

Cambridge National

Sport Science

Level 1/2 Cambridge National in Sport Science

R041/01 - Reducing the risk of sports injuries

Mark Scheme for Jan 2020

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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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Question		Answer	Mark	Guidance
1	(a)	<p>One mark for:</p> <p><u>Performer:</u> Too small or tight / rubbing / friction / broken or damaged / studs getting stuck in ground / tripping on laces / kicking yourself / worn on incorrect surface</p> <p>One mark for:</p> <p><u>Other players:</u> Being kicked / studded / stood on / contact / tackle / challenge / hit by</p>	[2]	<p>Mark first responses only.</p> <p>Do not accept: Cause blisters = TV Slip = TV Stud missing (and fall) = 1</p> <p>Accept: Catch someone = BOD Landing on someone = BOD (Sharp) studs = BOD</p> <p>Do not accept: No ankle support = TV Cuts = TV Spikes = TV</p>
1	(b)	<p>One mark for:</p> <p>Performer: Blisters / cut / abrasion / graze / bruise / contusion / sprain / fracture</p> <p>One mark for:</p> <p>Other players: Cut / abrasion / graze / bruise / contusion / fracture</p>	[2]	<p>Mark first responses only.</p> <p>Rolled ankle = TV</p> <p>Twisted ankle = BOD</p> <p>Sprain = TV</p> <p>Accept: Broken toe = BOD</p>
1	(c)	<p>One mark for:</p> <p>Gives grip / (studs) prevent slipping / falling / sliding / gives foot protection</p>	[1]	<p>Do not accept: Ankle support = TV Studs on own = TV</p>

1	(d)	<p>One mark for:</p> <p>Ice skating/ice hockey = blades/skates Basketball/boxing = high tops/ankle support Cricket/golf/athletics/running = spikes Climbing = shoes/boots with <u>grips</u> Hockey = reinforced toe area Cycling = cleats Trampolining = socks Gymnastics / ballet = slippers Skiing = ski boots</p>	[1]	<p>Mark first response only.</p> <p>Do not accept: Sports that use boots/studs such as rugby. Cycling = spiked shoes</p> <p>The name of a sport must be given for the mark to be awarded.</p> <p>Description of footwear must be related to helping prevent injury. Eg tennis shoes / trainers = TV but tennis shoes with grip = 1</p> <p>Accept: Astroturf trainers/shoes = BOD Accept other sports and relevant examples.</p>
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Question		Answer	Mark	Guidance
2	(a)	<p>One mark for:</p> <p>Mobility: Exercises that take the joints through their full range of movement (ROM) or moving joints around their <u>full</u> range of motion / movement available</p> <p>One mark for:</p> <p>Dynamic Movement: Exercises that have a change of speed <u>and</u> direction</p>	[2]	<p>Moving motion around joints = TV Range of motion in joints = TV</p>

2	(b)	<p>One mark for:</p> <p>Mobility: Arm swings / hip circles / shoulder or ankle rotations / open and close the gate</p> <p>One mark for:</p> <p>Dynamic Movement: Shuttle runs / zig zag running / running in and out of cones / agility run</p>	[2]	<p>Mark first response only</p> <p>Do not accept: high knees/heel flicks = TV (exercises must demonstrate ROM)</p> <p>Accept combination of other descriptions eg Shoulder swings = 1 Hip turns = 1 Neck rolls = BOD</p> <p>Do not accept: sprinting = TV (no evidence of changing direction) Ladder runs on its own = TV</p>
2	(c)	<p>One mark for:</p> <p>Passing / catching / shooting / pivoting / intercepting / footwork</p>	[1]	<p>Accept any other sport specific skills relating to netball.</p> <p>Do not accept: any sport specific skills that cannot be used in netball eg heading Jumping = TV</p> <p>Accept: Defending / attacking = BOD</p>

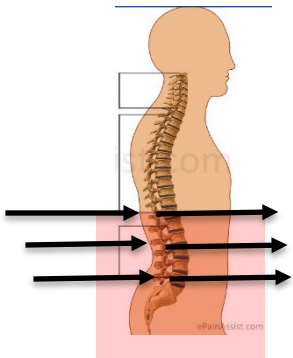
2	(d)	<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. <u>Improved</u> concentration/focus 2. (E.g.) The player will have more attention on the ball / players or less chance of collisions or bumping into players / being hit by the ball 3. <u>Increase</u> motivation or the player will be more determined/committed/ have more self-belief 4. (E.g.) The player will not be scared to intercept the ball 5. Use of mental rehearsal/mentally prepared or the player will visualise themselves/imagery helps make the correct decisions 6. (E.g.) Mistakes are minimised so less chance of player going over on their ankle or perform <u>technique</u> 7. <u>Increases</u> confidence / increase positive thoughts / decrease in negative thoughts 8. (E.g.) The player won't be thinking of getting hurt when making an interception or more chance of winning the tackle or going through the game plan 9. Reaction time is improved/quicker 10. (E.g.) Interceptions are well timed or no contact made 	[4]	<p>Sub max 2 marks for benefits (odd numbers) Sub max 2 marks for practical examples (even numbers)</p> <p>Do not accept: control their arousal levels and settle any nerves they have (in question) or any reference to anxiety or aggression / calming down</p> <p>Do not accept: Get into the right mindset / frame of mind / ready for the game = TV Motivation on it's own = TV Perform better = TV (must be linked to technique)</p> <p>Thinking about how to perform a tumble or other skills = BOD (Point 6) Improve mood = BOD (Point 7)</p> <p>Accept: Any example that refers to player / performer / ball / skills / tackling</p> <p>Accept other relevant examples (even numbers in MS) and other practical examples that are the same for other psychological benefits e.g. use of mental rehearsal (Point 5) so no contact made with other players (Point 2)</p> <p>A player will have more confidence and not scared of making a tackle = 2 marks (Points 7 and 8)</p> <p>Accept any equivalents to increase / improved eg better / more = more motivation or motivated</p>
2	(e)	<p>One mark for:</p> <p>Speeds up / increase speed / quicker (speed of muscular contraction)</p>	[1]	<p>Do not accept: Increases on it's own = TV</p>

Question		Answer	Mark	Guidance
3	(a)	<p>One mark for:</p> <p>Over-stretching / over-shortening / overuse / fatigue / lactic acid build up / excessive exercise / muscle strain (due to repeated muscular contractions) or lack of fluids/minerals/salt in the body or poor hydration or (sudden) or poor blood supply or oxygen to muscles</p>		<p>Mark first responses only.</p> <p>Do not accept: other underlying conditions such as infection/pregnancy/medication (responses must link to during exercise). Staying in same position too long as equivalent to excessive exercise = TV</p> <p>Overworking / overdoing = BOD</p>
	(b)	<p>One mark for:</p> <p>Stretching / massage / glucose (gels) / fluid intake / hot and cold treatments</p>	[2]	<p>Do not accept: Medication / painkillers / quinine (responses must be immediate) RICE = TV</p> <p>Accept: description of a player pushing down on leg or equivalent example = BOD</p>
4	(a)	<p>Two marks for two of:</p> <p>(Playing surface / surrounding area)</p> <p>1. Outside or inside - hard / slippy / litter / debris / equipment / uneven / advertising boards or fences (outside) / curtains or wall fittings (inside)</p> <p>(Weather)</p> <p>2. Outside - fog / sunny / raining / snowing / wind / unable to see so more chance of collisions</p> <p>(Temperature)</p> <p>3. Outside or inside - too cold / too hot</p> <p>(Other players)</p> <p>4. Outside or inside - tackling / collisions / number of players / space available</p>	[2]	<p>Do not accept: Repeat responses e.g. hard surface for indoor and outdoor = 1 mark max</p>

5		<p>Three marks for three of:</p> <p>(i) Cast / plaster / pot / boot / splint / sling</p> <p>(ii) Acute / Soft tissue (injury)</p> <p>(iii) Overstretching (of muscle) stretching too far / overextending</p>	[3]	<p>Muscle or tendon injury / pulled hamstring = TV</p> <p>Do not accept: Reference to overuse for cause (acute injury)</p> <p>Accept: Poor technique / poor landing (in gymnastics) Falling or tripping over = BOD Tackling = BOD Sprinting = BOD</p>
6		<p>Two marks for two of:</p> <p>1. <u>Compression</u> – apply pressure / force / to help stop or reduce blood loss / flow</p> <p>2. <u>Elevation</u> - raise cut above the level of the heart / to help stop or reduce blood loss / flow</p>	[2]	<p>Do not accept: any responses relating to ice (ice would not be used on a cut)</p> <p>Compression / Elevation = TV on it's own</p>

Question		Answer	Mark	Guidance
7	(a) (i)	<p>One mark for:</p> <p>Cycling / boxing / rugby / American football / football / ice hockey / hockey / horse riding / motocross</p>	[1]	<p>Mark first response only.</p> <p>Accept other sports with evidence of concussion injuries</p>
	(ii)	<p>One mark for:</p> <p>Collision / impact / blow / bump / bang / jolt <u>to the head</u></p>	[1]	<p>Do not accept: Scrum = TV Contact sport = TV Hard tackle = TV</p> <p>Banging heads in scrum = 1</p>
	(iii)	<p>One mark for:</p> <p>Helmet / headguard / scrum cap or hat / headgear</p>	[1]	<p>Mark first response only.</p> <p>Check candidates response for 7 (a) (i)</p> <p>Do not accept: helmet for Boxing/Rugby = TV Boxing gloves = TV Head protection or head protector = TV</p>
	(b)	<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. Headache 2. Tiredness 3. Dizziness / light headed 4. Feeling sick / vomiting / nausea 5. Dazed or confused / loss of focus or awareness 6. Memory loss / not able to remember 7. Loss of balance 8. Blurred or double vision 9. Swelling / lump on head 10. Unusual behaviour / slurred speech 11. Unconscious / blacking out 	[2]	<p>Accept: seeing stars = BOD Point 8</p> <p>Do not accept: Faint = TV</p>

Question		Answer	Mark	Guidance
8	(a)	<p>One mark for:</p> <p>(i) (Arms/legs) – shaking / loss of control / spasms / fits / twitching / numbness / rigidity / pins and needles / rubbing arms / tingling</p> <p>One mark for:</p> <p>(ii) (Eyes) – rolling back / staring / twitching / vacant look / blurred vision</p> <p>Two marks for two of:</p> <p>(iii and iv) (Mouth) – foaming / slurred speech / random noises / lip smacking / unusual taste / biting tongue</p>	[4]	<p>Mark first responses only.</p> <p>Do not accept: Sensitivity to light = TV Wide open = TV</p> <p>Accept: any responses linked to saliva</p> <p>Do not accept: Mouth open = TV Poor communication = BOD</p>
	(b)	<p>One mark for:</p> <p>(Emergency) care plan / (emergency) epilepsy plan / management plan</p>	[1]	<p>Do not accept: Medical review / recommendation = TV</p> <p>Accept: Emergency action plan / EAP = BOD Individual or patient care plan = 1</p>
	(c)	<p>One mark for:</p> <p>(i) False</p> <p>One mark for:</p> <p>(ii) False</p>	[2]	

Question		Answer	Mark	Guidance
9	(a)	<p>One mark for:</p> 	[1]	<p>Arrow must show location (towards the bottom of the spine) and direction (moving towards stomach).</p> <p>Do not accept: any arrows above the level of the top arrows in the diagram = TV</p> <p>Accept: Any arrow to left or right of spine at the lower back</p> <p>Simple lines drawn = TV unless clear on <u>direction</u> of curvature</p>
	(b)	<p>Two marks for two of:</p> <ol style="list-style-type: none"> 1. Poor technique / perform skill incorrectly 2. Poor posture 3. Over compensating 4. Strain on other parts of the body / more pressure on back / neck 5. Weaker bones / muscles / muscle imbalance 6. (Muscles) can lose flexibility 7. (More chance of) falling or tripping over / lose balance 	[2]	<p>Mark first responses only.</p> <p>Do not accept: Increase risk of injury on it's own (in question) Descriptions of lordosis on it's own = TV Back pain = TV Hunching = TV</p> <p>Unable to move back properly = BOD (Point 1)</p>

Question		Answer	Mark	Guidance
10	(a)	<p>One mark for:</p> <p>On-field / injury assessment (routine) or used to see if medical attention required</p>	[1]	<p>Do not accept: See, ask, look, touch, active, passive, strength</p> <p>Accept if linked to injury eg See the injury / see how bad the injury is</p> <p>Do not accept: Examples of injury on it's own</p> <p>Eg – sprained ankle = TV</p> <p>Used after injury = TV</p>
	(b)	<p>Two marks for two of:</p> <p>1. Stretch</p> <p>2. Assess</p>	[2]	
11		<p>One mark for:</p> <p>Osgood schlatter's (disease)</p>	[1]	<p>Mark first responses only.</p> <p>Incorrect spelling can be marked correct, as long as it resembles the correct answer</p> <p>Osgood or schlatter's = TV</p>
12		<p>One mark for:</p> <p>(c) Contact</p>	[1]	

13	(a)	<p>Three marks for three of:</p> <ol style="list-style-type: none"> 1. Size of the group / if the group is large or small/ chance of collisions / available space 2. Age of participants / elderly or children will require a different warm up / young children will require a warm up that is fun / elderly less intense war up 3. Experience / ability of participants / if the group is beginner or advanced or the more experienced the group the more demanding warm up / beginners may have a more fun/less intense warm up 4. Suitability as preparation for a particular activity/sport / warm up needs to suit basketball player 5. Previous injuries / if returning from injury a less intense warm up for injured part of body 6. Physiological capability of the group / strength or flexibility differences 7. Psychological issues / the warm up can focus the group so become less nervous 	[3]	<p>Do not accept: medical conditions and fitness levels (in question)</p> <p>Accept: males general stronger than females or females generally more flexible than males (Point 6)</p> <p>Right mindset = TV</p>
	(b)	<p>One mark for:</p> <p>Weather / temperature / available facilities or equipment / surface / space available</p>	[1]	<p>Accept: examples too hot / cold (weather)</p>

Question		Answer	Mark	Guidance
14	(a)	<p>One mark for:</p> <p>(Stretches that) return the muscle back to normal length / maintain or keep flexibility / decreases risk of injury / helps get rid of lactic acid / prevent aches or soreness or pain or cramps</p>	[1]	<p>Do not accept: Increases flexibility = TV Loosen muscles on it's own = TV</p> <p>Ease tension of muscles = BOD</p>
	(b)	<p>One mark for:</p> <p>At the end/after exercise/as part of a cool down</p>	[1]	Mark first response only.
	(c)	<p>One mark for:</p> <p>Deltoid/tricep/bicep/trapezius/latissimus dorsi stretch</p>	[1]	<p>Accept: Relevant descriptions of a stretch if wording of response does cause a stretch in the arms or shoulders.</p> <p>Do not accept: Shoulder/arm stretch (in question) or shoulder / arm rolls or circles</p>

<p>15.</p>	<p><u>Levels of response</u></p> <p>Level 3 (7-8 marks) A comprehensive response: - 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> <p>Level 2 (4-6 marks) A competent response: - 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> <p>Level 1 (1-3 marks) A basic response: - 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> <p>0 = nil response or no response worthy of credit.</p> <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</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 many (3+) individual variables that have been developed • clear and consistent practical application of knowledge & understanding to the actions a coach can take to lower risk of injury • Some imbalance between individual variables and actions of a coach may be present for 7 marks. <p>Level 2 Discriminators</p> <ul style="list-style-type: none"> • satisfactory knowledge & understanding of some individual variables with some development • some success in practical application of knowledge & understanding to the actions a coach can take to lower risk of injury • at least two individual variables have been developed for the top of this level and some knowledge / examples of the actions a coach can take to lower risk of injury • at the bottom of this level, one part of the question may be addressed well while there is a lack of knowledge in the other part or both parts may have been addressed with some success and some practical application <p>Level 1 Discriminators</p> <ul style="list-style-type: none"> • basic knowledge & understanding of individual variables with little development • little or no attempt at practical application of the actions a coach can take to lower risk of injury • at the top of this level at least one individual variable has been developed • limited practical application to the actions a coach can take to lower risk of injury • at the bottom of this level some knowledge of individual variables or the actions a coach can take to lower risk of injury
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<p><u>Individual Variables</u></p> <p>1. <u>Flexibility</u></p> <ul style="list-style-type: none"> • Females generally more flexible than males • If a performer has limited flexibility they are more prone to injury <p>EG - A basketball coach may ask their players to do more stretches to improve flexibility EG - A coach may perform an extended warm up for a gymnast if little flexibility to ensure muscles are warm and elasticated so less chance of injury or more flexibility in a player means less chance of injury</p> <p>2. <u>Nutrition</u></p> <ul style="list-style-type: none"> • Eating too much before a game/competition may cause performer to be tired/lose focus or concentration <p>EG - Not eating enough before a football game/competition may cause performer to be tired/lose focus or concentration EG – A coach may give sweets before/ at half time for immediate release of energy allows a football player to remain focused</p> <p>3. <u>Sleep</u></p> <ul style="list-style-type: none"> • Sleeping too much before a game/competition may cause performer to be tired/lose focus or concentration • Not sleeping enough before a game/competition may cause performer to be tired/lose focus or concentration and more chance of becoming injured <p>EG – A hockey coach recommending a suitable amount of sleep (8 hours) will help their players be fully alert and less chance of making wrong decisions/fouling</p> <p>4. <u>Age</u></p> <ul style="list-style-type: none"> • Performer may perform less intense exercises if older • Performer may avoid contact sports to help avoid injury as bones are weaker or play sports such as walking football instead of football 	<p>5. <u>Previous/recurring injuries</u></p> <ul style="list-style-type: none"> • If suffering from previous injury then body/muscles are weaker so more chance of injury <p>EG - If carrying an injury tennis players a coach may bandage/tape weak body part for extra support and less chance of injury EG - If carrying an injury a coach may rest a rugby player or may perform a less intense warm up/avoid contact</p> <p>6. <u>Gender</u></p> <ul style="list-style-type: none"> • Males generally stronger than females • Warm ups should not be tailored any differently because of gender <p>EG - If lifting weights then females may lift lighter weights during warm up as generally they are weaker</p> <p><u>Other:</u></p> <p>7. Psychological – anxiety / concentration / motivation / aggression 8. Experience – knowledge of rules 9. Ability – levels of performer 10. Health / medical conditions – fatigue / weaker 11. Fitness (components) – strength, fatigue</p> <p><u>Actions of coach and lowering risk of injury:</u></p> <p>Warm ups – suitable/appropriate to the individual Risk assessments / safety checks of individual Age - different age groups not competing together Communication / advice – diet plans (Point 2), sleeping patterns (Point 3), stretching (Point 1), technique (Point 8/9), behaviour, calming them down (psychological – Point 7) Emergency action plans in place (Point 10)</p> <p>Opposites to be credited.</p>
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