



# R041 Revision BOOKLET

## Key Stage Four

**Physical Education:**

*Sport Science: Reducing the risk of sports injuries*

**Name:**

**Teacher:**

**Group:**

## ***Learning Outcome 1: Understand different factors which influence the risk of injury***

### **Extrinsic factors which can influence the risk of injury:**

**1. Type of activity e.g. rugby:** Contact sports such as rugby are more likely to be associated with hard tackles causing injuries such as dislocations.

#### **3. Environmental factors**

Weather is a risk factor e.g. lightning can be fatal for sports people playing outdoors. The second risk factor is the playing surface e.g. rocks on a ski slope could cause an individual to become injured. The final environmental factor is other participants e.g. colliding with other players during a rugby scrum could cause a head injury.



**2. Coaching / Supervision:** **Poor coaching and supervision** of activities can lead to performers being taught the **incorrect technique** e.g. a gymnastics coach teaching someone how to do a somersault could lead to a muscle sprain if they perform the technique incorrectly. If the coach has **ineffective communication** e.g. a coach is unable to simplify their language when coaching a group of children resulting in them misunderstanding instructions and then mishandling sporting equipment and injuring themselves. Coaches must also ensure that all participants are aware of the **importance of adhering to rules and regulations** to avoid injury from occurring.



#### **4. Equipment**

- **Protective equipment:** Helps to reduce injury occurring e.g. gum shield in rugby, shin pads in football, helmet in cycling.

- **Performance equipment:** Equipment required to play the sport e.g. a hockey stick or a climbing harness

- **Clothing/footwear** which are suitable for playing the sport e.g. leotard in gymnastics or football boots for football

#### **5. Safety Hazards**

**Risk assessments:** Method of looking at playing area, equipment, activities etc. and deciding on control measures to prevent injury from occurring.

**Safety checks:** For example, the referee checking the field for glass in football, a climbing instructor checking a harness is not damaged before it is worn.

**Emergency action plans:** Plan of how to respond if an emergency was to occur. Including information on: name of first aider on site, mobile available for calling emergency services? Is a first aid kit available? Can the ambulance access the site of the injury?

1 (a) Identify **three** different extrinsic factors that may influence the risk of injury to a participant in physical activity.

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3 .....  
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(b) Describe each of these extrinsic factors.

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2 .....  
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2. Using practical examples explain how risk assessments can help to reduce injuries to participants in physical activity.

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## Intrinsic factors which can influence the risk of injury:

### 1. Physical preparation:

- a. **Training** – Overtraining can put too much stress on the body when it may not be physically ready e.g. a marathon runner returning from injury and running a marathon in the first week back. Incorrect training e.g not allowing muscles to recover from exercise can also lead to muscle pain and stiffness resulting in chronic injuries.
- b. **Warm up** - Failing to warm up or warming up incorrectly can lead to muscle strains due to not allowing blood to flow to the muscles or increasing the flexibility of muscle fibres. The body is therefore not prepared to take part in exercise.
- c. **Cool down** – Helps to keep the blood circulating to stop blood from pooling and helps to remove waste products from the muscles. This helps to reduce the likelihood of muscle pain and swelling from occurring.
- d. **Fitness levels** – When individuals are involved in sport regularly they are more likely to suffer from sports injuries. This is particularly common in weight bearing exercises such as running due to the impact on the feet, ankles and shins. Lower fitness levels are linked more to an increase in medical conditions such as heart disease and diabetes rather than sports injuries.
- e. **Overuse** – Overuse refers to using the same muscles over and over again. An **overuse injury** is any type of muscle or joint **injury**, such as tendonitis or a stress fracture, that's **caused** by repetitive trauma. An **overuse injury** typically stems from: Training errors. Training errors **can** occur when you enthusiastically take on too much physical activity too quickly.
- f. **Muscle imbalance** – Muscle imbalances occur when occur when one muscle is stronger than its opposing muscle e.g. the hamstrings and the quadriceps. When your muscles become imbalanced, the stronger muscles overcompensate for the weaker ones. Because the weak muscles can't match the strength and endurance of the stronger ones, they fatigue more easily and force the stronger muscles to work harder. Over time, the muscles begin to break down under the strain and develop overuse injuries

### 2. Individual variables that increase the risk of injury:

How does each variable link to injury?

Gender, Age, Flexibility, Nutrition, Sleep, Previous / Recurring Injuries



### 3. Psychological factors:

- **Motivation:** Motivation is a combination of the drive within us to achieve our aims and the outside factors which affect it. Motivation has the following two forms, intrinsic motivation and extrinsic motivation.

**Intrinsic motivation** – Motivated by the feeling of pride and enjoyment when you have been successful. Inner desire to overcome a problem or task.

**Extrinsic motivation** – Motivated by external sources outside of the performer e.g. money, rewards, trophies, praise from others, recognition etc.

If you are **under motivated** and are not motivated by trophies, praise or rewards you may lack concentration and focus during a sporting activity, for example in boxing this could cause a boxer to drop his guard and be hit by the opponent resulting in a facial injury such as a cut or bruise. If you are **over motivated** and are desperate to be rewarded with an intrinsic or extrinsic reward, this could also result in an injury occurring, for example, a losing team in the cup final in football could end up fouling a player in the penalty box due to them desperately trying to prevent the opposition from scoring a goal. This would not only result in a penalty to the other team but could cause an injury to the opponent or themselves for sliding in and possibly using the incorrect technique due to being over motivated.

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- **Aggression:** Aggression is defined as “any form of behaviour directed toward the goal of harming or injuring another live being who is motivated to avoid such treatment” This can be divided into two parts; hostile and instrumental. Hostile aggression is where the main aim is to cause injury or harm to an opponent. Instrumental aggression is to achieve a goal by using aggression e.g. a rugby player using aggression to tackle an opponent to win the ball. An example of aggression causing an injury could be in a rugby match a player may retaliate to a hard tackle by punching an opponent. This could be as a result of not agreeing with the tackle or because they are losing. This type of aggressive act could lead to a bruise, cut or fracture.

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- **Arousal:** Arousal is an individual’s level of excitement and readiness to perform. **Over arousal** is where a performer can feel overly ‘psyched up’ for a game or match. This could cause an individual to perform hard and untimed tackles in e.g. football due to being over excited and over aroused. **Under arousal** is on the opposite end of the continuum and would be associated with characteristics whereby a performer appears to be acting lazy, sluggish and not prepared for the activity. In a sport such as rugby this could lead to injury as a person may not react quickly to oncoming players who may tackle them. Being unprepared in this way could lead to the player falling awkwardly and injuring themselves.

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-**Anxiety:** Anxiety is a feeling of worry, nervousness or unease about something with an uncertain outcome. An athlete suffering from anxiety will usually underachieve. In sport anxiety is linked to a lack of concentration and focus. This could cause a sports injury in basketball as the player may not be focusing on the game. A team mate could try to pass the ball to them but due to a lack of focus this could cause them to become injured by the ball due to not focusing and catching the ball. This could cause an acute injury such as bruise.

## 4. Posture and causes of poor posture

**Posture** is the position in which you hold your body upright against gravity while standing, sitting or lying down. Good **posture** involves training your body to stand, walk, sit and lie in positions where the least strain is placed on supporting muscles and ligaments during movement or weight-bearing activities.

### Causes of poor posture:

- **Poor stance / gait (walking pattern):** For example, bending your knees or hunching your shoulders when standing
- **Sitting positions:** For example, slumping / slouching on the sofa rather than sitting upright
- **Physical defects:** For example, muscles which are weakened around an injured area from a previous injury
- **Lack of exercise:** Lack of core muscle strength means less support. Another example would be when someone is overweight which puts strain on posture.
- **Fatigue (tiredness):** Tired muscles are unable to support the skeleton properly and cause people to slouch.
- **Emotional factors:** For example, when people have low self esteem / lack of confidence, this can affect posture. People suffering from these factors tend to slouch, look down when walking and have hunched shoulders.
- **Clothing / footwear:** For example, wearing shoes with high heels causes people to lean forward which affects their posture.

### Possible Exam Question:

A lack of exercise can be one cause of poor posture

Describe four other causes of poor posture.

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## 5. Sports injuries related to poor posture

Sports Injury related to poor posture	Signs / symptoms:	How does this increase the risk of injury in sport?
<b>Pelvic Tilt</b>	Difference in length of legs (one is longer than the other) results in additional weight being put onto one side of the pelvis. Person may appear to be leaning to one side more than the other when they are moving. Person often seems unbalanced.	Additional weight being put onto the pelvis could lead to chronic injury such as a stress fracture. Poor balance could lead to a fall resulting in an acute injury e.g. a cut or bruise. Tenderness of muscles around the pelvic area will lead to pain and therefore contact sports will cause increased pain if muscles are touched by opponent.
<b>Lordosis</b>	Spine in the lower back is excessively curved. People have a visible arch in their lower backs. People with this condition often stick out their stomach and buttocks.	Leads to excessive pressure on the spine, causing pain. Reduces flexibility which is required to be successful in a number of sports such as gymnastics and trampolining.
<b>Kyphosis</b>	Curvature of the spine which causes the top of the back to appear more rounded than normal.	Causes back pain and stiffness making participation in sport difficult. Tiredness is also associated which decreases focus, concentration and ability to react quickly e.g. reacting to the ball in tennis. Some people may have to wear a back brace which also limits their participation in sport.
<b>Round shoulders</b>	Shoulders appear to lean further forward than normal. Upper back also bends forward.	Linked to shoulder and neck pain. Tight muscles in the neck and shoulder area reduces ability to perform skills and movements successfully in sport due to pain and reduced flexibility.

<b>Scoliosis</b>	<p>Abnormal curvature of the spine shape.</p> <p>Leaning to one side/spine bending either to the left/right or not being able to stand straight or bend properly.</p> <p>Uneven musculature in the back.</p> <p>One shoulder (blade)/hip being higher/more prominent than the other.</p> <p>Uneven arm/leg lengths</p> <p>Back pain</p>	<p>Increased chance of loss of bone mass/weaker bones increase in risk of fractures or if we fall we are more likely to get injured</p> <p>Muscular imbalance – important to work both sides of the body leading to strains or sprains.</p> <p>Over compensating due to previous injury resulting in poor posture/back ache</p> <p>Poor technique resulting in poor posture/back ache</p> <p>Poor balance can cause slips/falls/fractures</p> <p>Sports that put uneven load on spine e.g. figure skating/skiing and therefore related injuries more likely. One sided activities throwing (javelin)/racquet sports (tennis) and therefore related injuries more likely.</p>
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**Past exam questions related to intrinsic factors which increase the risk of injury:**

**1. Explain how four different individual variables can influence the risk of injury to a sports performer.**

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  2. ....  
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  3. ....  
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- (4 marks)

**2. Having poor body posture in sport can cause injury**

**Explain how the following can contribute to poor posture**

**a) Sitting position**

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..... (1)



**b) Fatigue**

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..... (1)

**c) Lack of confidence**

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**3. Describe how the following may increase the risk of injury for a sports performer**

**1. Nutrition**

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**2. Sleep**

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**3. Flexibility**

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**4. Explain how each of the following psychological factors can contribute to injury in sport**

**a) Anxiety levels**

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**b) Aggression**

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c) Motivation

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**Learning Outcome 2: Understand how appropriate warm up and cool down routines can help to prevent injury.**

**Warm up:**

A warm up is carried out before training or a competitive match/game to prepare a performer physiologically and psychologically.

**Physical benefits of a warm up:**

- Warming up muscles/preparing the body for physical activity
- Increase in body temperature which can be achieved during the pulse raiser (**so muscles more flexible/less chance of injury**)
- Increase in heart rate which occurs during the pulse raiser (**speeding up delivery of oxygen to working muscles**)
- Increase in flexibility of muscles and joints as a result of stretching (**reducing chances of injury**)
- Increase in pliability of ligaments and tendons as a result of stretching (**reducing chances of injury**)
- Increase in blood flow and oxygen to muscles
- Increase in the speed of muscle contraction/reaction time
- Increase in the strength of muscle contraction
- Release of adrenaline (**speeding up delivery of oxygen to working muscles**)
- Improve performance/technique/practice/rehearse skills
- Delay onset of lactic acid/fatigue
- Reduce risk of injury/muscle strain

**Psychological benefits of a warm up:**

- Heightens/control arousal levels/'get in the zone'/settle nerves
- Improve concentration/focus
- Increase motivation/drive
- Mental rehearsal
- Increase confidence.

Component of Warm Up:	Function:	Example of activities:
<b>Pulse Raiser</b>	Exercises that slowly increase the heart rate and body temperature	Jogging, skipping, hopping, cycling etc.
<b>Mobility</b>	Exercises that take the joints through their full range of movement	Arm swings, hip circles

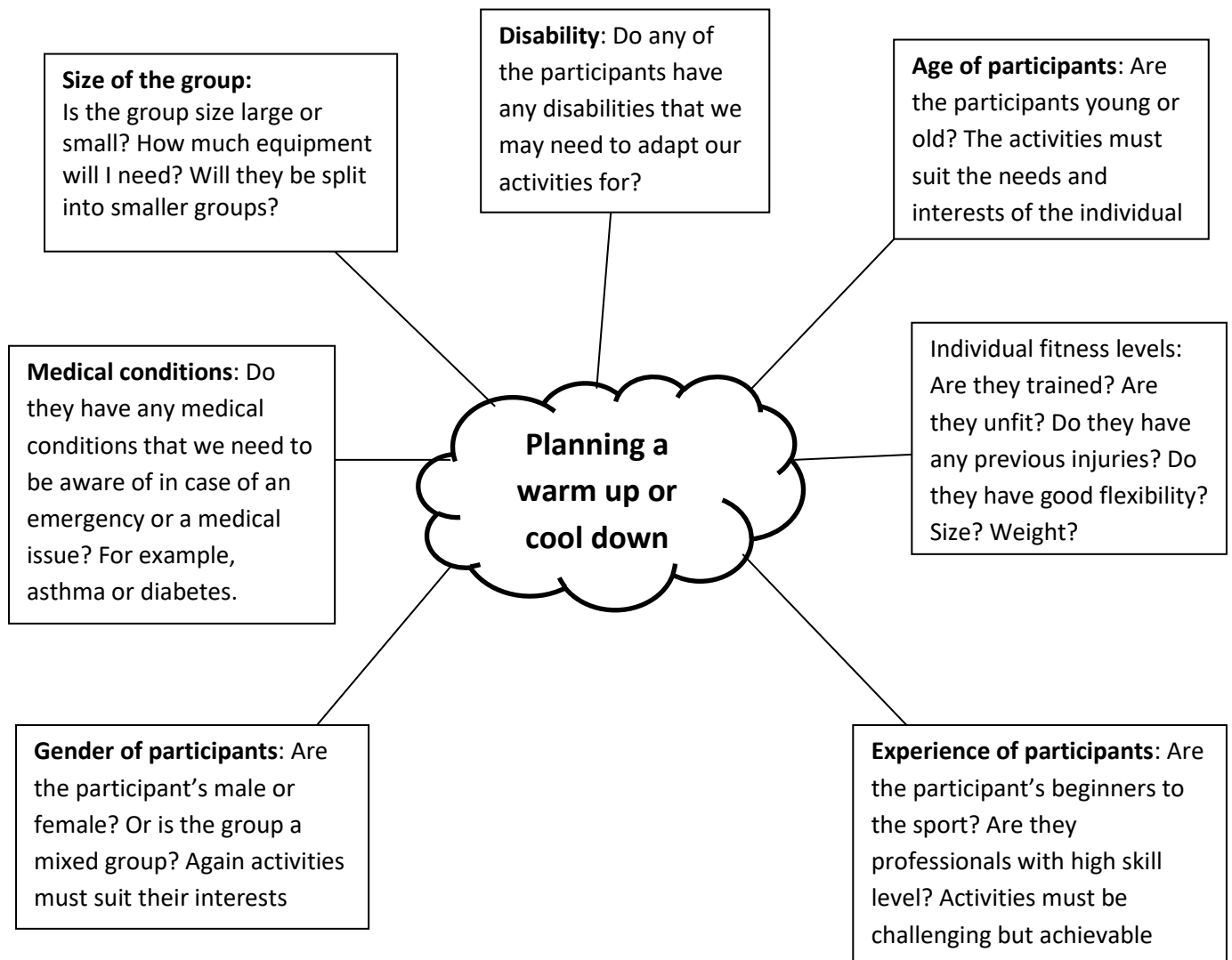
<b>Dynamic movements</b>	Changing speed and direction	Sprinting towards a cone, changing direction and sprinting to another.
<b>Stretching</b>	Can reduce injuries, increase flexibility, range of motion, posture and coordination. This should be divided into static and dynamic stretches	Static (still): quadricep stretch, hamstring stretch, biceps etc. Dynamic (moving): open the gate, close the gate, lunges walk.
<b>Skill Rehearsal</b>	Rehearsing common movement patterns and skills which will be used in the activity	Dribbling drills for football, passing skills for netball etc.

**Physical benefits of a cool down:**

- ❖ **Helps the body's transition back to a resting state**
- ❖ **Gradually lowers heart rate**
- ❖ **Gradually lowers body temperature**
- ❖ **Circulates blood and oxygen**
- ❖ **Reduces breathing rate**
- ❖ **Removes waste products such as lactic acid which can cause pain following exercise**
- ❖ **Reduces the risk of muscle stiffness and soreness**
- ❖ **Aids recovery by stretching muscles e.g. lengthens and strengthens muscles for the next work out or time that the muscles will be used.**

**Key components of a cool down:**

<b>Component of a cool down:</b>	<b>Function:</b>	<b>Example of activities:</b>
<b>Pulse lowering</b>	Exercises which gradually lower heart rate and reduce muscle temperature	Light jogging gradually reducing speed to walking.
<b>Stretching</b>	Static stretches to reduce muscle stiffness and to aid recovery	Static stretches (still): hamstring stretch, triceps stretch etc.



**Past exam questions related to warm ups and cool downs:**

- 1. Describe a suitable cool down for a rugby player**

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4. A coach must carefully consider the characteristics of an individual or group when planning and delivering a warm up or cool down.

Identify three of these specific characteristics of an individual or group

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5. Describe the following key components of a warm up

a) Pulse raiser

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b) Mobility

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..... (1)

c) Stretching

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..... (1)

d) Skill rehearsal

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6. Mental rehearsal can be used as part of a warm up routine. Using a practical example, describe mental rehearsal

Example:

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.....(1)

Description:

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..... (2)

**7. Give an example of a cool down exercise and explain why it is important to cool down following physical activity**

**Example:**

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**Explanation:**

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## The effect of environmental factors on a cool down:

**Facilities:** Do the facilities have an available space for a cool down or are the facilities booked following the match? May need to cool down in the changing rooms. Heavy rain during the game? = flooded pitch = cool down in changing rooms.

Facilities: If facilities are inadequate or have a poor surface/pitch then injuries may occur. The cool down may also be ineffective or dangerous.

**Hot Conditions:** Cooling down is more difficult in hot conditions, therefore participants should cool down in a shaded area or indoors.

Take on more fluids during the cool down.

Have an ice bath or water spray to lower core temperature.



**Cold Conditions:** Cool down inside to prevent heat loss. Wind or chill and wet weather conditions can cause participants to slip leading to sprains and strains. If the weather is very cold a longer cool down will be required. Muscles that have become tight from exercise will remain tight during the cool down if the weather is cold and therefore the cool down will need to focus on stretching.



## The effect of environmental factors on a warm up:

**Hot Conditions** – Can lead to conditions such as heat stroke and sunburn. Participants must ensure they keep hydrated and wear sun cream throughout the warm up and match/game.

**Playing Surface** – Hard playing surface from hot weather – studded boots will be unable to sink into the ground which could cause sprains, strains and fractures.

### Past Exam Question:

1. Alfie is starting to learn about warming up and cooling down as part of his coaching programme in football.

Explain three ways in which environmental factors could affect a cool down

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### **Learning Outcome 3: Know how to respond to injuries within a sporting context**

#### **Acute Injuries:**

An acute injury is caused by a sudden trauma to the body e.g. a hard rugby tackle, a two footed tackle in football, being hit by the ball etc.

These injuries result in immediate pain, swelling and usually a loss of function.

#### **Chronic Injuries:**

A chronic injury is also known as an overuse injury and happens as a result of continuous stress on an area e.g. Achilles tendonitis, shin splints, tennis elbow etc.

These injuries tend to gradually develop over time.

#### **Types, causes and treatment of acute injuries:**

<b>Types:</b>	<b>Causes:</b>	<b>Signs and symptoms:</b>	<b>Treatment:</b>
<b>Sprains</b>	A sprain occurs when one or more of your ligaments have been stretched, twisted or torn, usually as a result of excessive force being applied to a joint. Sprains are most likely to occur if you over-reach, change direction or speed suddenly, fall and land awkwardly or collide with an object or person.	Pain around the affected joint, being unable to use the joint normally or being unable to put weight on it, swelling, bruising and tenderness.	Minor sprains can usually be treated with rest, ice, compression and elevation. You should try to start moving a sprained joint as soon as it is not too painful to do so. Ordinary painkillers such as paracetamol can be used to help ease any pain. You can also use taping to treat some sprains
<b>Strains</b>	A strain occurs when muscle fibres stretch or tear. They usually occur when the muscle has been stretched beyond its limits or it has been forced to contract (shorten) too quickly.	Pain in the affected muscle, swelling, bruising, muscle spasms, loss of all or some of the function in the affected muscle, collection of blood under the skin causing a dark red like bruise	Can be treated with RICE, rest, ice, compression e.g. bandages to reduce swelling and elevation to prevent blood from pooling in the affected area and reduce swelling. Paracetamol.
<b>Fracture</b>	<b>Open fractures and closed fractures</b> are caused by trauma, most commonly from a direct blow, such as from a fall.	<b>Signs of an open fracture:</b> End of the bone is sticking through the skin, blood, swelling, pain. <b>Signs of a closed fracture:</b> Pain, bruising,	Support the injury, try to keep it still by using a splint, call 999 or take to hospital. Patient will require an X ray followed by a cast, sling

		swelling, unable to move affected area.	or possibly an operation depending on the type of fracture.
<b>Abrasion (cut/graze)</b>	A cut is a tear or opening in the skin which is caused by an external factor or from the skin wearing away. This could be from a fall, banging into something or being cut by something sharp.	Opening of the skin, blood, redness. If the cut is infected there may also be signs of discharge or pus coming from the cut, fever, increased pain, swelling, or warmth in the affected area.	Clean the cut, cover with a dressing or plaster. If the wound is infected injury you must see a doctor. To stop the infection from spreading, treatment most often consists of an antibiotic cream or ointment or a prescription for oral antibiotics.
<b>Concussion</b>	Concussion is the sudden but short-lived loss of mental function that occurs after a blow or other injury to the head.	Confusion, headache, dizziness, nausea, loss of balance, feeling stunned or dazed, disturbances with vision, difficulties with memory	Apply a cold compress to the injury to reduce swelling, take paracetamol to control pain – get plenty of rest and avoid stressful situations where possible, make sure you have someone to stay with you for the first 48 hours after the injury – this is in case you experience more serious follow-up symptoms. If you do, you must go to hospital as soon as possible.
<b>Blister</b>	Blisters are most often caused by skin being damaged by friction or heat	Fluid collects under the damaged skin, cushioning the tissue underneath, most blisters are filled with a clear fluid (serum), but may be filled with blood (blood blisters) or pus if they become inflamed or infected	Most blisters heal naturally after three to seven days and don't require medical attention. It's important to avoid bursting the blister, because this could lead to an infection or slow down the healing process. If the blister does burst, don't peel off the dead skin. Instead, allow the fluid inside the blister to drain and cover the area with a dry, sterile dressing to protect it from infection until it heals.
<b>Cramp</b>	Overuse of a muscle, dehydration, muscle strain or simply holding a position for a prolonged period of	Pain, tenderness and firmness of the muscle	The primary treatment of muscle cramps involves methods to relax the affected muscle. This typically involves

	time may result in a muscle cramp		stretching, massage, and heat application.
<b>Contusion (bruise)</b>	A bruise appears on the skin due to trauma. Examples of trauma are a cut or a blow to the area. The most common causes of bruising are: Bumps or any abnormal force applied to the body, falls, joint sprains, muscle strains and sporting injuries	A fresh bruise is often reddish. It will then turn blue or dark purple within a few hours, then yellow or green after a few days as it heals. A bruise is commonly tender and sometimes even painful for the first few days, but the pain usually goes away as the colour fades.	Most bruises will disappear within a few days or a week of injury without the need for any treatment but you can limit the internal bleeding by cooling the area with a cold compress or an ice pack wrapped in a towel. Internal bruising cannot be seen on the surface of the skin but the person can suffer from pain and swelling. If this occurs you must seek further medical advice from the hospital.
<b>Dislocation</b>	A dislocation usually happens when the bones that are usually connected at a joint separate. This can be caused by a unexpected impact to the area, a blow or a fall.	Numbness or tingling at the joint or beyond it Very painful Limited movement Swollen or bruised Visibly out of place, discoloured, or misshapen	Avoid moving the affected area You must go to A&E where you will be examined and have an X ray. Never try to pop the joint back into place yourself as this can cause further damage. The doctor will put the joint back into its socket. You may need a sling. Surgery is sometimes required if the tissues surrounding the joint are badly damaged.

### Types, causes and treatment of chronic injuries:

<b>Types:</b>	<b>Causes:</b>	<b>Signs and Symptoms:</b>	<b>Treatment:</b>
<b>Tendonitis</b>	Tendonitis injuries usually happen during sports or activities that involve sudden, sharp movements, such as throwing or jumping, or after repeated overuse of the tendons, such as running.	Pain that gets worse when you move the affected area, stiffness, weakness and sometimes unable to move the affected area, swelling, a lump on the affected tendon.	Stop exercising, rest, pain killers and anti-inflammatory tablets, ice, physiotherapy, massage, heat packs and in some situations surgery.

<b>Tennis Elbow</b>	Tennis elbow is a condition that causes pain around the outside of the elbow. It often occurs after strenuous overuse of the muscles and tendons of the forearm, near the elbow joint.	Pain on the outside of the upper forearm, pain when lifting or bending your arm, pain when gripping small objects, pain and stiffness when extending the arm.	Rest and stop doing the activity that caused the problem, ice daily, painkillers, anti-inflammatory tablets, heat packs, physiotherapy, surgery may be required to remove the damaged part of the tendon as a last resort. Taping can also be used to help treat and rehabilitate the injury.
<b>Golfers Elbow</b>	Caused by overusing the muscles in the forearm that allow you to grip, rotate your arm, and flex your wrist. Repetitive flexing, gripping, or swinging can cause pulls or tiny tears in the tendons.	Pain and tenderness on the inner side of the elbow, stiffness, weakness and numbness or tingling in the fingers.	Rest, ice the affected area, anti-inflammatory tablets, an arm brace to support the arm, stretching and strengthening exercises, bandage or splint.
<b>Shin Splints</b>	Can be caused by running on hard surfaces, wearing poorly fitting trainers, have flat feet, have weak ankles or a tight Achilles tendon.	Dull ache in the shin area, pain that develops during exercise, tenderness or soreness along the inner side of the lower leg.	Rest and do not do the activity that caused the shin splints for two weeks, ice daily, heat packs painkillers and anti-inflammatory tablets, wear the correct running shoes, you may also require insoles in your shoes.

### Injuries related to children

#### **Severs disease:**

- Bone disorder. Associated with inflammation of the growth plate in the heel of children when they are growing. This is common in children who are physically active. During the growth spurt of early puberty, the heel bone sometimes grows faster than the leg muscles and tendons. This can cause the muscles and tendons to become very tight and overstretched, making the heel less flexible and putting pressure on the growth plate. Over time, repeated stress (force or pressure) on the already tight Achilles tendon damages the growth plate, causing the swelling, tenderness, and pain of Sever's disease. Commonly results from physical activities and sports that involve running and jumping, especially those that take place on hard surfaces, such as track, basketball, soccer, and gymnastics.

#### **Signs and symptoms:**

- swelling and redness in the heel
- difficulty walking
- discomfort or stiffness in the feet upon awaking
- discomfort when the heel is squeezed on both sides
- an unusual walk, such as walking with a limp or on tiptoes to avoid putting pressure on the heel

**Treatment:**

- Rest
- Painkillers
- Child may be able to do other activities that do not involve putting pressure on the heel e.g. swimming
- Stretching and strengthening exercises of the leg and foot
- Elevate and apply ice daily
- Wear a compression bandage or stocking to reduce swelling.

## **Osgood Schlatter's disease**

- Osgood Schlatter's disease is an inflammation of the bone, cartilage, and/or tendon at the top of the shinbone (tibia), where the tendon from the kneecap (patella) attaches. It usually affects active adolescents around the beginning of their growth spurts. Growth spurts can begin any time between the ages of 8 and 13 for girls, or 10 and 15 for boys. It has been more common in boys, but as more girls participate in sports, this is changing. Teens increase their risk for Osgood Schlatter's disease if they play sports involving running, twisting, and jumping, such as basketball, football, volleyball, soccer, tennis, figure skating, and gymnastics

**Signs and symptoms:**

- pain that worsens with exercise
- relief from pain with rest
- swelling or tenderness under the knee and over the shinbone
- limping after exercise
- tightness of the muscles surrounding the knee (the hamstring and quadriceps muscles)

**Treatment:**

- Usually goes away when a teenager's bones stop growing, usually between 14 and 18 years
- Rest
- When they return to activity, wear shock absorbent insoles in shoes to decrease stress on the knee

- Applying moist heat for 15 minutes before or icing for 20 minutes after activity can minimize swelling.
- Stretching exercises
- Painkillers and anti-inflammatory tablets

**Past Exam Question:**

**1. Name an injury that mainly affects children and briefly describe it**

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**How to respond to injuries and medical conditions in a sporting context:**

**S A L T A P S -**

A method of assessing the type and severity of injuries. Gradual process which involves a number of stages. The assessment can be stopped at the appropriate stage e.g. with an open fracture, this would be obvious and therefore the assessment could be stopped at the look stage (the bone sticking out the skin would have been seen at this point).

**S** is for **See**. Did you see the injury take place?

**A** is for **Ask** the player what happened and how they feel. Check facial expressions, and posture (position either standing or lying down).

**L** is for **Look** at injured limbs for obvious signs of injury: bleeding, bruising, swelling, deformity. Take the player off if there are significant signs of injury.

**T** is for **Touch** the injured site if the player will let you. Gently palpate to find source of pain. If you are unsure, don't touch or move the limb until a qualified person can assess the player.

**A** is for **Active** movement: Can the player move the limb, with or without pain? If unable to move – take the player off.

**P** is for **Passive** movement: If A applies, move the limb/joint to full extent and note reaction.

**S** is for **Strength**: Can the player put their weight on it? Are they up and running or rather trying to “run-it-off”? Whatever the case, keep a close eye and take the player off if in doubt.

## RICE – Treatment for soft tissue injuries

Table 1. The RICE Method

**R—Rest**

Stay off the injured joint or muscle. When this is not possible, use a cane, walker, or crutches. Avoid activities that cause severe pain.

**I—Ice**

Ice the affected area every 2 to 3 hours, for no longer than 20 minutes per application. Ice packs/gels are better than frozen peas.

**C—Compression**

Use an elastic compression support/wrap to secure the injured joint and add support. This may also help reduce swelling and blood loss with acute injuries.

**E—Elevation**

Raise the affected limb above your heart to promote good circulation. This position also helps reduce swelling and pain.

*Source: Reference 13.*

## Emergency Action Plans:

An Emergency Action Plan (EAP) is a plan designed by coaches to assist them in responding to emergency situations. An EAP should be prepared for the facility or site where you normally hold practices and for any facility or site where you regularly host competitions.

An EAP should include:

- The designated person who is responsible in the event of an emergency
- The location of a telephone
- Emergency telephone numbers including emergency services and contact details for family members and next of kin.

- Address and directions to facility so that these can be told to the emergency services.
- First aid kit and where to find it. This should be kept fully stocked at all times. Any other emergency equipment on site? E.g. is there a defibrillator nearby? Is there an evacuation chair available in the event of a fire for disabled people as the lifts will be out of use?

***Learning Outcome 4: Know how to respond to common medical conditions***

<b>Medical Condition</b>	<b>Cause</b>	<b>Symptoms</b>	<b>Treatment</b>
<b>Asthma</b>	<p>Inflammation of the small tubes called the bronchi.</p> <p>You are more likely to develop asthma if you have a family history of the condition.</p>	<ul style="list-style-type: none"> <li>- Coughing</li> <li>- Wheezing</li> <li>- Shortness of breath</li> <li>- Tightness in the chest</li> </ul>	<ul style="list-style-type: none"> <li>- Stop activity and sit them down</li> <li>- Reassure the patient, stay calm, keep them relaxed</li> <li>- Encourage them to take slow, steady breaths</li> <li>- Inhaler – they should take this themselves</li> <li>- Emergency services (if needed)</li> <li>- Some patients take steroid tablets (if prescribed), they will need these if this is the case.</li> </ul>
<b>Type 1 Diabetes</b>	<p>The pancreas doesn't produce any insulin. Type 1 diabetes are usually diagnosed early on in a person's life and is usually genetic.</p>	<ul style="list-style-type: none"> <li>- feeling very thirsty</li> <li>- urinating more frequently than usual, particularly at night</li> <li>- feeling very tired</li> <li>- weight loss and loss of muscle bulk</li> <li>- blurred vision</li> <li>- slow healing of cuts and grazes</li> </ul>	<ul style="list-style-type: none"> <li>- Changing lifestyle – improvements in diet and exercise, losing weight.</li> <li>- need insulin injections.</li> <li>- If blood sugar is too low, person will show signs of sweating, shaking, feelings of weakness and may appear confused. This is called hypoglycaemia.</li> </ul>



			Treatment = give person fast acting sugars e.g. sugary drinks.
<b>Type 2 Diabetes</b>	Occurs when the body doesn't produce enough insulin to function properly, or the body's cells don't react to insulin. Usually occurs later in life with aging. Other risk factors are genetics, being overweight and ethnicity	<ul style="list-style-type: none"> <li>- feeling very thirsty</li> <li>- urinating more frequently than usual, particularly at night</li> <li>- feeling very tired</li> <li>- weight loss and loss of muscle bulk</li> <li>- blurred vision</li> <li>- slow healing of cuts and grazes</li> </ul>	<ul style="list-style-type: none"> <li>- Changing lifestyle – improvements in diet and exercise, losing weight.</li> <li>- Usually controlled with tablets but if not successful they may also need insulin.</li> <li>- If blood sugar is too low, person will show signs of sweating, shaking, feelings of weakness and may appear confused. This is called hypoglycaemia. Treatment = give person fast acting sugars e.g. sugary drinks.</li> </ul>
<b>Epilepsy</b>	Associated with damage to the brain.  Some cases of epilepsy may be caused by changes in the brain that occur as a result of the genes you inherit from your parents.	<ul style="list-style-type: none"> <li>- Tingling sensations / pins and needles</li> <li>- Sudden muscle stiffness</li> <li>- Seizures</li> <li>- Loss of senses</li> <li>- Blurred vision</li> <li>- Loss of consciousness</li> <li>- Not remembering/unable to communicate/blank staring/ unaware of surroundings</li> <li>- Foaming at mouth</li> <li>- Headaches</li> </ul>	<ul style="list-style-type: none"> <li>- Call the emergency services</li> <li>- Move objects to ensure the person is kept from harm. Keep them safe</li> <li>- Give them their medication</li> <li>- Keep them warm</li> <li>- When the fit has finished, put them in the recovery position.</li> </ul>

**Past Exam Question:**

1. Give three symptoms that a coach should be aware of if someone in their class has been diagnosed with asthma.

.....  
.....  
.....  
..... (3)

## Exam Technique

Reading the questions properly is the key to answering them correctly. Don't skim read, make sure you read every part of every question several times.

### Use colour:

Underline *every piece of information* that you have been given 1 colour, e.g. intrinsic, asthma, symptom, - this way you won't forget a piece of information that they have given you.



Do this on your first read through

On your second read through underline the *question and command word* in another colour, eg State, describe, explain.

### Make sure your writing is legible:

Examiners will not spend forever trying to work out what you have written, if they can't read it they will just mark it wrong.

### Do what the question says:

Sounds simple, but so many marks are lost when you don't.

### Do not repeat the question:

You gain no marks for this, it wastes time and wastes space.