

Cambridge National

Sport Science

R041/01: Reducing the risk of sports injuries

Level 1/Level 2

Mark Scheme for June 2019

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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 in scoris

The following annotations are available:

- ✓ = correct response
- ✗ = incorrect response
- BOD** = Benefit of doubt
- IRRL** = Irrelevant
- REP** = Repetition
- VG** = Vague
- ? = Unclear
- L1** = Level 1
- L2** = Level 2
- L3** = Level 3

Highlighting is also available to highlight any particular points on the script.

[The following questions should be annotated with ticks to show where marks have been awarded in the body of the text question 16-25]

Question	Answer	Marks	Guidance
1.	<p>a) (Coaching)</p> <ol style="list-style-type: none"> 1. Poor coaching / instruction / supervision 2. A coach showing a performer to the wrong techniques OR telling players to act aggressively to the opposition OR e.g. in trampolining being taught the wrong technique for somersaulting 3. Ineffective communication 4. A coach that is unable to explain how to tackle properly OR e.g. in rugby a player tackles too high 5. Lack of OR not adhering to knowledge of rules / regulations 6. Not playing to rules or not knowing them could cause a performer to carry out a foul / illegal play OR e.g. a football player using a two footed tackle or a cyclist not wearing a helmet <p>b) (Environment)</p> <ol style="list-style-type: none"> 7. Adverse weather / weather conditions / raining / foggy / sunny / windy / lightening / too hot / too cold 8. Poor visibility so <u>collisions</u> more likely OR if it is too hot = <u>sunstroke / dehydration</u> or too cold = <u>hypothermia</u> 9. Unsuitable or unsafe playing surface / performance area 10. Falling on a hard / slippery surface OR uneven / litter / objects causing player to slip / fall / sprain (or equivalent injury indicating the player has fallen) OR e.g. broken bottles on court that makes a player <u>trip</u> 11. Surrounding area – chance of colliding into fences / railings OR e.g. a football player that ends up going into the advertising boards when running after the ball 	[6]	<p>Two marks sub-max for each a, b and c</p> <p>Do not accept: One word answers = no marks e.g. coaching / weather / surface (on it's own) = VG A coach does not have much experience = VG</p> <p>The candidate must provide more than just the factor in addition to the explanation to gain 2 marks in each sub-part of the question e.g. coaching is VG but inadequate coaching (or equivalent) is Point 1.</p> <p>Use of examples or actual injuries may be described but emphasis must be on the external factor causing the injury e.g. sprain when landing = VG but sprain when landing on hard surface = Point 10 in MS</p> <p>Accept equivalents for Point 5 that relate to rules e.g. a coach encouraging two footed tackles in football or a coach allowing a rugby player to play without wearing a gumshield</p> <p>Not carrying out risk assessments = VG Equipment left out on the field = VG Equipment left out that could trip players up = Point 10</p> <p>Any reference to waterlogged / frozen pitch = Point 9 A wet surface on its own = VG A <u>very</u> wet pitch = BOD Point 9 Rain (Point 7) causing a slippy surface = Point 10 = 2 marks</p> <p>You need to make sure the area is big enough to play = VG (development required on why it causes injuries) You need to make sure the area is big enough to play to avoid collisions = Point 12</p>

	<p>12. Other participants – cause collisions / tackling (accidentally or fouling) OR A netball player running into an opponent</p> <p>c) (Equipment)</p> <p>13. Incorrect use / misuse of equipment / not having right / correct equipment</p> <p>14. If (protective) equipment is not worn (correctly) / may alter player to use incorrect technique / e.g. a broken leg when tackled in football if shin pads are not worn.</p> <p>15. Broken / faulty / damaged / unsafe / unsecure equipment</p> <p>16. Collapsing or falling OR e.g. a climbing harness that is faulty could cause a performer to fall from height.</p> <p>17. (Protective/performance) equipment – injury caused by being hit e.g. being hit with a hockey stick / cricket ball</p> <p>18. Unsuitable / incorrect clothing OR footwear</p> <p>19. If clothing is restrictive / too tight / too loose (snagging on equipment) OR e.g. wearing baggy clothing in fitness suite could catch on equipment / footwear not suitable for playing surface / weather conditions / sport or activity OR e.g. not wearing football boots on a grass pitch</p>		<p>Depending on how big the group is = VG</p> <p>Old equipment = VG</p> <p>Not using equipment in the correct way or not knowing how to OR incorrect use equipment = Point 13</p>
<p>2.</p>	<p>3 marks for 3 from:</p> <p>1. Risk assessment / removing litter / danger</p> <p>2. Safety / weather / equipment / surface <u>check</u> / <u>checking</u> footwear or jewellery of a player</p> <p>3. Emergency action plan / EAP</p>	<p>[3]</p>	<p>Accept relevant examples e.g. checking equipment is in working order = 1 mark (Point 2)</p> <p>Accept any relevant examples e.g. checking a netball player has short fingernails or hair tied back</p> <p>Checking age groups = VG</p> <p>Wearing the right equipment = VG</p> <p>Checking performers are wearing the right equipment = Point 2</p> <p>Warm up/cool down = VG</p>

<p>3</p>	<p>6 marks for 6 from:</p> <ol style="list-style-type: none"> 1. <u>Gender</u> 2. Example: Males and females should not be allowed to do contact sports against each other / 3. <u>Age</u> 4. Activity set needs to be appropriate to the age of the participants/ in particular sports (i.e. contact) the same age groups should be competing against each other <p>OR</p> <p>Example: Children should not be playing rugby against adults / children should not be lifting heavy weights</p> <ol style="list-style-type: none"> 5. <u>Flexibility</u> 6. Poor flexibility may cause a performer to use poor technique / difficulty when stretching or reaching further 7. <u>Nutrition / diet</u> 8. Poor nutrition / hydration can affect concentration / focus / decision making <p>OR</p> <p>Example: a rugby player getting distracted causing them to use poor & dangerous technique/ mistime a challenge</p> <p>OR</p> <p>A poor diet (lacking in enough calories) may cause a performer to be too tired/ lacking in energy to complete a session/ could lead to fainting/ illness OR cause health issues such as weaker bones</p> <ol style="list-style-type: none"> 9. <u>Sleep</u> 10. Lack of sleep results in poor judgement and decisions made/ inappropriate or dangerous play <p>OR</p> <p>Fatigue may affect focus / concentration / causing poor technique / injuries</p>	<p>Sub-max 3 marks for individual variables (odd numbers)</p> <p>Sub-max 3 marks for descriptions (even numbers)</p> <p>Accept opposites e.g. having a good diet will give good concentration levels = BOD Point 8</p> <p>If the individual variable is vague but the description is linked then we can credit any relevant points</p> <p>Accept appropriate examples as descriptions</p> <p>Males generally stronger than females = BOD Point 2 Females generally more flexible than males = BOD Point 2</p> <p>Adults generally stronger than children = BOD Point 4</p> <p>Lifestyle = VG Point 7</p>
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	<p>11. <u>Previous/ recurring injuries / disability</u></p> <p>12. May reoccur if the injured area is stressed too much/ overused / area is weaker</p> <p>13. <u>Psychological</u> (factors) / stress / anxiety / arousal / motivation / mental preparation</p> <p>14. Acts of aggression e.g. reckless tackles or players feeling nervous may pull out of a tackle</p> <p>15. <u>(Individual) physical preparation</u></p> <p>16. Not warming up before activity or cooling down / lack of training</p> <p>17. <u>Fitness / health / posture / medical conditions</u></p> <p>18. Unfit players may start to tire towards the end of a game and make careless tackles</p> <p>19. <u>Behaviour</u></p> <p>20. Not abiding by the rules of the sport / activity / deliberately choosing to use a two footed tackle in football</p> <p>21. <u>Experience / ability / knowledge</u></p> <p>22. Performers with limited knowledge of the rules / techniques may think certain actions are fine to do e.g. spear tackle in rugby</p>	[6]	
4	<p>6 marks for 6 from:</p> <p>(Asthma)</p> <ol style="list-style-type: none"> 1. Struggle to breath or breathing difficulties / shortness of breath or breathlessness / difficulty speaking 2. Wheezing / whistling noises / squeaky sound 3. Tightness in the chest 4. Coughing 5. Pale / clammy (skin) 6. (Severe) grey / blue lips 	[6]	<p>The candidate must give two different symptoms for each to gain 2 marks for each condition.</p> <p>Mark first response given on each line</p> <p>Heavy breathing = BOD Point 1 Pain in chest = BOD Point 3</p>

	<p>(Diabetes)</p> <ol style="list-style-type: none"> 7. <u>Increased</u> thirst / hunger 8. Going to the toilet more often 9. Weight loss / gain 10. (Extreme) tiredness 11. Blurred vision 12. Dizziness / confusion 13. Shaking 14. Sweating / clammy skin 15. Thrush / cuts / grazes that keep coming back or take longer to heal 16. Nausea / headaches 17. (Untreated) drowsiness / slurred speech / unconsciousness 18. High / low <u>blood</u> sugar <p>(Epilepsy)</p> <ol style="list-style-type: none"> 1. Fitting / seizures / spasms / twitching / rubbing hands / fidgeting / shaking / jerking 2. Rigidity / muscle stiffness 3. Tingling / pins and needles 4. Staring into space / eyes rolling to back of head / blurred vision / vacant episodes 5. Loss of consciousness or memory / black out / confusion / unable to communicate / dizziness / headaches 6. Lip smacking/ foaming at mouth / making random noises / laughter / crying 7. Loss of senses / unusual smells / tastes 8. Loss of control of bladder 9. Déjà vu / feeling that events have happened before 10. Intense feelings / emotions (fear/joy) 		<p>Thirsty or hungry = VG</p> <p>Sleeping a lot = VG High blood pressure = VG No or lack of energy = BOD Point 10</p> <p>Checking blood sugar levels = VG</p> <p>Do not accept: Light sensitivity</p>
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5.	<p>3 marks for 3 from:</p> <p>(Asthma) provide an inhaler OR pump / reassure / keep them OR stay calm / sit them down OR sit upright OR encourage them to control their breathing OR provide a caffeinated beverage (helps to open airways) OR move them away from the trigger (dust / smoke)</p> <p>(Diabetes) give them sugar / sugary drink / sweets / chocolate or give insulin (Type 1) or lifestyle changes (Type 2) / glucose (tablets)</p> <p>(Epilepsy) Make the area safe / remove <u>harmful</u> objects / cushion head (with pillow) / let them fit / don't restrain or hold them down / put them in the recovery position after the fit has finished / anti-epileptic drugs or AEDs / Individual care plan</p>	[3]	<p>Accept: Contact emergency services or call 999 = sub-max one mark</p> <p>e.g. if a response gives call 999 for asthma, diabetes and epilepsy = 1 mark</p> <p>Follow EAP = VG Clear space around = BOD Medication = BOD</p>
6.	<p>6 marks for 6 from:</p> <p>a) Chronic b) Chronic c) Acute d) Acute e) Acute f) Chronic</p>	[6]	
7.	<p>1 mark for 1 for:</p> <p>1. Muscle spasms / involuntary or painful muscle contractions (sensations)</p>	[1]	<p>Do not accept: Pain in muscle = VG Muscle contraction = VG Tight or stiff muscles = VG Reference to causes. e.g. dehydration = VG</p> <p>Accept: Muscles tensing up causing pain = BOD</p>
8.	<p>8 marks for 8 from:</p>		<p>Do not accept: Description of how the injury is caused if injury incorrect</p>

	<p>a) (Sling): Fractured arm How occurred: bad or awkward fall when playing football / tackled by an opponent in rugby</p> <p>b) (Bandage): Abrasion How occurred: falling or tripping over onto hard ground whilst playing netball / hit by a piece of equipment in rounders / using broken equipment when playing cricket / hit by an opponent in boxing</p> <p>c) (Cushioned Plaster): Blister How occurred: <u>rubbing / friction</u> between skin and running shoes or equipment / running in trainers that are too small or big or not wearing socks when running a marathon / wearing wet or sweaty climbing boots / long duration of repetitive actions or overuse when playing tennis (gripping the racquet)</p> <p>d) (Splint): Fractured leg How occurred: bad or awkward fall in football/tackled by an opponent in rugby</p>	[8]	<p>Q asks for sporting situation so tackling is fine – no requirement for named sport Look for reference to players / game / tackling / running / use of sporting equipment for sporting situation</p> <p>Kicking / falling / tripping / landing on its own = VG Falling over in a football game = BOD</p> <p>Other appropriate examples accepted</p> <p>Accept same sporting situation if relevant e.g. a tackle in football can cause an abrasion and a fractured leg OR a fall or poor landing in gymnastics can cause a fractured arm/leg and an abrasion</p> <p>Shoes / boots rubbing = VG (no sporting context)</p> <p>Wearing incorrect footwear = VG</p>
9.	<p>3 marks for 3 from:</p> <p>a) (Emergency) personnel b) (Emergency) communication c) (Emergency) equipment</p>	[3]	<p>One word answers accepted.</p> <p>Do not accept: Contact as communication</p>
10.	<p>3 marks for 3 from:</p> <p>Active– Can the injured player move the limb / injury <u>themselves</u></p>		

	(with or without pain)/ non weight bearing movement Passive– Movement of the injured limb/joint / injury by the <u>coach / first aider / paramedic (someone else)</u> Strength – Can they apply their own weight / can the player stand up / play-on / walk around / provide resistance against injured part	[3]	The player can move it themselves = VG The player can move the injury themselves = 1 Strength – put pressure on the area = VG
11.	1 marks for 1 from: (a) Height of the participant	[1]	
12.	3 marks for 3 from: 1. Heightens / controls / lowers arousal levels/ 'get in the zone' / controls aggression 2. Improves concentration/ focus/ selective attention /alertness 3. Increases motivation/ drive / determination / commitment 4. Helps with mental rehearsal / mental preparation 5. Increases confidence / self-esteem / reduces nerves or anxiety / calms you down / reduces fear 6. Reduces / faster reaction time	[3]	Explanation must be evident – no one word answers Right mind set / frame of mind = VG Helps performer know what they need to do = VG
13.	1 mark for: False	[1]	
14.	2 marks for 2 from: 1. Pulse / heart rate lowering or decreasing / slowing down e.g.		Component <u>and</u> suitable example required for each mark Do not accept: <u>Dynamic</u> stretches

	<p>(Light/slow) jog / walk</p> <p>2. Stretching e.g. hamstring stretch / lunges / open and close gates</p>	<p>[2]</p>	<p>Touching toes on it's own = VG Static stretching = VG</p> <p>Hamstring stretch = 1 mark Accept calf stretch = BOD Accept any description of how stretch is performed e.g. Touching toes with straight legs = 1 Bending down and touching toes = BOD</p> <p>Accept other suitable pulse lowering and stretching exercises</p>
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<p>15.</p>	<p><u>Levels of response</u></p> <p>Level 3 (7-8 marks) A comprehensive response:</p> <ul style="list-style-type: none"> - shows detailed knowledge and understanding - makes many points, many of which are well developed. - is well structured and consistently uses appropriate terminology. - there are few if any errors in grammar, punctuation and spelling. <p>Level 2 (4-6 marks) A competent response:</p> <ul style="list-style-type: none"> - shows good knowledge and understanding. - makes some valid points a few of which may be developed. - is reasonably well structured and uses some appropriate terminology. - there are occasional errors in grammar, punctuation and spelling. <p>Level 1 (1-3 marks) A basic response:</p> <ul style="list-style-type: none"> - shows limited knowledge and understanding. - makes some basic points which are rarely developed. - has limited coherence and structure with little or no use of appropriate terminology. - errors in grammar, punctuation and spelling may be noticeable and intrusive. <p>0 = nil response or no response worthy of credit.</p>	<p>[8]</p>	<p>Differentiating between levels look for:</p> <p>Level 3 Discriminators</p> <ul style="list-style-type: none"> • detailed knowledge & understanding of most warm up components (pulse raiser, stretching, mobility, dynamic movement and skill rehearsal) • several physical benefits of a warm up are developed • clear and consistent practical application of knowledge & understanding to warm up • Some imbalance between the two (components and benefits) may be present for 7 marks. <p>Level 2 Discriminators</p> <ul style="list-style-type: none"> • satisfactory knowledge & understanding of some (3+) warm up components (pulse raiser, stretching, mobility, dynamic movement and skill rehearsal) • some benefits of physical benefits have been identified / developed • some success in practical application of knowledge & understanding to warm ups • at least two physical benefits have been developed for the top of this level • at the bottom of this level, one part of the question may be addressed very well while there is a lack of knowledge in the other part or both parts may have been addressed with some success <p>Level 1 Discriminators</p> <ul style="list-style-type: none"> • basic knowledge & understanding of the components of a warm up • little or no attempt to develop the physical benefits • little or no attempt at practical application of knowledge & understanding to a warm up • at the top of this level at least two components and one physical benefit have been developed and use of practical application to a warm up have been described with limited application • at the bottom of this level some knowledge of warm up components or physical benefits has been shown
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<p><u>Indicative content</u> Candidate responses are likely to include: (relevant responses not listed should be acknowledged) Numbered points = knowledge / understanding Bullet points = likely to be development of knowledge E.g. = use of practical example</p> <ol style="list-style-type: none"> 1. Pulse raising <ul style="list-style-type: none"> • exercises that slowly increase heart rate and body temperature e.g. jogging, cycling, skipping 2. Mobility <ul style="list-style-type: none"> • exercises to take joints through full range of movement / ROM e.g. arm swings / hip circles / high knees 3. Dynamic movements <ul style="list-style-type: none"> • change of speed <u>and</u> direction e.g. shuttle runs / running in and out of cones / zig-zag running 4. Stretching <ul style="list-style-type: none"> • developmental stretches • static stretching e.g. hamstring / bicep stretches • dynamic stretches/ walking or moving stretches linked to sport e.g. open and close the gate groin walk 5. Skill rehearsal phase <ul style="list-style-type: none"> • using common movement patterns to be used in activity e.g. dribbling drills for football, passing drills for netball 	<p><u>Physical benefits of a warm up:</u></p> <ol style="list-style-type: none"> 1. Warming up muscles / body <ul style="list-style-type: none"> • Preparing the cardio-vascular / respiratory systems for physical activity 2. Increase in body / muscle temperature <ul style="list-style-type: none"> • Increase in flexibility of muscles and joints • Increase in pliability of ligaments and tendons • Decreases risk of injury e.g. Muscle sprains / strains 3. Increase in heart rate and / or breathing rate <ul style="list-style-type: none"> • Increase in blood flow to (working) muscles • Increase in oxygen to (working) muscles • Increase in the speed or strength of muscle contraction • Release of adrenaline 4. Can help delay muscle fatigue <ul style="list-style-type: none"> • Delay build-up of lactic acid 5. Improve performance levels <ul style="list-style-type: none"> • Practicing skills before a game to make movement more skilful / fluent e.g. A tennis player practicing their serve will make serving more consistent / efficient during the game <p><u>Use of annotations:</u></p> <p>Increases in muscle temperature = KU that allows muscles to become more elasticated = DEV and so less chance of injury = DEV such as pulled hamstring = EG</p>
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