# OCR Sports Science Knowledge Organiser

## RO41 LO1 Understand different factors which influence the risk of injury

**Extrinsic Factor**
**Type of activity**

Contact sports such as Rugby or boxing present different injury risks from gymnastics and swimming activities.
Activity may not be suitable for the participants age, older the participant the higher the risk of injury.

**Extrinsic Factor**
**Coaching/supervision**

Coaching techniques and communication skills. Demonstrating the importance of adhering to rules and regulations.
For example: Coaching the correct tackling technique in rugby or equivalent can avoid dangerous play.
Or by not making a two-footed tackle in football or equivalent.

**Extrinsic Factor**
**Equipment**

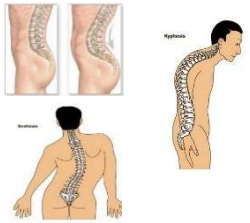
**Protective equipment**
For example shin pads in football, gum shield in boxing, helmet in cycling, goggles in skiing.
**Equipment needs to be checked its working**
For example hockey stick, cricket ball, rock climbing harness
**Suitable clothing/footwear** For example: Football boots, trainers for inside
**Surface suitable for playing**
surface/weather/specific sport or activity

**Extrinsic Factor**
**Safety hazards**

Risk assessments need to be carried out on activity and possibilities of injuries occurring within the activity.
Safety checks to ensure the activity can still go ahead.
Emergency action plans in place for minor and major injuries as well as fire escape plans so that coaches/participants know what to do.

**Extrinsic Factor**
**Environmental Factors**

Surface/performance area or surrounding area such as holes in ground/glass in area/Electrical equipment /slippy.
Temperature / weather conditions for example if it is too wet/windy then may need to take place indoors.
Other participants not following correct health & safety regulations.



**Intrinsic Factor**
**Physical preparation**

**Training**
The exercise you do over a period of time to help prepare for an event.
**Warm up**
The pulse raiser and stretches you do before you start exercising.
**Cool down**
The lowering of your pulse and stretches you do when you have finished exercising.
**Fitness levels**
How fit you are depending on how much training you have been doing.
**Overuse**
Working your body or certain muscles too hard without giving them enough time to rest and repair.
**Muscle imbalances**
Overtraining some of your muscles but not training others enough.

**Intrinsic Factor**
**Psychological Factors**

**Motivation**
The reason for people's actions. If they are hugely motivated they will put in lots of effort. If they are not very motivated they will not try very hard.
**Aggression**
Hostile or violent behaviour. Some sports have an element of aggression BUT how much is appropriate?
**Anxiety**
Negative emotional state. Arousal - how alert and attentive a performer is.

**Intrinsic Factor**
**Individual variables**

– gender
– age
– flexibility
– nutrition
– sleep
– previous/recurring injuries


**Intrinsic Factor**
**Sports injuries related to poor posture**

**Pelvic tilt –**where the hips are not level
**Lordosis-**lower back has excessive curvature
**Kyphosis –**curving of the upper spine appearing slouched
**Round shoulder**
**Scoliosis-**spine curves to the side

**Posture and causes of poor posture**

**Poor stance/gait** (e.g. bending your knees or hunching your shoulders when standing)
**Sitting positions** (e.g. slumping/slouching on the sofa rather than sitting upright)
**Physical defects** (e.g. muscles weaken around an injured area)
**Lack of exercise** (e.g. lack of core muscle strength means less support, being overweight puts strain on posture) fatigue (e.g. tired muscles will be unable to support the skeleton properly)
**Emotional factors** (e.g. having low self-esteem/lack of confidence can influence posture)
**Clothing/footwear** (e.g. wearing shoes with high heels can affect posture)

# OCR Sports Science Knowledge Organiser

## RO41 LO2 Understand how appropriate warm up and cool down routines can help to prevent injury

### Key Components of a Warm Up

**Pulse Raiser**
Exercises that slowly increase heart rate and body temperature. Light physical activity like jogging, walking or swimming. Should take between 5 and 10 minutes and result in a general sweat.

**Static Stretching**
Placing the body into a position where the muscle or group of muscles is put under tension. Developmental stretches, dynamic stretches linked to sport – 'open and close the gate' groin walk)

**Mobility**
Exercises that take the joints through their full range of movement (ROM) (e.g. arm swings, hip circles). A controlled, soft bounce of swinging motion that moves a body part to the limit of its range of movement.

**Skill Rehearsal**
Rehearsing common movement patterns and skills which will be used in the activity (e.g. dribbling drills for football, passing drills for netball) More vigorous activity which reflect the type of activity which is required during the session.

### The physical benefits of a warm up

- Warming up muscles/preparing the body for physical activity
- Increase in body temperature
- Increase in heart rate
- Increase in flexibility of muscles and joints
- Increase in pliability of ligaments and tendons
- Increase in blood flow and oxygen to muscles
- Increase in the speed of muscle contraction
- Decreases risk of injury

### The Psychological Benefits of a warm up

**Heighten or control arousal levels (e.g. 'get in the zone' or settle nerves)**
Helps you forget about any worries/stress that you might have been dealing with before the event. You are solely concentrating on the task in hand.

**Improve concentration/focus**
Help you visualise certain parts of your performance. E.G. Lots of 100m sprinters will visualise themselves running the race from the start position.

**Increase motivation**
Help you achieve an optimum arousal. Not too much that you are 'over excited' and not too little that you are not going to try.

**Mental rehearsal**
Helps you improve feelings of wanting to perform well or win.

### Key Components of a Cool down

**Pulse Lowering**
Exercises which gradually lower heart rate and reduce temperature. (e.g. easy movements, light jog/brisk walk)

**Stretching**
Exercises which lengthen and stretch muscles for next work out. i.e. maintenance stretches, static stretches (e.g. hamstring stretches)

### The physical benefits of a cool down

- Helps the body's transition back to a resting state
- Gradually lowers heart rate
- Gradually lowers temperature
- Circulates blood and oxygen
- Reduces breathing rate
- Removes waste products such as lactic acid
- Reduces the risk of muscle soreness and stiffness
- Aids recovery by stretching muscles winning
- Aids recovery from injury

### Specific needs which a warm up and cool down must consider

**Characteristics of the individual/group,**

- **Size of group** for example you wouldn't take a group of 60 students for Badminton with only 4 courts in the sports hall because it may cause collisions resulting in injury.
- **Age of participants** for example if the group consisted of older and younger participants they would not be able to do a contact sport such as rugby.
- **Individual fitness levels** for example if you participants in the group who are less physically fit than others then they would need to do a less intense warm up.
- **Medical conditions** for example participants may have asthma, diabetes or epilepsy so you would need to check they have the correct medication.
- **Suitability as preparation for a particular activity/sport** for example if it was a 80 year old individual then maybe it would be better for them to participate in walking football rather than normal football.

**Environmental factors**
For example if the surface area outside is on the football pitches you would have to adapt your session to futsal.

- **weather/temperature**
- **indoors/outdoors**

# OCR Sports Science Knowledge Organiser

## RO41 LO3 Know how to respond to injuries within a sporting context

**Acute Injuries**

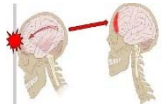
Caused as a result of a sudden trauma to the body (e.g. hard rugby tackle, being hit by a ball). Result in immediate pain, and usually swelling with a loss of function.

**Soft tissue injuries**

**Sprain (ligament)**For example in weight lifting trying to lift heavier weights than you are able to.
**Strain (tendon)** For example a football player rolling their ankle on an uneven playing surface. Can both be treated by **RICE** especially ice as it prevents swelling/ decreases blood flow to the area.

**Fractures**

**Open (through the skin)** For example a bad tackle in football causing an open fracture.
**Closed (under the skin)** For example getting hit in the ribs in boxing and one breaking. Can both be treated with a **splint/cast or sling** as it's held in a position to support injured area so that the area is immobilised and gives support so it can repair.



**Concussion (head injury)**

For example in rugby colliding with a players head. Can both be treated by **RICE** especially ice as it prevents swelling/ decreases blood flow to the area.

**Abrasions (grazes and cuts)**

For example falling over on the courts in netball. This can be treated with plasters as it stops bleeding and prevents infection and protects the area.

**Contusions (bruises)**

For example a hockey ball hitting a player in the leg. This can be treated by **RICE** especially ice as it prevents swelling/ decreases blood flow to the area.

**Cramp**

For example painful sensations when you get when running. Can both be treated by **RICE** or taping the area in place/ gives support so you can move it.

**SALTAPS**

**SEE**
- See injury occur.

**ASK**
- Ask what is wrong and where they have pain.

**LOOK**
- Look for signs of bleeding, deformity of limbs, inflammation, swelling or redness.

**TOUCH**
- Touch the injury for signs of heat, tenderness, loss or change of sensation/pain.

**ACTIVE**
- Ask injured person to move the injured area if possible through all range of movements.

**PASSIVE**
- Try to move the injured area only if good range of movement is possible

**STRENGTH**
- If no pain during range of movements, use resisted movement to assess further loss of function.

**Injuries related to children**

**Severs disease**
Inflammation of the growth plate in the heel of growing children.
**Osgood Schlatter's disease**
Inflammation of the area just below the knee at the patella tendon.

**RICE**

**REST**
- Rest the injury for the first two to three days. Then reintroduce movement gradually.

**ICE**
- Ice the painful area with a cold compress. Do this for 15-20 minutes every two to three hours. Don't apply directly to the skin as it can damage it.

**COMPRESS**
- Compress the injured area with an elastic bandage to help limit the swelling but don't leave it on during sleep.

**ELEVATE**
- Elevate the injury by resting it above the level of your heart and keep it supported.

**Chronic Injuries**

Also known as overuse injuries and are a result of continuous stress on an area. These injuries tend to develop gradually over a period of time.

**Overuse injuries**

For example tendonitis, tennis elbow, golfers elbow, shin splints.

**Blisters**

For example blisters on the foot due to poorly fitting footwear.

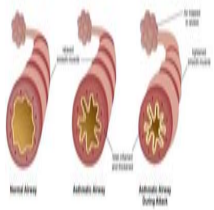
**Emergency Procedures in a sporting context**

**Emergency personnel** (first aider/coach/first respondent)
**Emergency communication** (emergency numbers/emergency services)
**Emergency equipment** (first aid kit/defibrillator/stretcher)

**Benefits of having an Emergency Action Plan in place**
- Injury is dealt with quicker and more efficiently
- Coach has pre-planned and practice for emergencies
- Makes the players feel safer
- Reduces the risk of injury getting worse
- Reduces the risk of injury happening
- Reduces the risk of minor injuries turning into a major injury

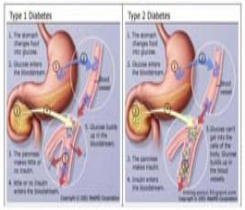
# OCR Sports Studies Knowledge Organiser

## RO41 LO4 Know how to respond to common medical conditions



### Asthma Facts

Around 5 million people in the UK suffer from asthma.
Asthma is inflammation of the bronchi and bronchioles in the lungs.
This causes the airways to become narrower.
Due to the lack of oxygen, breathing rate is increased which can cause an asthma attack.




### Diabetes Facts

Around 4 million people in the UK have diabetes.
Diabetes is to do with you blood sugar levels.
Type 1 – Your body cannot produce insulin (you need insulin)
Type 2 – Your body resists insulin (you do not need insulin)
Insulin is what helps to control sugar levels in your body so with both types your body struggle to control blood sugar levels.

### Epilepsy Facts

Effects more than 500,000 people in the UK.
It is where a person is likely to have seizures. This is due to electrical signals in the brain not working correctly. It stops the brain from functioning properly.
Once it has stopped the person functions as normal but may feel tired/unwell after.


### Asthma Symptoms

- Coughing /wheezing
- Shortness of breath/difficulty breathing difficulty speaking
- Tightness in the chest
- Pale skin/clammy skin
- Blue lips (if attack severe).
- Dizziness


### Diabetes Type 1 and 2 Symptoms

- Increased thirst
- Increase urination
- Fatigue/confusion
- Weight loss
- Type 1 (insulin-dependent)
- Type 2 (non-insulin dependent)


### Epilepsy Symptoms

- Temporary confusion
- A staring spell
- Seizures
- Loss of consciousness or awareness
- Psychic symptoms

### How to respond to an Asthma attack

- Reassurance and keep calm
- Make light conversation
- Sit them down or upright
- Slow and steady breaths
- Use of inhaler
- Contact emergency services (if needed) or call 999
- Steroid tablets.


- Hypoglycaemia (low blood sugar), give the individual sugar
- Hyperglycaemia (high blood sugar) give the individual insulin.

**How to Respond to Diabetes Type 1**

- Type 1 Insulin (or glucose).

**How to Respond to Diabetes Type 2**

- Type 2 diabetes may be managed with non-insulin medications or dietary changes.

### How to respond to an Epileptic fit

- Emergency care plans in place for the individual
- When to refer the casualty on to a professional and how to do so.
- 999 if the seizure lasts longer than normal or longer than 5 minutes.