



Cambridge National

Sport Science

Level 1/Level 2

Unit R041: Reducing the risk of sports injuries

Mark Scheme for January 2013

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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Annotations

1		281	?	Unclear
2		31	BOD	Benefit of doubt
3		21	Cross	Cross
4		741	DEV	Development
5		661	EG	Example/Reference
6		611	K	Knowledge
7		311	L1	Level 1
8		321	L2	Level 2
9		331	L3	Level 3
10		271	REP	Repeat
11		361	S	S (to be used to indicate 'sub max reached' in these units)
12		811	SEEN	Noted but no credit given
13		11	Tick	Tick
14		731	VG	Vague

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Question	Answer	Marks	Guidance
1	<p>(R.I.C.E.) Four marks from:</p> <ol style="list-style-type: none"> 1. R – Rest the injured part/stop the activity/don't put your weight on it - use crutches(legs) use splints (arms)/putting their feet up or continued activity can cause further harm/injury 2. I – Apply ice - 15/20 mins every 2/3 hours or at regular intervals or using an ice pack/pack of frozen peas or to stop internal bleeding/contracts blood vessels to stop swelling/to relieve pain 3. C – Compress - bandage the injured part (not too tight) or to prevent swelling/movement or to stop/control bleeding or to support (the limb) or to protect 4. E – Elevate - above level of heart/keep limb up/put leg on chair or to reduce swelling/pain/direct blood flow away. 	4	<p>Sub max of one mark if only listed Rest/Ice/Compression/Elevation</p> <p>For full marks to be awarded answers must include a description of 'how' or an explanation of 'why'.</p> <p>Must have explanations/descriptions for each point to score full marks.</p>
2	<p>(Common sports injuries) Five marks from:</p> <ol style="list-style-type: none"> 1. Soft tissue injuries – sprains/strains/tearing/twisted ankle/bruising/pulled hamstring or pulled muscle 2. Overuse injuries – tendonitis/tennis elbow/golfer's elbow/shin splints 3. Fractures – open/closed/broken leg/arm/chipped bone or cracked bone 4. Abrasions – grazes/cuts 5. Contusions – bruises/hematoma. 	5	<p>Mark first answer only</p> <p>Accept one word answers eg bruise</p> <p>Do not accept: cramp</p> <p>BOD broken shoulder or hip or ankle for point</p>

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3	(a)	<p>(Extrinsic factors) Three marks from:</p> <ol style="list-style-type: none"> 1. Type of activity or sport 2. Coaching/supervision/poor coaching techniques/poor instructions/following rules/refereeing 3. Environmental factors/weather/playing surface/other participants 4. Equipment/protective equipment/performance equipment/clothing or footwear 5. (Safety) hazards/risk assessments/safety checks/emergency action plans. 	3	<p>3 marks max for identification</p> <p>Accept contact sport for example of type of sport</p> <p>Accept examples of playing surfaces eg pot holes</p>

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Question	Answer	Marks	Guidance
(b)	<ol style="list-style-type: none"> <li data-bbox="365 215 1133 311">1. (Type of activity) contact sports present different injury risks gymnastic activities/other suitable example <li data-bbox="365 351 1133 478">2. (Coaching/supervision) Poor/incorrect coaching techniques/ineffective communication skills/importance of adhering to rules and regulations/suitable example <li data-bbox="365 518 1133 678">3. (Environment) Description of weather factors/playing surface/performance/surrounding area/other participants/suitable example or Opponents/other players – may be aggressive or get in the way for collisions or accidents through contact <li data-bbox="365 718 1133 877">4. (Equipment) Protective equipment (shin pads in football)/performance equipment (rock climbing harness)/clothing/footwear suitable for playing surface/weather conditions/specific sport or activity/suitable example <li data-bbox="365 917 1133 1013">5. (Safety hazards) Risk assessments/safety or equipment checks/emergency action plans/suitable example. 	3	3 marks max for description/examples that must link with identified factors from part a).

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4	<p>(Individual variables) Four marks from:</p> <ol style="list-style-type: none"> 1. Gender – males generally stronger than females/males less prone to injury 2. Age – older people generally weaker/more prone to injury 3. Flexibility – increased flexibility decreases chances of injury 4. Nutrition – drinking enough water to prevent dehydration/eat enough to prevent fatigue 5. Sleep – important we get enough sleep so not tired/focused/being tired 6. Previous/recurring injuries/disability – pulled hamstrings that become weak/increased chance of pulling again 7. Psychological factors or stress and anxiety or mental preparation – being over aggressive may increase chances of injury/reckless tackles 8. Individual physical preparation – fully warming up before activity/poor warm up increases chances of injury 9. Fitness/any aspects of fitness eg strength/health or posture or body weight – the fitter we are the less chance of injury (especially towards end of game) or availability of medication 10. Behaviour – not following the rules or being reckless 11. Experience/ability – knowing the risks or having skills to protect yourself. 	4	<p>Accept practical examples as explanation</p> <p>If four individual variables are identified with no explanation then one mark sub max.</p> <p>Accept opposites, but do not award two marks if opposites repeat the same point, eg “older people more prone to injury; younger people are less prone to injury” only scores 1 mark for point 2</p> <p>Do not credit equipment (external variable)</p>

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5		<p>(Cool down) Two marks from:</p> <ol style="list-style-type: none"> 1. Pulse lowering exercises – easy movements/light running/eg jogging (around pitch) 2. Stretching/maintenance stretches/static stretches/eg hamstring stretches 3. Ice bath 	2	<p>Accept any relevant cool down activities suited to rugby</p> <p>Do not accept rehydration or drinking water</p>
6		<p>(Dealing with sprain) One correct answer only: A – Heat packs</p>	1	

Question	Answer	Marks	Guidance
7	<p>(Epilepsy) Five marks from: Four marks sub-max for symptoms:</p> <ol style="list-style-type: none"> 1. Seizures (repeated)/fits/twitching/rolling on the floor 2. Auras/Changes in the way things look/smell/feel/taste/sound / blurred vision 3. Feeling that events have happened before/déjà vu 4. Tingling sensations/'pins and needles'(in your arms/legs) 5. Sudden intense emotion/fear/joy 6. Muscles in your arms/legs/face may become stiff/tight teeth/jaw clenching 7. Smacking your lips/making random noises Chewing/swallowing 8. Rubbing your hands/moving your arms around/picking at clothes/fiddling with objects 9. Unable to respond to anyone/unaware of surroundings/dizziness/staring (into space) 10. No memory of the event. <p>Four marks sub-max for responses to epilepsy:</p> <ol style="list-style-type: none"> 1. Matched to need of the individual/emergency care/action plan/call emergency services 2. Anti-epileptic drugs/AEDs/medication 3. Protect the person from injury/remove harmful objects from nearby/cushion their head/ensure environment is safe 4. Do not restrain/allow free but safe movements 5. (Aid breathing by gently) placing them in the recovery position (once the seizure has finished) 6. Stay with the person until recovery is complete/be calm/reassuring. 	5	<p>Both parts of the question must be answered to gain maximum marks</p> <p>Sub-max 4 for identification of symptoms</p> <p>Sub-max 4 for responses</p>

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8	<p>(Diabetes) Three marks from:</p> <ol style="list-style-type: none"> 1. Increased thirst or appetite 2. Going to the toilet lots 3. (Extreme) tiredness/drowsiness/fatigue 4. Fainting/collapse/unconscious/coma 5. Weight loss or weight gain 6. Uncharacteristic behaviour/irritable 7. Confusion/memory loss 8. Pale/cold/sweaty skin 9. Shallow/rapid breathing. 10. High or low sugar levels 11. Nausea/vomiting 12. Blurred vision/dizziness 13. Dry mouth 14. Slow healing cuts/sores 15. Irritating skin/tingling skin 16. Abdominal pain 17. Trembling or shaking 18. Red or swollen gums 	3	Any three answers listed acceptable for three marks max

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10	(a)	<p>Three marks from: Acute injuries: One mark max for example: 1. Acute injuries, such as a sprained ankle, strained back, or fractured hand or strain or sprain or concussion (or any example that occurs suddenly during activity eg fracture, dead leg)</p> <p>Two mark max for description: 1. Caused as a result of a sudden trauma or blow to the body 2. Immediate pain 3. Immediate swelling on or around point of contact 4. Immediate loss of function/weakness.</p>	3	<p>1 mark max for relevant example (credit any reasonable example provided as long as specific to an acute injury)</p> <p>2 marks max for description</p>
	(b)	<p>Three marks from: Chronic injuries: One mark max for example: 1. eg (Achilles) tendonitis, shin splints or tennis elbow</p> <p>Two mark max for description: 1. Overuse injuries/result of continuous stress on an area 2. These injuries tend to develop gradually over a period of time 3. Resulting in pain 4. Swelling over a period of time 5. Lasts a long time or keeps reoccurring 6. Gradual loss of function or increase in weakness.</p>	3	<p>1 mark max for relevant example (credit any reasonable example provided as long as specific to a chronic injury)</p> <p>Accept Osgood Schlatter's as BOD</p> <p>2 marks max for description</p>

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Question	Answer	Marks	Guidance
11	<p>(Risk assessments) Four marks from:</p> <ol style="list-style-type: none"> 1. Assessing the possibilities of an accident occurring/potential consequences because they take place before the activity/identifying hazards 2. Referee via a pitch inspection will call off game if pitch too frozen (too dangerous) 3. Actions to be taken to avoid/prevent/reduce chances of accident happening 4. Removing debris/litter from a tennis court 5. Checking/assessing facilities/surface/environment/ weather during the activity 6. Referee stopping the game due to heavy rain 7. Checking/assessing equipment 8. Referee checking goalposts 9. Checking/assessing participants 10. Officials checking if players are wearing jewellery 11. Surrounding area/spectators 12. Boarding/objects too close to the pitch. 	4	<p>2 marks max if no examples</p> <p>Odd numbers = description Even numbers = example</p> <p>If an example is given then full marks can be accessed</p>

Question	Answer	Marks	Guidance
12	<p>(Cool down & environmental factors) Three marks from:</p> <ol style="list-style-type: none"> 1. (Facilities) Availability of specific facilities for cool down areas (Indoor/outdoor)/overcrowded facilities/cool down in changing rooms if facility is being used eg squash court or cool down in changing room if pitch is flooded or unsuitable 2. (Facilities) If poor facilities or poor pitch/surface then injuries/ineffective or dangerous cool down may occur 3. (Hot) – Cooling down more difficult in hot conditions/cool down in a shaded area/indoors in hot conditions 4. (Hot) Take on even more fluids/refuel during cool down in hot conditions 5. (Hot) Lower core temperature – water spray/ice bath in hot conditions 6. (Cold) – Cool down indoors in cold conditions to prevent heat loss 7. (Cold) – Wind chill factor/wet conditions 8. (Cold) If environment is very cold, a longer cool down is usually necessary 9. (Cold) Muscles that have been extremely strained tend to stay tight and/or become even tighter in a cold environment. 	3	

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13	<p>(Blisters) Three marks from: Two marks max for reason:</p> <ol style="list-style-type: none"> 1. Caused by friction/rubbing (from trainers/gloves)/poorly fitting footwear/no or inappropriate footwear/new footwear 2. No socks/inappropriate socks 3. Heat/hot weather 4. Sweating (of feet)/wet feet 5. Large amounts of stress/impact/overtraining/overuse/ long distances (of footwork activities) 6. Unused to training. <p>One mark max for treatment</p> <ol style="list-style-type: none"> 1. Sterilise/clean/disinfect/use cream 2. Leave the blister to heal naturally/keep intact 3. Cover with or use plaster/bandage or put a dressing on it 4. If signs of infection seek medical advice 5. Puncture <u>with sterilised needle.</u> 6. Apply ice pack <u>to blood blisters</u> 	3	<p>Two marks sub-max for reasons</p> <p>One mark sub-max for treatment</p>
14	<p>(Medical Conditions) Two marks from:</p> <ol style="list-style-type: none"> 1. Diabetes 2. Epilepsy 3. Asthma 4. Scoliosis 5. Osgood Schlatter's 6. Heart problems/heart disease 7. (Severe) allergies 	2	<p>Do not accept injuries as medical conditions</p> <p>Accept any other relevant medical condition.</p>

Question	Answer	Marks	Guidance
15	<p>Levels of response: 0 = nil response or response not worthy of credit</p> <p>MB1 (1–3 marks) The response shows a limited understanding of the benefits of a warm up. Candidates provide simple descriptions of a few points from the indicative content. No attempt is made at explanation and there may be some irrelevant material in the answer. There is little or no use of technical vocabulary and sentences have limited coherence and structure. Errors in grammar, punctuation and spelling may be noticeable and intrusive.</p> <p>MB2 (4–6 marks) The response shows an understanding of the benefits of a warm up. Candidates make some valid points from the indicative content with good knowledge and understanding. Some attempt at explanation is made. At this level candidates may address both positive and negative sides relating to warming up or not warming up, and at the top of the level one or more of the developed points may be seen. There is some use of technical vocabulary and sentences for the most part are relevant and are coherent. There are occasional errors in grammar, punctuation and spelling.</p> <p>MB3 (7–8 marks) The response shows a detailed understanding of the benefits (physical and psychological) of warming up. Candidates make many points from the indicative content, several of which may be developed. Explanation is clearly given. The answer is well structured and uses appropriate terminology and technical vocabulary. There are few if any errors in grammar, punctuation and spelling.</p>	8	<p>Differentiating between levels look for:</p> <p>MB1: (1–3)</p> <ul style="list-style-type: none"> • Where valid indicative points are made they may mainly relate only to physical benefits • Simple description rather than explanation • Identification of components of a warm up/examples of a warm up (irrelevant) <p>MB2: (4–6)</p> <ul style="list-style-type: none"> • Likely to include some of: pulse raising, stretching, skills and psychological benefits • May be one or more developed points including psychological benefits • Some explanation <p>MB3: (7–8)</p> <ul style="list-style-type: none"> • Points are developed/expanded • Some understanding of the effects of not warming up • Likely to include most/all of: pulse raising, stretching, skills and psychological benefits • Clear explanations • Very few QWC errors

Question	Answer	Marks	Guidance
	<p>Indicative content:</p> <p>Physical benefits of a warm up</p> <ol style="list-style-type: none"> 1. Warming up muscles/preparing the body for physical activity 2. Pulse raiser – Increase in body temperature (so muscles more flexible/less chance of injury) 3. Pulse raiser – Increase in heart rate (speeding up delivery of oxygen to working muscles) 4. Stretching to increase in flexibility of muscles and joints (reducing chances of injury) 5. Stretching to increase in pliability of ligaments and tendons (reducing chances of injury) 6. Increase in blood flow and oxygen to muscles 7. Increase in the speed of muscle contraction/reaction time 8. Increase in the strength of muscle contraction 9. Release of adrenaline (speeding up delivery of oxygen to working muscles) 10. Improve performance/technique/practice/rehearse skills 11. Delay onset of lactic acid/fatigue 12. Reduce risk of injury/muscle strain. <p>Psychological benefits of a warm up</p> <ol style="list-style-type: none"> 1. Heightens/control arousal levels/'get in the zone'/settle nerves 2. Improve concentration/focus (selective attention) 3. Increase motivation/drive 4. Mental rehearsal 5. Increase confidence. 		<p>Always indicate the level at the end of the response (L1 or L2 or L3)</p> <p>Points in brackets and bold are developed points which show further understanding. It would be expected that where these are used in the response, it would be a MB2 or MB3 response in most cases.</p> <p>Not using the developed points must not prohibit candidates from achieving the top band or full marks, but is a potential indicator of the level at which they are responding.</p> <p>Annotations:</p> <p>K = knowledge credit DEV = development of knowledge EG = practical example</p>

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