court shoes with a grippy rubber sole
- ☐ B) Football boots with metal studs
- ☐ C) Bare feet
- ☐ D) Running trainers designed for outdoor tarmac

(Total for Question 1 is 1 mark)

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2 Before a school rugby match kicks off, the referee checks each player's boots and asks two players to remove jewellery. Which environmental risk-reduction role is the referee carrying out here?

- ☐ A) Coaching technique during play
- ☐ B) Selecting the playing surface
- ☐ C) Advising on hydration
- ☐ D) Checking equipment and appearance for safety before play begins

(Total for Question 2 is 1 mark)

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3 A PE teacher asks pupils to wear appropriate base layers for cross country running in cold weather. Name one reason why thermal base layers reduce injury risk in this context.

(Total for Question 3 is 1 mark)

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4 Identify one weather condition that increases the risk of hypothermia during a long outdoor orienteering event in low temperatures.

(Total for Question 4 is 1 mark)

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5 A cross-country running club uses a public park course that changes each week depending on ground conditions and other park users. Describe two checks a coach should make of the course before a session begins to reduce injury risk.

(Total for Question 5 is 2 marks)

6 World Rugby's tackle-height law penalises a tackle made above the shoulder of the ball carrier. Describe how enforcing this tackle-height rule reduces the risk of injury to players.

(Total for Question 6 is 2 marks)

7 Cricket batters face a hard ball travelling at speed and are required to wear protective equipment. Describe two features of a cricket batting helmet and how each reduces injury risk.

(Total for Question 7 is 2 marks)

8 A school is planning an outdoor PE lesson for a day when the forecast predicts unusually high temperatures. Suggest two adjustments the school could make to the lesson to reduce the risk of heat-related injury or illness.

(Total for Question 8 is 2 marks)

9 Describe two ways unsuitable footwear can increase the risk of injury during an outdoor rugby training session on grass.

(Total for Question 9 is 2 marks)

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10 Describe the main steps of correct technique for lifting a heavy box of equipment in a school sports store to reduce back injury risk.

(Total for Question 10 is 2 marks)

11 Explain how checking that there is enough clear space around the trampoline, including a safe distance to any walls or stored equipment, reduces the risk of injury during this lesson.

(Total for Question 11 is 3 marks)

12 A PE technician repeatedly bounces heavy equipment when unloading a bag using poor lifting posture. Explain how repeated poor lifting technique can lead to overuse injury for the PE technician.

(Total for Question 12 is 3 marks)

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13 A PE teacher is responsible for safety during a series of after school outdoor athletics sessions on a school track that is exposed to variable weather. Discuss how the teacher could reduce the risk of injury to participants before and during the sessions. Use examples of environmental checks, appropriate clothing or footwear guidance, and technique or supervision strategies. Make a judgement about which three measures you would prioritise and explain why.

(Total for Question 13 is 6 marks)

14 Evaluate the environmental risk factors the school should manage for this training day, and make a judgement about which measures should be prioritised to reduce the risk of injury.

(Total for Question 14 is 6 marks)

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Mark scheme · 3.9 Reducing the Risk of Injury: Environmental Factors, Clothing and Technique: 30-minute Pack

Question 1

A **B1**

Answer: A

Question 2

D **B1**

Answer: D

Question 3

helps maintain body temperature / prevents muscles getting cold **B1**

Answer: They help maintain body temperature, preventing muscles getting cold.

Question 4

wind / strong wind / wind chill (accept rain, wet or damp conditions, snow or sleet) **B1**

Answer: Wind

Question 5

check the route for hazards such as tree roots, holes, litter or slippery/muddy sections, oe **B1**

check for other park users (e.g. dog walkers, cyclists) or obstacles that could cause a collision and adjust the route or add marshals if needed, oe **B1**

Answer: The coach should check the route itself for hazards such as tree roots, holes or muddy sections, and check for other park users or obstacles that could cause a collision, adjusting the route or adding marshals where needed.

Question 6

it discourages/penalises tackles around the head and neck, the most dangerous area to be struck, oe **B1**

this reduces the risk of concussion, whiplash or other serious head/neck injury to the ball carrier, oe **B1**

Answer: Penalising a high tackle discourages players from making contact around the head and neck, the most dangerous area to be struck, which reduces the risk of concussion or serious head and neck injury.

Question 7

a hard outer shell/rigid grille protects the head and face from a direct impact from the ball, oe **B1**

a padded inner lining absorbs/cushions the impact force, reducing the risk of concussion, oe **B1**

Answer: The hard outer shell and rigid grille protect the head and face from a direct impact from the ball, while the padded inner lining absorbs the force of any impact, reducing the risk of concussion.

Question 8

move the lesson to a cooler time of day, shorten it, or move it indoors, oe **B1**

increase water breaks, reduce the intensity or duration of activity, or ensure shaded rest areas are available, oe **B1**

Answer: The school could move the lesson to a cooler time of day, shorten it or bring it indoors, and increase water breaks or reduce activity intensity, making sure shaded rest areas are available.

Question 9

reduces grip leading to slips and falls, increasing risk of sprains or impact injuries, oe **B1**

poor ankle support or inappropriate studs increase twisting of the foot/ankle, causing strains or ligament damage, oe **B1**

Answer: Unsuitable footwear can reduce grip on grass, causing slips and falls, and can lack ankle support or have incorrect studs, increasing the chance of twisting injuries to the foot or ankle.

Question 10

bend at the hips and knees, keeping the back straight, to use leg muscles, oe **B1**

keep the load close to the body and avoid twisting while lifting or carrying, oe **B1**

Answer: Bend at the hips and knees while keeping the back straight so the leg muscles do most of the work, and keep the load close to the body while avoiding twisting during lifting or carrying.

Question 11

a bouncing performer can travel further than expected or lose control of a landing, oe **B1**

if a wall or stored equipment is too close, an out-of-control bounce could end in a collision or a fall onto a hard surface, oe **B1**

a checked, clear safety zone gives the performer room to land safely or be spotted/assisted if they lose control, oe **B1**

Answer: A bouncing performer can travel further than expected or lose control of a landing, so if a wall or stored equipment is too close an out-of-control bounce could end in a collision or a fall onto a hard surface; a checked, clear safety zone gives the performer room to land safely or be spotted if they lose control.

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Question 12

poor technique, such as bending the back rather than using the hips and knees, places repeated strain on the lumbar spine, oe **B1**

repeated loading of the same tissues causes microtrauma and cumulative damage over time, oe **B1**

cumulative damage can lead to chronic pain or degenerative changes, reducing ability to work and increasing injury risk, oe **B1**

Answer: Bending the back rather than using the hips and knees places repeated strain on the lumbar spine; repeated loading causes microtrauma and cumulative tissue damage over time; this cumulative damage can lead to chronic pain or degenerative changes, increasing long term injury risk for the technician.

Question 13

Level 3 A well organised discussion that evaluates multiple practical measures, including environmental checks, clothing or footwear guidance, and supervision or technique coaching, links each measure clearly to reduced injury risk with specific examples, and gives a justified and coherent judgement of three priority measures. **5-6**

Level 2 A clear discussion that describes several measures and makes links to injury risk reduction, but the judgement of priorities is limited or less well justified. **3-4**

Level 1 A basic list or description of a few relevant measures with simple links to injury risk reduction and little or no judgement about priorities. **1-2**

Indicative content:

- Environmental checks: inspect track for standing water, icy patches, debris and uneven areas; check weather forecast and cancel or modify session if severe conditions are expected.
- Venue controls: ensure drainage or temporary closure of specific lanes, use cones to mark unsafe areas, and provide an alternative indoor venue if available.
- Clothing and footwear guidance: advise breathable layers for heat and waterproof layers in rain, recommend appropriate running spikes or trainers for the track surface, and discourage loose jewellery and unsuitable footwear.
- Hydration and heat/cold policies: provide water breaks, monitor for signs of heat illness or hypothermia, and alter session intensity in extreme temperatures.
- Technique and supervision: coach correct running technique to avoid overstriding, warm up and cool down routines, demonstrate safe starting and turning techniques, and use progressive load increases to avoid overuse.
- Supervision and emergency planning: maintain appropriate coach to participant ratios, brief participants on hazards before starting, and have a clear communication and first aid plan.
- Justification of priorities, for example: prioritise environmental inspection, footwear guidance and proper warm up because removing immediate hazards, ensuring correct traction, and preparing muscles directly reduce the most common causes of acute and overuse injury during track sessions.

Question 14

Level 3 A well organised evaluation covering surface/route checks, clothing and footwear guidance for changeable weather, the role of officials and rules (marshals, course rules) and supervision, links each measure clearly to reduced injury risk with specific examples, and gives a justified and coherent judgement of the measures that should be prioritised. **5-6**

Level 2 A clear discussion that describes several relevant measures and makes links to injury risk reduction, but the judgement of priorities is limited or less well justified. **3-4**

Level 1 A basic list or description of a few relevant measures with simple links to injury risk reduction and little or no judgement about priorities. **1-2**

Indicative content:

- Surface and route checks: inspect the gravel path and grass sections for hazards such as holes, roots or wet patches before the session, and mark or close off any unsafe sections.
- Road crossing: station a marshal at the crossing and set a course rule requiring pupils to slow to walking pace or stop and check before crossing.
- Clothing and footwear: advise layered kit that can be adjusted for changeable weather, footwear suited to mixed terrain rather than road-only trainers, and appropriate swimwear/kit for the pool section.
- Weather monitoring: check the forecast through the day and have a plan to pause or shorten outdoor sections if heavy rain, strong wind or a sudden temperature drop occurs; provide sun protection guidance if it is sunny.
- Officials and rules: brief marshals stationed at technical sections (the road crossing, any narrow paths), set clear course rules such as no overtaking on the gravel path, and give officials the authority to stop a participant showing signs of distress.
- Supervision: ensure qualified lifeguard supervision for the pool section and an appropriate staff-to-pupil ratio for the outdoor sections, with a clear communication and first aid plan.
- Justified priorities, for example: prioritise marshalling the road crossing, footwear suited to mixed terrain, and continuous weather monitoring, because these address the risks most likely to cause an acute injury (a traffic-related collision, a fall on the gravel path, or being caught outdoors in a sudden change of weather), ahead of lower-probability risks.

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