

## GCSE PE PLCs 1.2.1 Part 1 - Physical activity and your healthy mind and body

### Somatotypes

#### **A) Describe the different body types**

**Characteristics of an ectomorph:** skinny, tall and have narrow shoulders and hips.

**Characteristics of an endomorph:** heavy, carry excess fat, short limbs, wide hips and a round shape

**Characteristics of a mesomorph:** high proportion of muscle and bone, broad shoulders and narrow hips.

#### **B) Explain the effects each body type can have on performance**

##### **Performance of an ectomorph**

###### **Positive**

- Lighter for sports such as high jump.
- Do not have to carry much weight for endurance activities such as marathon.

###### **Negative**

- Do not have much strength or power for sports such as rugby.

##### **Performance of an endomorph**

###### **Positive**

- Effective for sports which require you to maintain your position (sumo wrestler or scrum in rugby).

###### **Negative**

- Do not have speed or power for explosive activities or endurance for marathon

##### **Performance of a mesomorph**

###### **Positive**

- Powerful in sports such as 100m.

###### **Negative**

- Not built for endurance events because they carry a lot of weight

#### **C) Explain the effects each body type can have on participation**

##### **Participation of an ectomorph**

###### **Positive**

*likely to get involved in long distance running.*

###### **Negative**

- *are unlikely to be involved in strength sports (rugby) because they're skinny.*

##### **Participation of an endomorph**

###### **Positive**

- *likely to be involved in sports such as rugby or wrestling.*

###### **Negative**

- *unlikely to be involved in long distance running because they carry weight.*

## Participation of a mesomorph

### Positive

- likely to be involved in games such as football or rugby.

### Negative

- unlikely to be involved in endurance events because they carry weight

### D) Identify sports in which each body type is an advantage. Explain why they are an advantage

Ectomorphs have an advantage in high jump and marathon because they are light and do not carry much weight

Endomorphs have an advantage in sumo wrestling because their weight is an advantage in pushing people out of the circle

Mesomorphs have an advantage in power events such as 100m and rugby because they have strength and are powerful for sprinting and tackling

## Weight Related Conditions

### A) What is optimum weight?

This is the ideal weight for a person which gives them the best chance of success in a sport

### B) Why does optimum weight vary?

Optimum weight varies because different sports have different requirements of height, muscle girth, gender and bone structure

### C) Explain why and how differences in optimum weight can affect participation (height, gender, bone structure, muscle girth)

Differences can affect the type of activity you are most likely to be involved in. For example tall people may be influenced to take part in basketball

### D) Explain why and how differences in optimum weight can affect performance

The differences can affect speed of movement, how quickly fatigue sets in, your strength or your flexibility in order to be successful. It may also determine which position you play in

### E) Explain the following terms and explain how each of the following terms can have an effect on having sustained involvement in physical activity

**Anorexia;** a prolonged weight loss eating disorder due to obsessive control of food intake. It can affect your involvement in sport because you will not have energy or strength to participate.

**Overfat;** people who have more body fat than you should have for your height and weight. It can affect your involvement in sport because you may have health problems such as high blood pressure

**Obese;** people who are very over fat. It can lead to many health problems. It can affect your involvement in sport because you may not be healthy enough to exercise and find it difficult. You may also suffer ridicule.

**Overweight;** having weight in excess of normal. It is not a problem unless you are overfat as well. It can affect your involvement in sport because you may have a lot of muscle and be effective in power or strength sports

**Underweight;** weighing less than is normal. It can affect your involvement in sport because you do not have enough energy

## **GCSE PE PLCs 1.2.1 Part 2 - Physical activity and your healthy mind and body - Drugs**

### **1. What are the 2 categories of drugs?**

*Recreational and performance enhancing*

### **2. Explain the effects of smoking on your health**

*They cause cancers (lung and mouth) and coronary heart disease*

### **3. Explain the effects of smoking on your performance**

*It reduces the body's ability to carry oxygen and is a major hindrance to endurance events such as marathon*

### **4. Explain the effects of alcohol on your health**

*They lead to increased anxiety, decreased judgement and coordination, reduced fertility, increased weight gain, liver disease*

### **5. Explain the effects of alcohol on your performance**

*It slows reaction time because it is a sedative and a depressant*

### **6. Explain the effects of the following performance enhancing drugs on performance**

- i. **Anabolic steroids;** these have a positive effect on performance in power sports (100m) because they increase muscle mass and bone growth allowing you to train harder
- ii. **Beta blockers;** these have a positive effect on performance in sports which require steadiness (archery) because they slow the heart rate down
- iii. **Diuretics;** these have a positive effect on performance in sports with weight categories (boxing) because they allow you to increase fluid loss
- iv. **Narcotic analgesics;** these have a positive effect on performance when you require pain relief and when you have an injury
- v. **Stimulants;** these have a positive effect on performance in sports that require you to be alert (100m)
- vi. **Peptide hormones (Human Growth Hormone);** these have a positive effect on performance in power sports because they increase muscle mass and reduce fat
- vii. **Peptide hormones (EPO Erythropoietin);** these have a positive effect on performance in endurance sports (marathon) because they increase the number of red blood cells in your body meaning more oxygen can be transported

### **7. Explain the effects of the following performance enhancing drugs on health and well being**

- i. **Anabolic steroids;** These have a negative effect because these cause kidney problems, mood swings, aggression heart attacks and death
- ii. **Beta blockers;** they are negative because the heart may actually stop beating
- iii. **Diuretics;** these are negative because they cause kidney damage, dehydration and dizziness.
- iv. **Narcotic analgesics;** these are negative because they are addictive. They also make the injury worse
- v. **Stimulants;** these are negative because these cause high blood pressure, anxiety and insomnia
- vi. **Peptide hormones (Human Growth Hormone);** these are negative because they cause diabetes and irregular heart beats
- vii. **Peptide hormones (EPO Erythropoietin);** these are negative because they cause strokes and heart attacks

### **8. Why do some performers risk using performance enhancing drugs?**

*Some performers still risk using them because the rewards for winning are huge; including fame, wealth and celebrity status*

# **Risk**

## **A) Identify risks associated with participation in physical activity**

The risks of injury associated with physical activity are linked to

- i. Warming up
- ii. Cooling down
- iii. Checking equipment and facilities
- iv. PAR-Q
- v. Balanced competition (handicap, gender, age, ability level)
- vi. Adherence to the rules
- vii. Correct clothing

## **B) Explain how the following will reduce risks associated with physical activity**

- i. **Warming up** will reduce the risk because...
  - You become more flexible,
  - You increase your heart rate and temperature
  - Mentally prepare for your sport.
- ii. **Cooling down** will reduce the risk because...
  - You gradually return the body to its resting state
  - Prevent lactic acid build up
- iii. **Checking equipment and facilities** will reduce the risk because...
  - You will ensure the playing surface, the ground, the arena are safe and free from unnecessary hazards for players and spectators
- iv. **PAR-Q** will reduce the risk because...
  - It assesses whether you are ready to participate in an activity.
  - problems highlighted by this questionnaire must be reviewed by a doctor
- v. **Balanced competition** will reduce the risk because...
  - it ensures performers play in the correct:
    - Age group,
    - Gender classification,
    - Ability level (handicap system)
    - Weight category
- vi. **Adherence to the rules;** it will reduce the risk because...
  - Foul play will injure an opponent or yourself.
  - You will also be expected to apply etiquette (to play within the unwritten code of the game) e.g kicking the ball out of play when an opponent is injured
- vii. **Correct clothing;** it will reduce the risk because...
  - Clothing or footwear will not catch anything, hinder personal performance, or cause an injury to others.
  - You may also be required to wear protective clothing (shin pads) and to remove jewellery

## **GCSE PE PLCs 1.2.2 A healthy active lifestyle and your cardio vascular system**

### **E) Explain the immediate (short term) effects of participation in physical activity on the cardio vascular system on;**

- i. **Blood pressure;** the force of the blood pushing against the blood vessel walls as it travels around the body.
  - This increases when we begin to exercise pumping blood more forcibly which leads to a higher pressure.
- ii. **Heart rate;** this increases when we begin to exercise.
  - This is the amount of times your heart beats in one minute.
  - Increased blood flow transporting oxygen around the body to the muscles for energy to be released. Measured in Beats Per Minute (BPM)
- iii. **Systolic blood pressure;** the pressure when blood is being pumped out of the heart (contraction phase)
  - Pressure increases significantly because the heart contracts with more force and more strength to ensure more blood is pumped around the body.
- iv. **Diastolic blood pressure;** the pressure when the heart is relaxing (relaxation phase).
  - Pressure does not change significantly

### **F) Explain the long term effects of participation in physical activity on the cardio vascular system on;**

- i. **Stroke volume;** the amount of blood pumped out of the heart in one beat.
  - A long term effect is that stroke volume will increase. This means more oxygen is delivered to the muscles so energy can be released.
- ii. **Cardiac output;** this is the amount of blood pumped out of the heart in one minute. It is calculated by;  
$$\text{Stroke Volume} \times \text{Heart Rate} = \text{Cardiac Output}$$
  - A long term effect is that cardiac output will increase. This means more oxygen is delivered to the muscles so energy can be released.
- iii. **Resting heart rate;** this is the amount of times your heart beats in one minute when you are **NOT** exercising.
  - A long term effect will be that your RHR will decrease because your heart has grown stronger (hypertrophy) meaning it can pump more blood in less beats
- iv. **Recovery time;** Time taken after exercise for your **heart rate (HR) to return** to its resting state (**Resting HR**). It does not return immediately to your resting heart rate because of **oxygen debt**.
  - A long term effect is that recovery time decreases because your heart can pump more blood per beat. You recover quicker!
- v. **Size of the heart;** a long term effect is that **it will increase**. Your heart is a muscle and when you train it, your heart grows like other muscles. This is called heart **hypertrophy**. It grows stronger and can contract with more force.

- vi. **Blood pressure;** a long term effect of exercise on blood pressure is that it will **reduce it**. This means you are healthier and **less at risk of coronary heart disease and heart attacks**.
- vii. **Veins;** the veins (take blood in to the heart) contain smooth muscle. When you exercise long term these adapt by **increasing the strength and elasticity** of this muscle making **blood flow easier**. Veins work under **low pressure**
- viii. **Arteries;** the arteries (take blood away from the heart) contain smooth muscle. When you exercise long term these adapt by **increasing the strength and elasticity** of this muscle **making blood flow easier**. Arteries work under **high pressure**

**G) Explain the impact of rest from physical activity on the cardio vascular system;**

The cardiovascular system adapts through rest.

When you exercise you place the body under stress. The body must be given relaxation time to recover and adapt.

As a **result** the heart grows in strength (hypertrophy). It also allows the immune system to recover and develop white blood cells to fight disease

**H) Explain the impact of diet on the cardio vascular system on cholesterol, blood pressure and High/low density lipoproteins.**

**Cholesterol** is found in fatty foods.

Eating **fatty foods** and **low density lipoproteins** causes cholesterol to increase and plaque to form on the inside walls of your blood vessels.

This reduces blood flow and **increases blood pressure**. This can lead to coronary heart disease, strokes, heart attacks and even death.

Eating a **healthy diet** which contains **high density lipoproteins** and fruit and vegetables will reduce **cholesterol levels** and **reduce blood pressure**.

This can reduce the risk of coronary heart disease, strokes, heart attacks and even death.

**I) Explain the impact of alcohol on the cardio vascular system;** the impact is negative as alcohol will increase your blood pressure and cause the red blood cells to clump together, clogging up your blood vessels.

This reduces blood flow which reduces oxygen transport which reduces energy release and increases blood pressure. This can lead to coronary heart disease, strokes, heart attacks and even death.

**J) Explain the impact of smoking cigarettes on the cardio vascular system;**

Smoking contains a gas called **carbon monoxide**.

**Haemoglobin** is attracted to carbon monoxide 260 times more than oxygen.

Therefore if you smoke cigarettes you transport **less oxygen**, **reducing** your **energy** release and you starve your organs of oxygen.

Prolonged smoking can lead to coronary heart disease, strokes, heart attacks and even death.

## **GCSE PE PLCs 1.2.3 A healthy active lifestyle and your respiratory system**

### **A. Explain the immediate (*short term*) effects of physical activity on the respiratory system**

#### **Breathing rate;**

**Breathing rate;** is the number of breaths that a person takes in one minute.

**Immediate effect** of physical activity is that your breathing rate increases.

**Results** in more oxygen to enter the lungs to allow more energy release.

This means a more efficient gaseous exchange and improved delivery of oxygen to the working muscles

#### **Tidal volume**

**Tidal volume;** is the amount of air breathed in or out during normal breathing. Measured in millilitres.

**Immediate effect** of physical activity on your respiratory system is that your depth of breathing, or tidal volume increases.

**Results** in more oxygen to enter the lungs to allow more energy release.

This means a more efficient gaseous exchange and improved delivery of oxygen to the working muscles

#### **Oxygen debt when exercising anaerobically;**

**Oxygen Debt** is the amount of oxygen consumed during recovery above that which would have ordinarily been consumed in the same time at rest.

**Immediate effect** of physical activity on your respiratory system is that your oxygen debt will increase significantly.

**Results** in it increasing more than during aerobic exercise because your body is working at high intensity and cannot get enough oxygen in to cope with the exercise.

### **B. Explain the *long term* effects of regular physical activity on the respiratory system**

#### **Lung capacity**

**Lung capacity;** is the amount of air a lung can hold.

**The long term effects** of regular physical activity on the respiratory system is an increased lung capacity.

**Results** in the muscles involved in respiration are stronger.

This means a more efficient gaseous exchange and improved delivery of oxygen to the working muscles

### **Vital capacity**

**Vital capacity** is the amount of air that can be forcibly breathed out after a deep breath in.

**The long term effects** of regular physical activity on the respiratory system is an increased vital capacity.

This means a more efficient gaseous exchange and improved delivery of oxygen to the working muscles

### ***C. Explain the impact of drugs on the respiratory system***

**Smoking / nicotine**; the impact of smoking cigarettes on the respiratory system results in less alveoli and therefore a reduced alveoli-gaseous exchange.

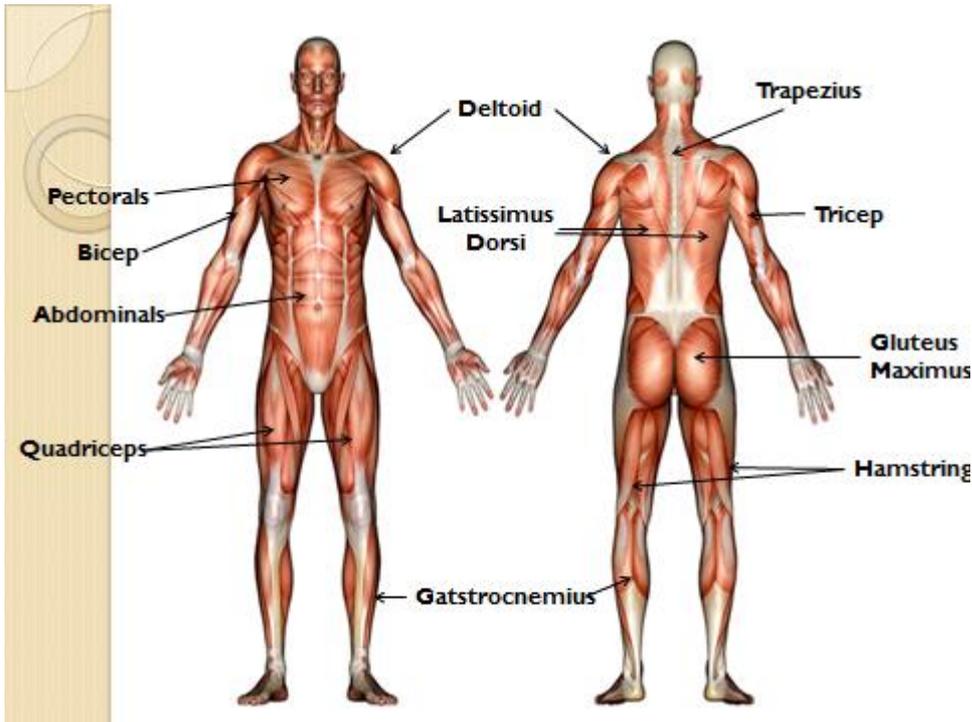
**Results** in less efficient gaseous exchange and a decreased delivery of oxygen to the working muscles

**Alcohol**; the impact of drinking alcohol on the respiratory system is poor respiration, irregular breathing and slow breathing.

**Results** in less oxygen is transported to the working muscles or organs

## GCSE PE PLCs 1.2.4 A healthy active lifestyle and your muscular system

- K) Locate the following muscles on the diagram; deltoid, trapezius, latissimus dorsi, pectorals, bicep, tricep, abdominals, quadriceps, hamstrings, gluteals, gastrocnemius



- L) **What is the role of the muscles;**

The **role** of muscles is to **contract** or **relax** to **cause movement** at a **joint**.

**Muscles** work as **antagonistic pairs** to move a joint. One muscle **contracts (agonist)** whilst the other muscle of the pair **relaxes (antagonist)**.

There are **2 types** of muscle **contraction**

- Isotonic** contraction; e.g bicep curl
  - Agonist** muscle is under **tension** but it also **shortens** (e.g bicep)
  - Antagonist** muscle **relaxes (no tension)** and also **lengthens** (e.g triceps)
- Isometric** contraction; e.g rugby scrum, gymnastics crucifix
  - Agonist** muscle is under **tension** but it **remains** the **same length**.
  - Antagonist** muscle **relaxes** but also **remains** the **same length**.

- M) **Explain the role of antagonistic pairs?**

**Skeletal/voluntary muscles** are muscles which **connect** to the **skeleton** in order to allow the **skeleton** to **move** at **joints**. In order to do this muscles work in **pairs**. These **pairs** are known as **antagonistic pairs**. Antagonistic pairs work when one of the muscles is under **tension** and it **contracts** (this is called the **agonist** muscle), whilst the other muscle in the pair **relaxes** (this is called the **antagonist** muscle). **Antagonistic pairs** work as **opposites**.

- N) **Explain the immediate (short term) effects of physical activity on the muscular system?**

Muscles can **contract anaerobically** for about **8 seconds**. After this point **lactic acid** builds up and **fatigue** (tiredness) sets in.

Muscles can **contract aerobically** for about **5 minutes**. After this point **lactic acid** builds up and **fatigue** (tiredness) sets in.

There are **9 immediate effects** of **exercise** on the **muscular system**

**'CHAFF BLOG'**

1. Muscular **CONTRACTIONS** increase
2. **HEAT** is produced
3. **ACHES** in muscles
4. **FATIGUE** sets in
5. **FUEL** demands increase
6. **BLOOD** is **SHUNTED** to the working muscles
7. **LACTIC ACID** builds up
8. **OXYGEN DEMANDS** increase
9. **GLYCOGEN** is released to be used as **energy**

**O) Explain the long term effects (adaptations) of physical activity on the muscular system?**

There are **4 long term** (Adaptations) **effects** of **exercise** on the **muscular system**

1. **Hypertrophy** of the muscles. This is a term that describes them **increasing** in **size**
2. Increased **strength**
3. Increased **endurance**
4. Increased **muscle tone** (the muscle is ready to perform a task)

**P) Explain the effects of regular participation and the potential for injury;**

There are **3 main types** of **injury** to the muscular system

1. **Strain**; this is when the muscle is **overstretched** and the **fibres tear**. It can be **prevented** with a **thorough** warm up.
2. **Sprain**; this is a **twist** to the **joint** (eg; ankle) which often occurs when **changing direction**. It can be **prevented** by **strengthening** the **joint**.
3. **Tennis/ golfers elbow**; is when the part of the **elbow** becomes **painful** through **too much use** of the **tendons** in the joint. It can be **prevented** by not **overusing** or **repeating** the same action

**Atrophy** is the **decrease** in **size** of a **muscle**. This can occur when you are **injured**, when you are **ill** or during the **off season**. It is the **opposite** of **hypertrophy**

**Q) Explain common techniques used to treat muscle injuries.**

**1 common technique** to **treat** these **injuries** **'R.I.C.E'**

- **REST**; when you are injured you immediately **rest** the area
- **ICE**; you apply **ice** to **reduce** the **swelling** and **increase** recovery time
- **COMPRESS**; next you place a **bandage** to **support** and to **reduce** the **swelling**
- **ELEVATE**; you place the injured part of the body **above** the level of the **heart** to **reduce** the **swelling**

**R) Explain the impact of rest on allowing adaptations to take place**

**S) Explain the impact of recovery time before the next exercise session**

For an athlete's **TRAINING** to be **EFFECTIVE** they must strike the right **BALANCE** between **REST** and **WORK**. If **REST TIMES** are not **LONG ENOUGH** the muscles will not be able to **CONTRACT** effectively.

For a **TRAINING SESSION** to be **EFFECTIVE** the **TIREDENESS** and **FATIGUE** of the muscle should have **DISAPPEARED**. If they don't do this then the **RISK** of **INJURY INCREASES**. This can take **48 HOURS**.

However **TOO MUCH RECOVERY TIME** can **WASTE** the **EFFORT** made in the **PREVIOUS** training session

## T) Explain the effect of protein in building muscle and muscle repair

Your **DIET** has a **MAJOR ROLE** on the condition of your muscles.  
An athlete can take in more **PROTEIN** to do **3** things;

- **REPAIR TISSUE**
- **BUILD BODY CELLS**
- **BUILD MUSCLE MASS**

**PROTEIN** is found in **MEAT, DAIRY** and **EGGS** but also in **VEGETABLES**.  
A **BALANCED** diet should **CONTAIN 15% PROTEIN**.

U) Explain the effect of anabolic steroids in aiding muscle growth as a performance enhancing drug

V) Explain the effect of anabolic steroids in aiding recovery as a performance enhancing drug

**ANABOLIC STEROIDS** are a **PERFORMANCE ENHANCING DRUG**.

They have a **HUGE IMPACT** on the **SIZE** and **CONDITION** of the athlete's **MUSCLES**. They **ILLEGALLY** have many **SIDE EFFECTS**.

They have **4** main **BENEFITS** to the athlete;

1. They allow the athlete to **BUILD MUSCLE TISSUE** very quickly (**HYPERTROPHY**)
2. They **SPEED UP RECOVERY TIME** which ..
3. Allows **MORE FREQUENT TRAINING** which..
4. **INCREASES PERFORMANCE** levels in **EXPLOSIVE** sports

## *GCSE PE PLCs 1.2.5 A healthy active lifestyle and your skeletal system*

### 1. Explain the following roles of the skeletal system during physical activity;

This **SKELETAL** system consists of **BONES** and has **3** main **FUNCTIONS**:

- A. **MOVEMENT**: this is achieved at a **JOINT**. Muscles attach to the skeleton through **TENDONS**. The 2 systems work together to cause movement
- B. **SUPPORT**: provides **SHAPE** & supports it through a variety of movements or positions.
- C. **PROTECTION**: Protects vital organs e.g the **CRANIUM** (skull) which protects the **BRAIN**, the **RIBS** protect the **HEART, LUNGS & LIVER**.

### 2. Explain the joint movements;

**FLEXION** is the **DECREASE** in the **ANGLE** of a joint.

Sometimes known as **BENDING** the joint. It can happen at the **ELBOW KNEE SHOULDER**

This is **FLEXION** at the **ELBOW** caused when the **BICEP CONTRACTS**



This is **FLEXION** at the **KNEE** caused when the **HAMSTRINGS CONTRACT**



This is **FLEXION** at the **SHOULDER** caused when the **DELTOID CONTRACTS**



**EXTENSION** is the **INCREASE** in the **ANGLE** of a joint.

Sometimes this is known as **STRAIGHTENING** the joint. It can happen at the **ELBOW KNEE SHOULDER**

This is **EXTENSION** at the **ELBOW** caused when the **TRICEP CONTRACTS**



This is **EXTENSION** at the **KNEE** caused when the **QUADRICEPS CONTRACT**



This is **EXTENSION** at the **SHOULDER** caused when the **DELTOID CONTRACTS**



**ADDUCTION** is the movement of a **LIMB** (arm or leg) **TOWARDS** the **MIDLINE** of the body. It can happen at the **SHOULDER**

This is **ADDUCTION** at the **SHOULDER** caused when the **PECTORALS CONTRACT**



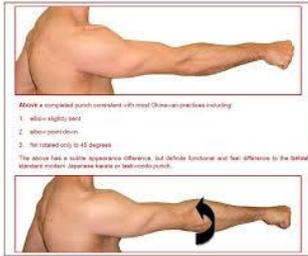
**ABDUCTION** is the movement of a **LIMB** (arm or leg) **AWAY FROM** the **MIDLINE** of the body. It can happen at the **SHOULDER**

This is **ABDUCTION** at the **SHOULDER** caused when the **DELTOID CONTRACTS**



**ROTATION** is the movement of a **LIMB** (arm or leg) **AROUND** an **AXIS**. It can happen at the **SHOULDER**

This is **ROTATION** at the **SHOULDER**



### 3. Explain the different range of movement from a ball and socket joint (shoulder) to a hinge joint (knee or elbow)

A **JOINT** is a **LOCATION** where **2** or **MORE BONES ARTICULATE** (**MEET**). For example the shoulder, knee and elbow are all joints.

- A) **HINGE** Joints; the **KNEE** and the **ELBOW** are both **HINGE** joints. They can perform **EXTENSION** & **FLEXION**.
- B) **BALL & SOCKET** Joints: EG: The **SHOULDER**. This can perform **EXTENSION, FLEXION, ABDUCTION, ADDUCTION, ROTATION**

### 4. Explain the effect of long term participation in physical activity on;

There are **4 MAIN BENEFITS** of regular exercise and physical activity on the skeletal system

- A. **INCREASED BONE DENSITY** which offsets the **RISK** of **OSTEOPOROSIS**
- B. **SLOWED LOSS** of **CALCIUM** so bones stay **STRONG**
- C. **INCREASED FLEXIBILITY** at **JOINTS**
- D. **STRONGER TENDONS & LIGAMENTS**

### 5. What is a weight bearing exercise?

A **WEIGHT BEARING** physical activity is exercise which puts **STRESS** and **WEIGHT** through the **SKELETON**.

### 6. What is osteoporosis?

**OSTEOPOROSIS** is a condition in which **BONE DENSITY** is **REDUCED** and the bone becomes **WEAK** and **PRONE** to **FRACTURE**.

### 7. Why is participation in weight bearing exercises important for the prevention of osteoporosis?

A **WEIGHT BEARING** physical activity is exercise which puts **STRESS** and **WEIGHT** through the **SKELETON**. They are **IMPORTANT** because will **INCREASE BONE DENSITY** and **PREVENT** osteoporosis. Examples are **WALKING, RUNNING, TENNIS, AEROBICS** or **WEIGHT LIFTING**. **SWIMMING & CYCLING** are **NOT** weight bearing

## 8. Explain the impact of physical activity on the potential for the following fractures;

**REGULAR** participation in physical activity **INCREASES** the risk of **FRACTURES** (broken bones). There are **4 TYPES** of **FRACTURE** & must be dealt with by **MEDICAL** professionals as they are **HARD TISSUE** injuries

**COMPOUND** fracture; when the **BONE** fractures and the bone sticks through the **SKIN**



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**GREENSTICK** fracture; when the bone fractures **PARTIALLY** and **NOT FULLY**



**SIMPLE** fracture is when the bone fractures **FULLY** but does **NOT** stick through the skin



**STRESS** fracture is an **INCOMPLETE** fracture of the bone due to **REPEATED STRESS**



## 9. Explain the impact of physical activity on the potential for the following joint injuries

**REGULAR** participation in physical activity **INCREASES** the risk of **JOINT INJURY**.

- A. **SPRAIN**; this is when the joint has damaged ligaments and tendons caused by a **TWISTING** action

- B. **TENNIS/ GOLFERS ELBOW**; this is a **SPRAIN** and is when part of the **ELBOW** becomes **PAINFUL** through **TOO MUCH USE** of the **TENDONS** in the joint. It can be **PREVENTED** by not **OVERUSING** or **REPEATING** the same action
- C. **TORN CARTILAGE**; cartilage is soft tissue which covers the end of **BONES** to **REDUCE FRICTION**. When a **JOINT SPRAINS** it can **TEAR** the **CARTILAGE**. It **REDUCES FLEXIBILITY** and it is **PAINFUL**
- D. **DISLOCATION**; this is a **HARD TISSUE** injury and is caused when a **JOINT MOVES OUTSIDE** its **NORMAL RANGE** or **LOCATION**

**10. Explain how the 'RICE' technique is used?**

1 common **TECHNIQUE** to **TREAT** these **INJURIES**      '**R.I.C.E**'

- A. **REST**; when you are injured you immediately **REST** the area
- B. **ICE**; you apply **ICE** to **REDUCE** the **SWELLING** and **INCREASE** recovery time
- C. **COMPRESS**; next you place a **BANDAGE** to **SUPPORT** and to **REDUCE** the **SWELLING**
- D. **ELEVATE**; you place the injured part of the body **ABOVE** the level of the **HEART** to **REDUCE SWELLING**

**11. Explain the effect of Vitamin D on the skeletal system**

**VITAMIN D** is produced by the **BODY** in **REACTION** to exposure to **SUNLIGHT**. It is also found in **FISH & EGGS**. Vitamin **D** helps **MAINTAIN BONE MASS** and **REDUCES** the **RISK** of **OSTEOPOROSIS**

**12. Explain the effect of calcium on the skeletal system**

**CALCIUM** is found in **MILK, CHEESE** and other **DAIRY PRODUCTS**. Calcium **STRENGTHENS** bones. A **LACK** of calcium will **DECREASE** their **STRENGTH** and can lead to **OSTEOPOROSIS**