

Sport Science Year 10 Revision Topics

Reducing the Risk of Injury Content

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

Learners must be taught:

- **extrinsic factors** which can influence the risk of injury, i.e.
 - type of activity (e.g. contact sports present different injury risks from gymnastic activities)
 - coaching/supervision, i.e.
 - poor/incorrect coaching techniques
 - ineffective communication skills
 - importance of adhering to rules and regulations
 - environmental factors, i.e.
 - weather
 - playing surface/performance area and surrounding area
 - other participants
 - equipment, i.e.
 - protective equipment (e.g. shin pads in football, gum shield in boxing, helmet in cycling, goggles in skiing)
 - performance equipment (e.g. hockey stick, cricket ball, rock climbing harness)
 - clothing/footwear suitable for playing surface/weather conditions/specific sport or activity
 - safety hazards, i.e.
 - risk assessments
 - safety checks
 - emergency action plans



Intrinsic factors which can influence the risk of injury, i.e.

1. physical preparation, i.e.

- training
- warm up
- cool down
- fitness levels
- overuse
- muscle imbalances

2. individual variables, i.e.

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

3. psychological factors, i.e.

- motivation
- aggression
- arousal/anxiety levels

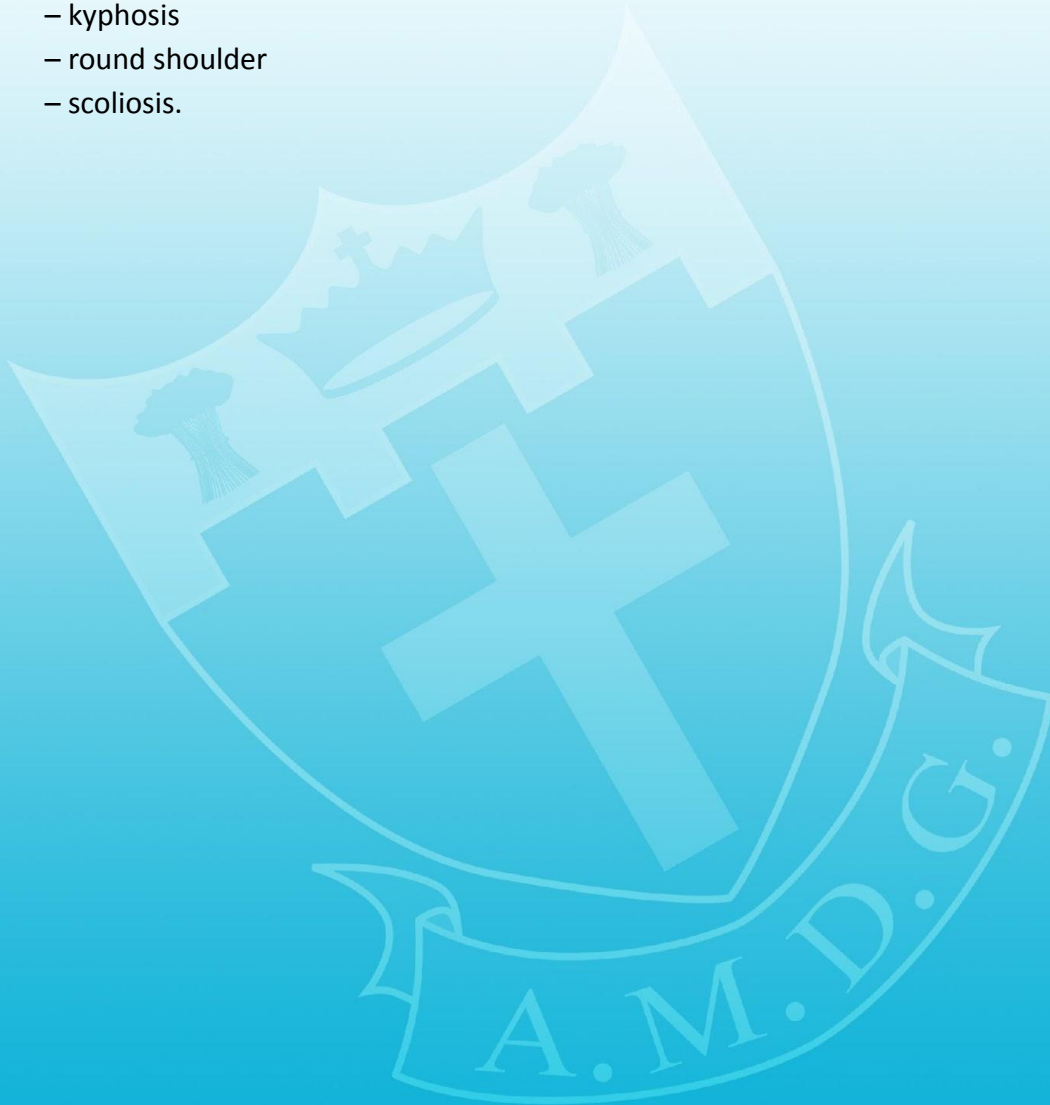
4. posture and causes of poor posture, i.e.

- 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)



5. sports injuries related to poor posture, i.e.

- pelvic tilt
- lordosis
- kyphosis
- round shoulder
- scoliosis.





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

Learners must be taught:

- **the physical benefits of a warm up**, i.e.

- 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

- **the psychological benefits of a warm up**, i.e.

- heighten or control arousal levels (e.g. 'get in the zone' or settle nerves)
- improve concentration/focus
- increase motivation
- mental rehearsal

- **key components of a warm up**, i.e.

- pulse raising, i.e. exercises that slowly increase heart rate and body temperature (e.g. jogging, cycling, skipping)
- mobility, i.e. exercises that take the joints through their full range of movement (ROM) (e.g. arm swings, hip circles)
- dynamic movements (e.g. change of speed and direction)
- stretching (e.g. developmental stretches, dynamic stretches linked to sport – 'open and close the gate' groin walk)

skill rehearsal phase, i.e. rehearsing common movement patterns and skills which will be used in the activity (e.g. dribbling drills for football, passing drills for netball)

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- **physical benefits of a cool down**, i.e.

- 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, i.e. lengthening and strengthening muscles for next work-out/use

- **key components of a cool down**, i.e.

- pulse lowering, i.e. exercises which gradually lower heart rate and reduce temperature (e.g. easy movements, light running, stretching)

- stretching, i.e. maintenance stretches, static stretches (e.g. hamstring stretches)

- **specific needs which a warm up and cool down must consider**, i.e.

- characteristics of the individual/group, i.e.

- size of group

- age of participants

- experience of participants

- individual fitness levels

- any medical conditions participants may have

- suitability as preparation for a particular activity/sport

- environmental factors (e.g. weather/temperature if outdoors, available facilities).

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

Learners must be taught about:

- **acute and chronic injuries**

- acute injuries, i.e.
 - 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
- chronic injuries, i.e.
 - also known as overuse injuries and are a result of continuous stress on an area (e.g. Achilles tendonitis, shin splints or tennis elbow)
 - these injuries tend to develop gradually over a period of time

- **types, causes and treatment of common sports injuries**, i.e.

- soft tissue injuries, i.e. sprains, strains
- overuse injuries, i.e. tendonitis, tennis elbow, golfers elbow, shin splints
- fractures, i.e. open, closed
- concussion, i.e. signs and symptoms of concussion
- abrasions, i.e. grazes and cuts
- contusions, i.e. bruises
- blisters (e.g. blisters on the foot due to poorly fitting footwear)
- cramp, i.e. painful sensations caused by muscle contractions or over shortening
- injuries related to children (e.g. severs diseases, Osgood Schlatter’s disease)

- **how to respond to injuries and medical conditions in a sporting context**, i.e.

SALTAPS on-field assessment routine (See, Ask, Look, Touch, Active, Passive, Strength)

- R.I.C.E. (Rest, Ice, Compress, Elevate)
- stretching and massage
- taping, bandaging, splints, slings
- hot and cold treatments (e.g. heat pack, freeze spray)
- action plan to respond to injuries and medical conditions in a sporting context i.e. emergency procedures

- **Emergency Action Plans (EAP) in a sporting context:**

- emergency personnel, i.e. first responder, first aider, coach
- emergency communication, i.e. telephone, emergency numbers, emergency services
- emergency equipment, i.e. first aid kits, evacuation chair.





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

Learners must be taught:

- **the symptoms of common medical conditions, i.e.**
 - Asthma, i.e. coughing, wheezing, shortness of breath, tightness in the chest.
 - Diabetes, i.e. increased thirst, going to the toilet lots, extreme tiredness, and weight loss, differences between Type 1 (insulin-dependent) and Type 2 (non-insulin dependent)
 - Epilepsy, i.e. seizures
- **how to respond to these common medical conditions, i.e.**
 - ensure awareness of any participants' medical conditions prior to commencing physical activity
 - Asthma, i.e. reassurance, inhaler, emergency services (if needed)
 - Diabetes, i.e. insulin (or glucose) hypoglycemia (low blood sugar), give the individual sugar (e.g. fruit juice, sugary sweets)
 - Epilepsy, i.e. emergency care plans in place for the individual
 - when to refer the performer on to a professional and how to do so.

Past papers and Answers: <https://drive.google.com/open?id=0B0RB1CNM8h-BcEFaVTZsY1RYWWc>

Presentations and Worksheets: LO1 Extrinsic and Extrinsic Risk Factors:

<https://drive.google.com/open?id=0B0RB1CNM8h-BQjJWcnc5cjVFbzQ>

LO2 Warm Up and Cool Down: <https://drive.google.com/open?id=0B0RB1CNM8h-BbXk4c0RNMkJzZEE>

LO3 Responding to Injuries: <https://drive.google.com/open?id=0B0RB1CNM8h-BY3FLU2IBbGxUam8>

LO4 Responding to Common Medical Conditions:

https://drive.google.com/open?id=1_gVhYp2zaf3puRD5I-kcS_IB_P-6xoZu

Revision guide:

https://drive.google.com/open?id=1KmHcyeF3GhvUu77hiTj6_rDPidTi3TS7o6YETIMImHE