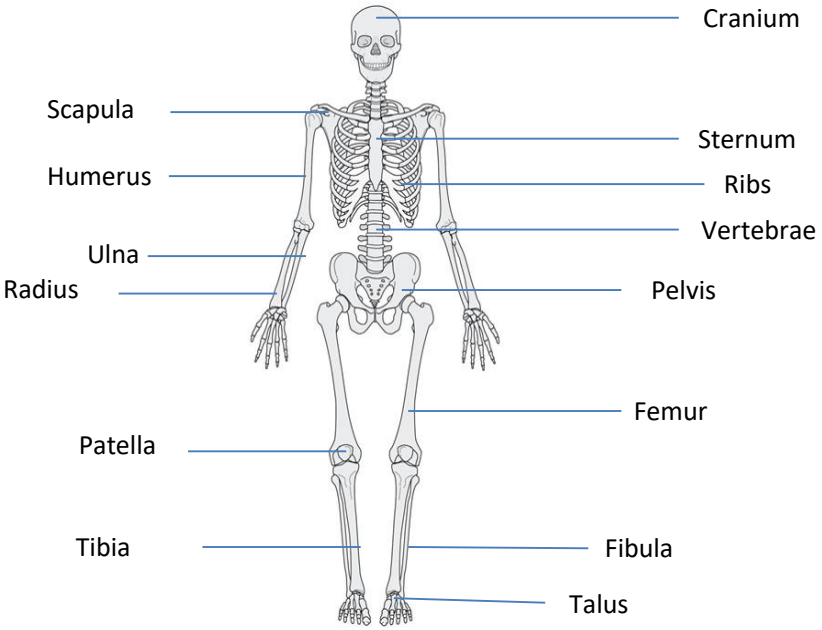
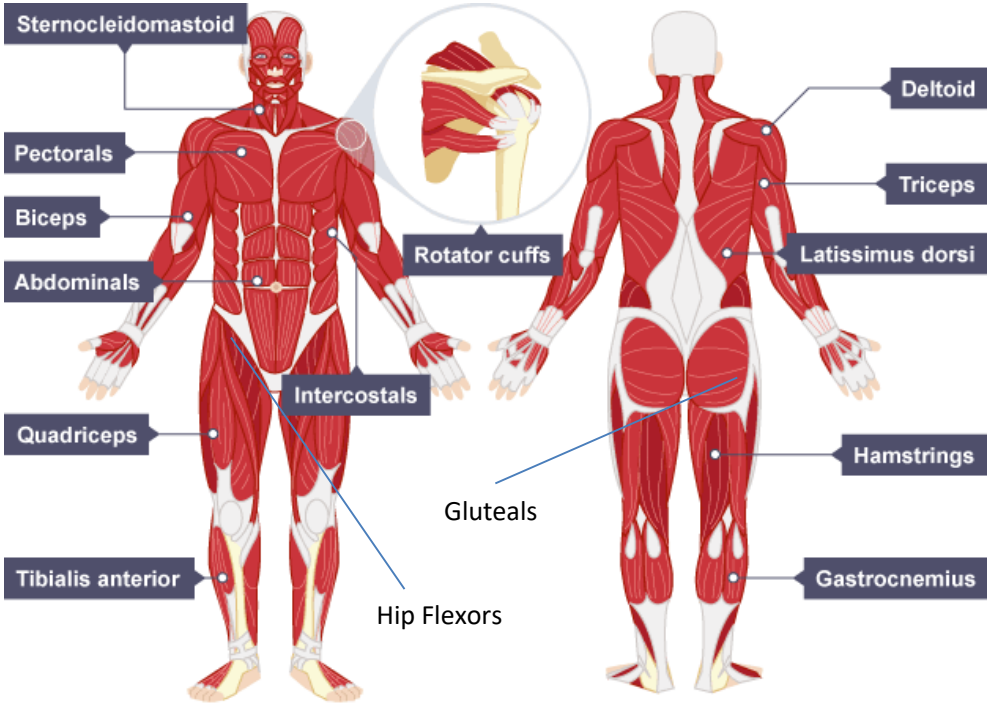




Types of Muscle Contraction

Isotonic Contractions

These contractions occur when there is movement of the body. The ends of the muscles move closer together to cause the movement.

Isometric Contractions

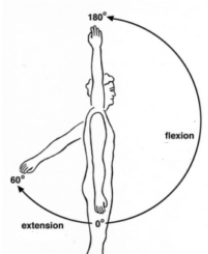
This type of contraction takes place when the body is being held in the same position. The length of the muscle during these contractions stays the same length.

Isotonic Concentric Contraction occurs when the muscle shortens e.g. biceps contracting concentrically during the upwards phase of a bicep curl / triceps contracting concentrically during the upwards phase of a press-up

Isotonic Eccentric Contraction occurs when the muscle lengthening (antagonist) is under tension. An eccentric contraction provides the control of a movement on the downward phase and it works to resist the force of gravity e.g biceps contracting eccentically when lowering the weight in a bicep curl / triceps contracting eccentically during the downwards phase of a press-up.

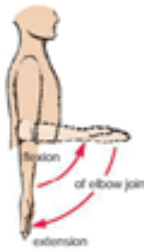
Flexion and extension at the shoulder

- The **Deltoid** causes flexion at the shoulder
- The **Latissimus dorsi** causes extension at the shoulder



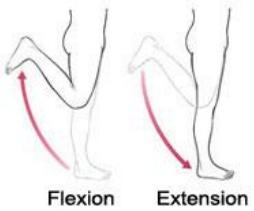
Flexion and extension at the elbow

- The **Biceps** cause flexion at the elbow
- The **Triceps** cause extension at the elbow



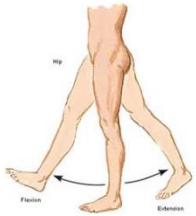
Flexion and extension at the knee

- The **Hamstrings** cause flexion at the knee
- The **Quadriceps** cause extension at the knee



Flexion and extension at the hip

- The **Hip Flexors** cause flexion at the hip
- The **Gluteals** cause extension at the hip

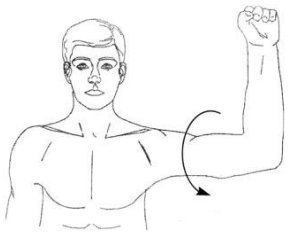


Flexion and extension at the ankle

- The **Tibialis Anterior** causes dorsiflexion at the ankle
- The **Gastrocnemius** cause plantar flexion at the ankle

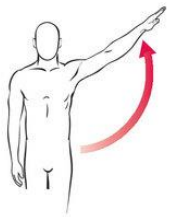
Rotation of the Shoulder

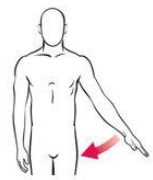
- The **Rotator Cuff** causes rotation at the shoulder



Abduction and Adduction at the shoulder

- The **deltoid** causes abduction at the shoulder
- The **Pectorals / Latissimus Dorsi** cause adduction at the shoulder


Shoulder abduction


Shoulder adduction

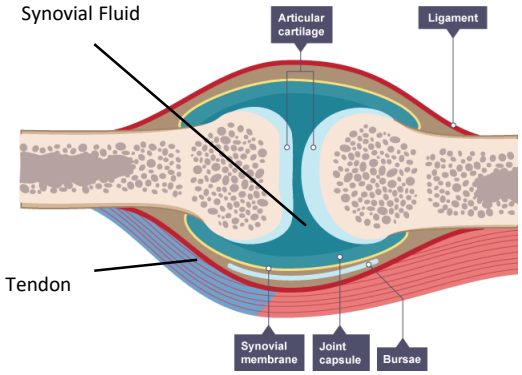
Function of the Skeleton

- **Support:** the bones are solid and rigid. They keep us upright and hold the rest of the body – the muscles and organs – in place.
- **Movement:** the skeleton helps the body move by providing anchor points for the muscles to pull against.
- **Structural shape and points for attachment:** the skeleton gives us our general shape such as height and build. The skeleton also provides anchorage points for the muscles to attach via tendons, so when muscles contract movement occurs.
- **Protection:** certain parts of the skeleton enclose and protect the body's organs from external forces e.g. the brain is inside the cranium. This function is especially important in activities that involve contact. E.g. rugby, boxing.
- **Production of Blood Cells:** the bone marrow in long bones and ribs produce red and white blood cells.
- **Mineral Storage:** bones store several minerals e.g. calcium, which can be released into the blood when needed.

Types of Bones

FLAT bones protect vital organs e.g. cranium protects your brain, ribs protect heart and lungs.
LONG bones enable gross (large) movements e.g. femur, tibia and fibula in the leg which allow us to run, humerus, radius and ulna in arm which allows us to throw a ball.
SHORT bones enable fine (small) movements e.g. fingers allowing you to spin a cricket ball.

Synovial Joints



Ligaments
Attaches bone to bone to keep the joint stable eg knee when kicking the ball or restricts movement/prevents movement to stop injury.
Cartilage
Found between bones and prevents friction by stopping the bones from rubbing together.
Synovial Membrane
Secrets synovial fluid.
Synovial Fluid
Is produced by the synovial membrane and helps lubricate the joint.
Joint Capsule
This is lined with synovial membrane. It encloses the joint making sure the cartilage and synovial fluid remain in place.
Bursae
Fluid filled sac providing cushion between bones and tendons. This stops friction at the joint.
Tendons
Attach muscle to bone. When a muscle contracts to move a joint, it is the tendon which pulls on the bone, keeps muscles/bones stable or holds join in place.

Bones Located at Joints

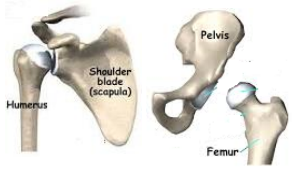
Head and Neck = Cranium and Vertebrae
Shoulder = Scapula and Humerus
Chest = Ribs and Sternum
Elbow = Humerus, Radius, Ulna
Hip = Pelvis, Femur

Knee = Femur, Tibia, Patella
Ankle = Tibia, Fibula, Talus

Musculo-skeletal System

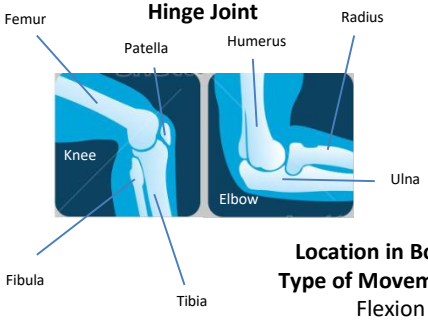
Types of Joint

Ball and Socket Joint



Location in Body: Shoulder and Hip
Type of Movement Allowed by Joint: Flexion, Extension, Adduction, Abduction, Rotation

Hinge Joint



Location in Body: Knee and Elbow
Type of Movement Allowed by Joint: Flexion and Extension

Types of Bones

FLAT bones protect vital organs e.g. cranium protects your brain, ribs protect heart and lungs.
LONG bones enable gross (large) movements e.g. femur, tibia and fibula in the leg which allow us to run, humerus, radius and ulna in arm which allows us to throw a ball.
SHORT bones enable fine (small) movements e.g. fingers allowing you to spin a cricket ball.

How do MUSCLES WORK?

Muscles can only PULL they cannot push. This means that they must work in pairs to allow parts of the body to move back and forth. THESE PAIRS ARE CALLED **ANTAGONISTIC PAIRS.**

Antagonistic Pairs

- A muscle must work in partnership with another muscle to allow movement to occur.
- The muscle that causes the movement (the pulling muscle) is called the **AGONIST** or **PRIME MOVER**. When this muscle contracts in becomes shorter.
- During this time the other muscle within this partnership is relaxing. This muscle is called the **ANTAGONIST** and is lengthening while it relaxes.

EXAMPLES:
When we flex our elbow the bicep is the **agonist** and the tricep is the **antagonist**. However these roles are reversed when the elbow extends ,with the tricep becoming the **agonist** and the bicep becoming the **antagonist**.

When dorsiflexion occurs in our ankle the tibialis anterior is the **agonist** and the gastrocnemius is the **antagonist**. However these roles are reversed when plantar flexion occurs at the ankle, with the gastrocnemius becoming the **agonist** and the tibialis anterior becoming the **antagonist.**

BICEPS	TRICEPS
HAMSTRINGS	QUADRICEPS
GASTROCNEMIUS	TIBIALIS ANTERIOR
HIP FLEXORS	GLUTEALS
DELTOID	LATISSIMUS DORSI

Skill, Target Setting, Feedback, Guidance and Information Processing

Ability:
Abilities are inherited from your parents, abilities are stable traits that determine an individuals potential to learn or acquire skills.

Skill:
Skills are learned and when mastered are consistently done in a way that looks easy, uses minimum time and energy as well as the correct technique.

Goal Setting:
Helps motivate performers and gives them a target to aspire to which helps them prepare both physically and mentally.

Performance Goals
- Personal standards to be achieved.
- The perform compares their performance against what they have already done or suggests what they are going to do. E.g. 100m runner hopes for a better start.
- They DO NOT compare themselves to other performers.

Outcome Goals
- Focus on end result. E.g 100m runner aims to win the race.
- They usually involve comparison with other competitors.
- The performers standards may not be seen as important, it is the final outcome that matters.

Setting Goals:

S = Specific
- Using a specific target will mean they focus on area for improvement/weakness/relevant aim **(1)** therefore improvement is more likely leading to motivation **(1)**

M = Measurable
- By setting a measureable goal they can see progress / monitor progress **(1)** knowing their training is working/ improving will motivate them to continue with it. **(1)**

A = Accepted
- The target must be accepted / agreed by the performer and the performers coach if they have one.

R = Realistic
- Ensuring target is achievable/realistic so they know they can complete it/they have access to facilities/time (1) which motivates them to continue to train/work hard **(1)**

T = Time Bound
- Make time bound/time based so there is a definite point when the target must be achieved **(1)** therefore makes them motivated to work hard to achieve within time frame/keeps training interesting/ challenging as won't get bored with same target as set new target once completed/ won't put off training **(1)**

Classification of Skills

Basic and Complex Skills

Basic
- Very little decision making is required
- Few decision affect the success of the movement
- Are learnt fairly quickly

Complex
- A lot of decision making is required
- Take considerable time to master
- Tend to be taught after basic skills are done correctly

Gross and Fine Skills

Basic
- Involves big movements using large muscle groups.
- Movements tend not to rely of accuracy and precision.

Gross
- Involves small, precise movements that use small muscle groups.
- Movements tend to involve precision and accuracy.

Open and Closed Skills

Open
- The environment is constantly changing and people around you affect the skill.
- This type of skills is often externally paced as the changing environment controls what skill is performed and when.

Closed
- Stable environment, meaning the environment does not change.
- The way the skill is performed is not affected by people around you.
- The skill will not change and is done the same way every time.
- Often self paced as performed controls when skill starts.

Self Paced and Externally Paced Skills

Self Paced
- The start of the movement is controlled by the performer.
- The speed, pace or rate of the movement is controlled by the performer.

Externally Paced
- The start of the movement is controlled by external factors.
- The speed, pace or rate of the movement is controlled by external factors.

Guidance

Visual
- Is when the performer can see something e.g. demonstration by coach, skill performed by another player, DVD footage.

Verbal
- Is when the perform is spoken to by another person. E.g. teacher or coach.
- It is commonly used with visual guidance

Manual
- The performer is physically moved by another person e.g. coach

Mechanical
- The use of mechanical aids to assist a performer e.g. swimming floats.

Guidance for Beginners
- Visual guidance is very important so that they can see and start to understand what the skill looks like and what they are meant to do.
- Verbal guidance needs to be used with visual guidance and verbal on its own is not enough for beginners to understand how a skill should be performed.
- Demonstrations to beginners must be clear, quick, easy to understand and backed up with verbal guidance.
- Manuel / Mechanical guidance can be used by beginners to support or guide them through the correct technique.

Guidance for Elite Performers
- Visual guidance is not used as much by elite performers, however it can be used to highlight minor errors in technique via analysis software which can slow movements down.
- Verbal guidance is needed by elite performers and is often longer and more complex than that given to beginners. Visual guidance is not needed with this as elite performers should know what the skill is meant to look like.
- Manuel / mechanical guidance is not usually used by elite performers unless unexpected flaws in technique start to occur.

Use of Performance Goals
- Beginners are better concentrating on performance goals as they do not need to worry about comparing the result to others.
- Elite performers use performance goals to help motivate themselves to work on individual aspects of their performance.

Outcome Goals
- Beginners prefer to avoid outcome goals as failure demotivates them and winning may be unrealistic.
- Elite performers are sometimes driven by outcome goals as they always have the desire to win.

Feedback

Intrinsic – feedback from within e.g. kinaesthetic feel (how a shot / skill feels like to the performer themselves). Elite performers use this type of feedback as they have developed the ability to 'feel' if a skill is being performed right or not.
Extrinsic – feedback from an external source e.g. from a coach or teacher. Beginners often struggle to understand the success of their movement (intrinsic) so they rely heavy on feedback from others (extrinsic).

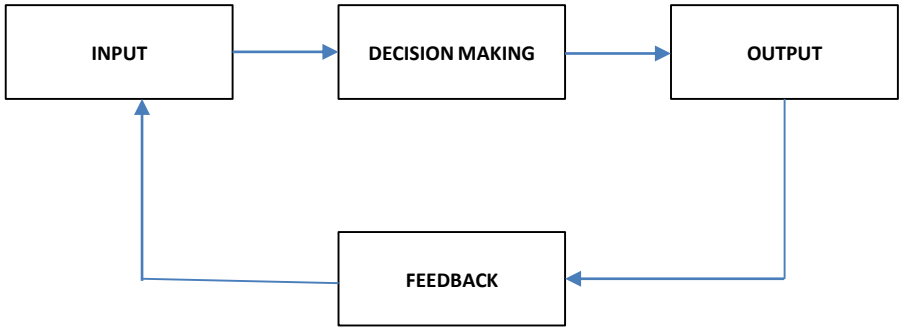
Positive – is used to inform a performer what was correct about their movement / performance. Positive feedback is essential to motivate athletes / performers.
Negative – is used to inform the performer what is incorrect about their movement / performance. Negative feedback must include information that helps the performer develop and improve (what they need to do to get better).

Knowledge of results (KR) – Feedback about the outcome (factual e.g. you won etc). Basically in informs the performer on how successful they have been in achieving what they set out to do.
Knowledge of performance – Feedback about the quality of performance e.g. technique. It provides the performer feedback about how well they did irrespective of the result. It deals with the quality of performance and not the end result.

BEGINNERS tend to need positive feedback, knowledge of results and extrinsic feedback.

ELITE performers tend to accept negative feedback, knowledge of performance and can provide themselves with informed intrinsic feedback.

Information Processing



STAGE 1 = Input Stage

- Performer takes in information from the environment e.g. what they can see, hear or feel.
- They must choose what is the most relevant signal / cue / stimulus / piece of information e.g. the shuttle in badminton.
- They must use selective attention within the input stage. This is blocking out any irrelevant information / cues, e.g. noise / other visual stimuli.

STAGE 2 = Decision Making Stage

- This is where the performer selects an appropriate response (movement / skill) from memory, perhaps one they have used in this situation before.
- The short term memory (STM) is the 'working memory'. Information from the environment is held here for a short time (approx. 30 sec). If your attention is directed to something else, the information is lost.
- The long term memory (LTM) holds information that has been rehearsed and stored. From LTM the performer must select an appropriate response i.e. have you dealt with this before / have you seen this a similar type of shot before.

STAGE 3 = Output Stage

- The decision chosen is sent to the appropriate muscles to carry out the response.

EXAM TIP – marks are often given for naming the appropriate muscles used during the action being discussed e.g. bicep / hamstrings etc.

STAGE 4 = Feedback Stage

- Information is received via themselves (intrinsic) and / or others (extrinsic) with regards the success (or not) of the action.
- If the feedback is positive and the action was successful the information is stored in long term memory so that it can be used again if a similar situation arises.
- If the action was not successful the performer will think about what they did wrong and try and correct if for the next time that situation occurs.

Social Groups: People who interact with one another, share similar characteristics, and have a sense of unity / togetherness.

Engagement Patterns: Trends / tendencies in involvement.

Barrier to participation: An obstacle that prevents a group within society from participating in sport or physical activity and therefore reduces overall levels of participation.

Stereotype: Widely held but fixed and oversimplified idea of a particular type of person e.g. females.

Discrimination: The unjust or prejudicial treatment of different groups of people, especially on the grounds of race, age or

FIVE SOCIAL GROUPS YOU NEED TO KNOW

1) Gender – main focus of women's participation.

There are a number of barriers that affect participation rates for women:

Stereotypical Views:

- Women lack the strength or endurance to play the same sports as men.
- Women who play sport are not feminine.
- Playing sport prevents a women's ability of giving birth.
- Women who play sport develop muscles and become more 'man like'. This leads to female performers having their sexuality questioned.
- A women's role is as a carer and manager of the home.

Due to these stereotypical other barriers have been created which put some women off playing sport. They are:

Male Dominated Culture in Sport:

Women have less media coverage, receive less money and have less role models to look up to.

Support from Peers and Family:

Women get less support from their peers and family. Young girls often need to choose between playing sport or being part of a friendship group, and are put under pressure by their peers to be more like them.

Body Image:

The media portrays women as feminine and objects of desire. Women who choose to play sport do not follow these views and as a result their sexuality is often questioned.

Facilities / Funding:

Facilities for women have developed more slowly than those for men. There are less clubs / sports for women to get involved with. Funding for women's sport is also much less then their male counterparts, however this is gradually improving.

M	Media
I	Inclusiveness
R	Role Models
A	Attitudes
C	Culture/religion
L	Leisure Time
E	Education
S	Sexism/stereotyping

S	Socio-Economic
A	Accessibility
F	Family
F	Familiarity

2) Ethnicity

ETHNIC GROUP

A group of people who share common origins – be they racial, religious or cultural

Barriers Affecting Participation

- Live in poorer areas in the country – less facilities / lack of money for equipment
- Sporting prejudices / stereotypes that already exist e.g. African-Caribbeans are seen to have less swimming ability.
- Family commitments resulting in less time to participate in sport.
- In many sports there are a lack of role models for black / ethnic people to look up to and aspire to.
- Discrimination – Many people don't take part in sports as they are afraid of being racially abused.

Examples of how ethical issues effects a person's participation?

- Muslim women have to keep their bodies covered up preventing them from doing sports e.g. gymnastics / swimming.
- During Ramadan people are not allowed to eat food during daylight hours. This means that during the day they may have little energy when taking part in sports. Also they must eats at night instead of train.
- Muslim / Islamic men are expected to pray at there local mosque every day. This reduces the amount of time they can spend playing sport.

3) Disability

A physical or mental condition that limits a person's movements, senses or activities.

Three main categories of disability:

-Mobility impairments -Sensory impairments -Mental impairments

Having a disability can limit the type of physical activity that you can take part in. Many sports centres nowadays have facilities for disabled people which has led to a increase in opportunities to take part.

What prevents disabled people from taking part in sport?

- Lack of facilities in the local area.
- Lack of clubs / teams.
- Lack of media coverage (apart from when the Paralympics is on)
- Knowledge of activities available in local area e.g. advertising.

Adapted Sports: Competitive sports for individuals with disabilities. While they often parallel. Existing sports played by able-bodied athletes, there may be some modifications in the equipment and rules to meet the needs of the participants.

Benefits of Integration

- Reduced possibilities of discrimination
- Less stereotyping
- Fewer barriers

Integration: Involving the full participation of all people in community life, but usually referring to disabled

Socio-cultural influences and Commercialisation

5) Family / Friends / Role models

Family

Positive:

- Parents will encourage their children to take part in certain sports / activities
- Children rely on their parents to get them to the sport / activity.
- Parents / brothers or sisters may play a sport which you may watch resulting in you getting involved in.

Negative:

- Some parents may not provide support or encouragement due to safety concerns over participation or lack of interest in sport or may have had a negative experience of the sport (earlier in life).
- Some parents may pressure young people to concentrate on academic work rather that practical physical activity.
- Some parents cannot supply financial support / in the form of equipment or kit / coaching / transport.

Friends

Positives:

- People are more likely to play sports / for teams that their friends play for.
- Peers / friends often encourage other children to take part in their sport as they understand / appreciate the benefits that can be gained from the activities.

Negatives:

- Peers might not be interested in the activity. As they are not interested / they may encourage friends not to train / take part in sport.
- Verbally pressure friends by saying they are better going out with them or that they will not be their friend.

Role Models

What is a role model? A person looked up to by others as an example to be copied.

Positive:

- Encourage people to play sports so by increasing numbers participating.
- Their good behaviour can positively effect the behaviour of children who look up to them.

Negative:

- Poor behaviour can be seen by children as the correct way to behave.
- Can lead to people copying behaviour e.g. taking drugs, swearing at officials.

4) Age

- All school children participate in sport but when they leave school participation often drop. This is referred to as 'post-school drop out'
- Older people often take part is less sport due to family and work commitments as well economic issues which they might have.
- Also as people get older their fitness levels often decline, resulting in participation levels dropping.

Post-school drop out: The reduction in participation levels in young adults after they leave full-time education