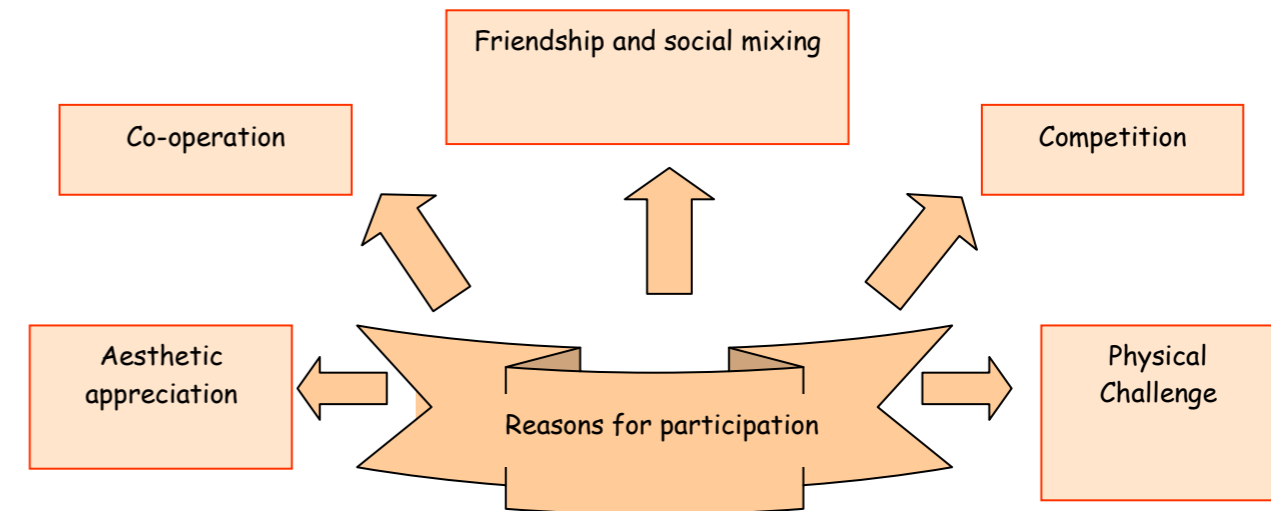
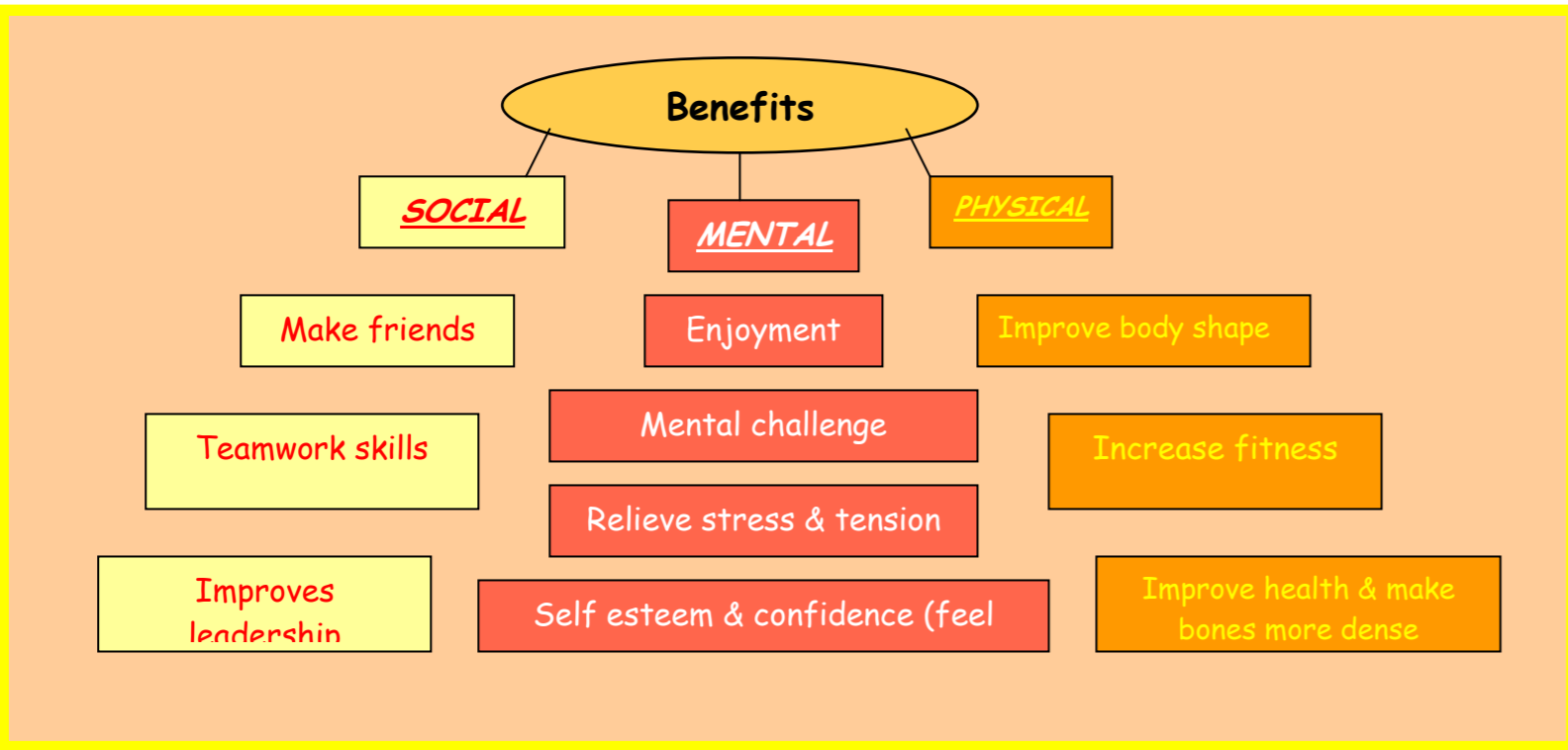


Healthy Active Lifestyles - Benefits

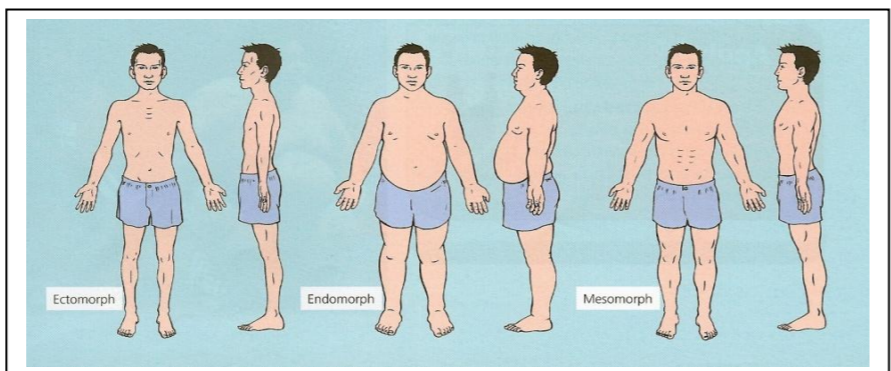
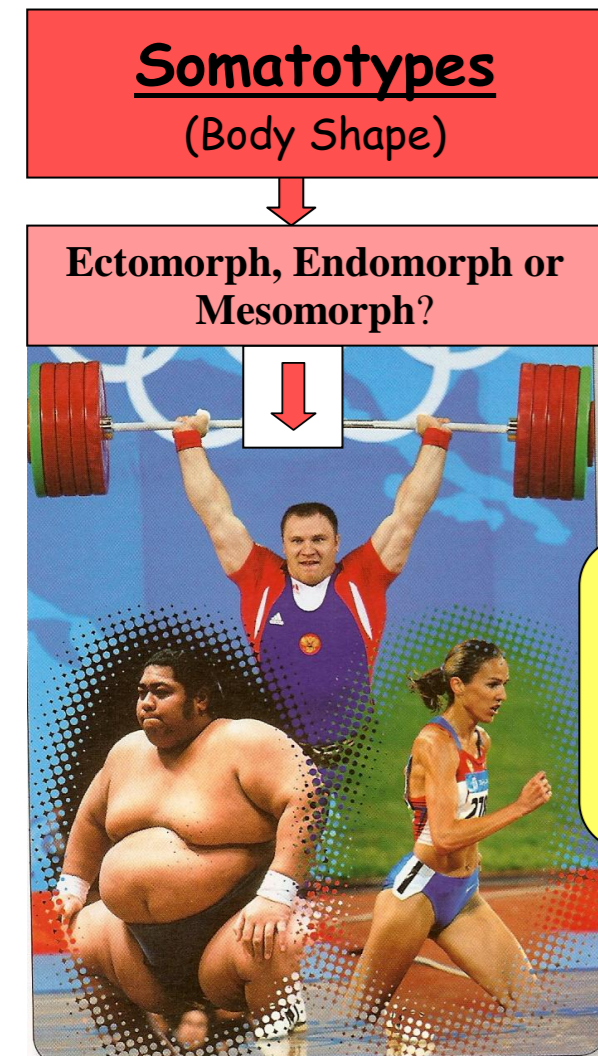
Key task words: Describe Analyse Identify Recall Explain Apply



Factors affecting optimum weight

- **Height** - taller people usually heavier than smaller people
- **Gender** - men tend to have more muscle and larger bones
- **Bone structure** - frame size can differ although height might be same
- **Muscle girth** - increases with training
- **Genetics** - parent to child similarities

Optimum weight (most favourable) can affect performance and participation in physical activity.



- ECTOMORPH**
Thinness, excel at long distance events
eg Marathon
- ENDOMORPH**
Fatness
Power sports
eg Rugby, sumo wrestling
- MESOMORPH**
Muscular
Strength, anaerobic events
eg. sprinters

TIP:- ECTO = THIN, MESO = MUSCLE, ENDO = DUMPY

Self Esteem and confidence

Enjoy Make Friends



Did you know...?

'Morph' is the Greek word for shape or form (metamorphosis = to change shape)

St. Helens has the highest level of obesity for 4-5 year old children in the North-West:-

34.7% = males and 31.7% = females are classed as 'overweight' or 'obese' (2006/07)

Key words:

endomorph
mesomorph
ectomorph
Osteoporosis
Aesthetic
Appreciation
Somatotype

Healthy Active Lifestyles - Influences



St. Helens Council

Key task words:

Describe

Analyse

Identify

Recall

Explain

Apply

Factors that affect involvement:

Factor	Examples
People	Family, peers, role models
Image	Fashion, media coverage
Cultural Factors	Age, disability, gender, race
Resources	Availability, access, location, time
Health & well-being	iIllness and health problems
Socio-economic	cost, status

Initiatives to encourage involvement:

Government - 2 - 5 hrs of PE/Sport
 PESSYP - Physical Education Sport Strategy for Young People
 Sport England - Start Stay Succeed
 Active Kids
 Youth Sport Trust - Top Link, Step into Sport
 ASK YOUR SSCO OR VISIT THE BELOW WEBSITE FOR MORE DETAILS:-
www.youthsporttrust.org

TIP:-

Key words
 Opportunities
 Initiatives
 Influential
 Involvement

- remember IIO
 Influence, Involvement,
 Opportunity



Club links, multi skills, Sport unlimited, festivals, competition

Primary school, Top Play Fundamentals

Elite, JAE, NGB regional/national Fewer participants

Sport specific, coaching, talent camps, competition,



Excellence

Did you know?

The England Women's Cricket Team retained The Ashes in 2008?

Performance

Participation

Foundation



Research change 4 life

COMPETITION MANAGERS

What are these?

THE PERFORMANCE PYRAMTD

Factors affecting performance

Key task words: Describe Analyse Identify Recall Explain Apply

Effects of performance enhancing drugs
All drugs have side effects.

TYPE	EFFECT
Anabolic steroids	Mimic male sex hormone - testosterone. Promote bone and muscle growth
Beta blockers	Control heart rate, have a calming and relaxing effect
Diuretics	Elevate rate of urine production
Narcotic Analgesics	Used to reduce pain
Stimulants	Increase physical and mental alertness
Peptide hormones	Cause other hormones to be produced

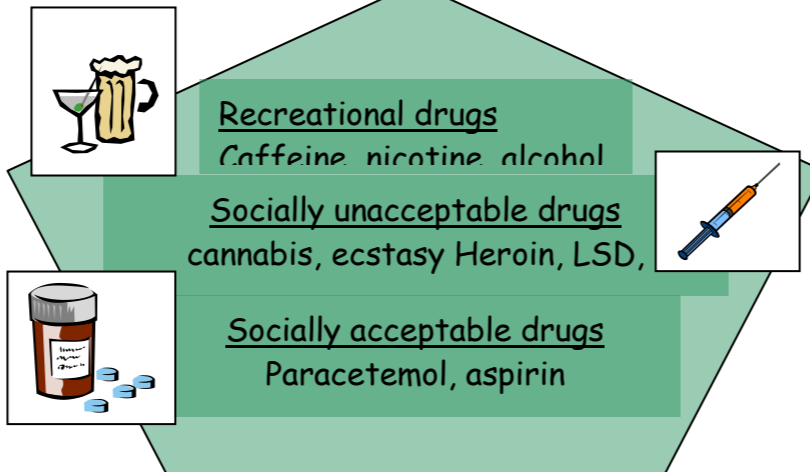
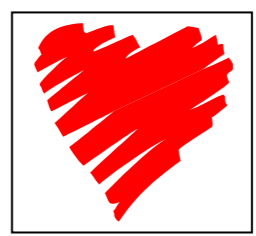


Andre Agassi has been one of the most charismatic players in the history of tennis, enthraling fans with the quality of his play but Andre Agassi has admitted using crystal meth.



Alcohol is fattening. There are 125 calories in a medium-sized (175ml) glass of wine; 500+ in a bottle. A vodka and coke or gin and tonic is 120 calories

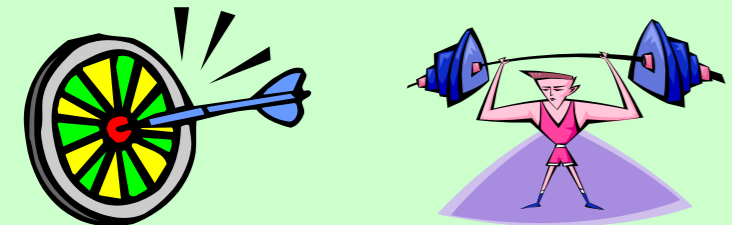
Your heart: Alcohol can cause high blood pressure, which can lead to problems including heart disease and strokes. When you binge drink you can cause abnormal heart rhythms and regular heavy drinking can lead to a condition that causes your heart to become enlarged



Go to:-
www.talktofrank.com

Key Terms


Anorexic	Prolonged eating disorder due to loss of appetite
Obese	People who are very over fat
Underweight	Weighing less than normal, healthy or injured
Over fat	Having body fat in excess of the normal
Overweight	Having weight in excess of the normal (only harmful if accompanied by over fatness)



Which drug could the above sports be linked with?

Did you know...

- Dwain Chambers (sprinter)** had a 2 year ban imposed for using performance enhancing drugs.



- Marion Jones - (US Olympic sprint champion)** had to return all her Olympic gold medals.

Usain Bolt thinks it will take time for people to believe that his world-record performances are possible without



Research

- What are the long term affects of drug taking?
- What are the side affects of anabolic steroids?
- Name a sport in which a performer may be tempted to use beta blockers?

Key words

Obesity
Analgesics
Diuretics
Stimulants
Doping
Anorexic
Overweight

Methods of Training

Key task words: Describe Analyse Identify Recall Explain Apply

Cross Training

Combines a mixture of training methods that work major muscle groups at the **same time**.

Continuous Training

Running, cycling, swimming, walking etc for at least 30 minutes at a **steady pace without rest**.

Interval Training

Used to improve **anaerobic** fitness. Fast work followed by a rest. Sprinting uses up energy in muscles and produces lactic acid. Rest to get O₂ in the body/rid the body of lactic acid

Fartlek Training

Means 'speed play' and improves **aerobic and anaerobic** fitness. Speed training is varied over different terrains

What is the athlete doing in each picture?

6 METHODS OF TRAINING

Weight Training

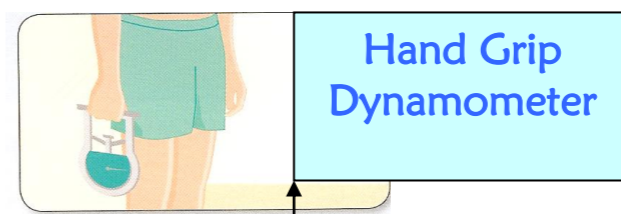
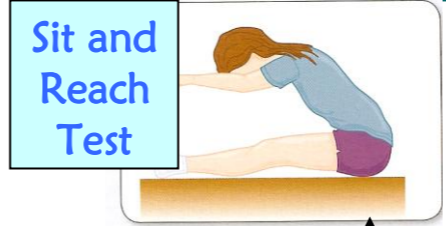
Lifting weights using repetitions and sets: To improve strength, use **heavy weights, low repetitions, high sets**. To improve muscular endurance (tone up) use **light weights high repetitions, low sets**.

Research

What is the suggested amount of daily exercise you should do?
 What is your maximal heart rate?
 What are the best methods of training for a gymnast, a marathon runner and a shot-putter?
 Compare your recovery rate to that of your friend

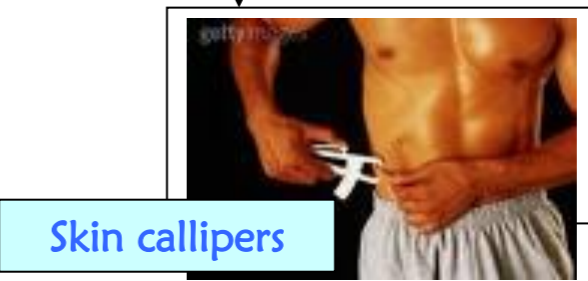
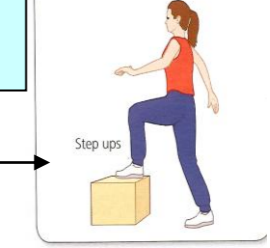
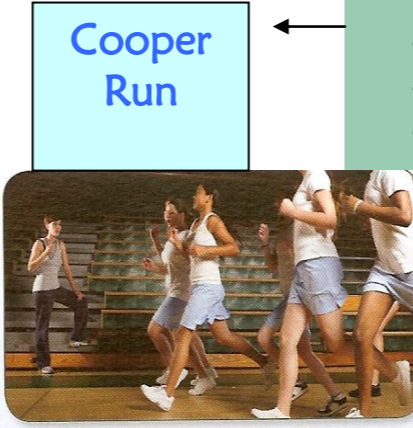
Circuit Training

8-15 stations all working a **different muscle/skill**. Normally work at each station for 1 minute, rest for 30 seconds



Did you know...? There are rumours that some athletes such as David Beckham, Lance Armstrong (cyclist) have completed the multi stage fitness test, which is 23 levels on the commonly used version. Lord Sebastian Coe achieved Level 17.

- ### Fitness Tests
- Cardiovascular: endurance - Coopers Run
 - Muscular endurance: sit up/press up test
 - Muscular strength: Grip dynamometer
 - Flexibility: sit and reach test
 - Body composition: body fat monitor/BMI/skin callipers



Key words:
 Cardiovascular
 Anaerobic
 Fartlek
 continuous

The Cardiovascular System

Key task words:

Describe

Analyse

Identify

Recall

Explain

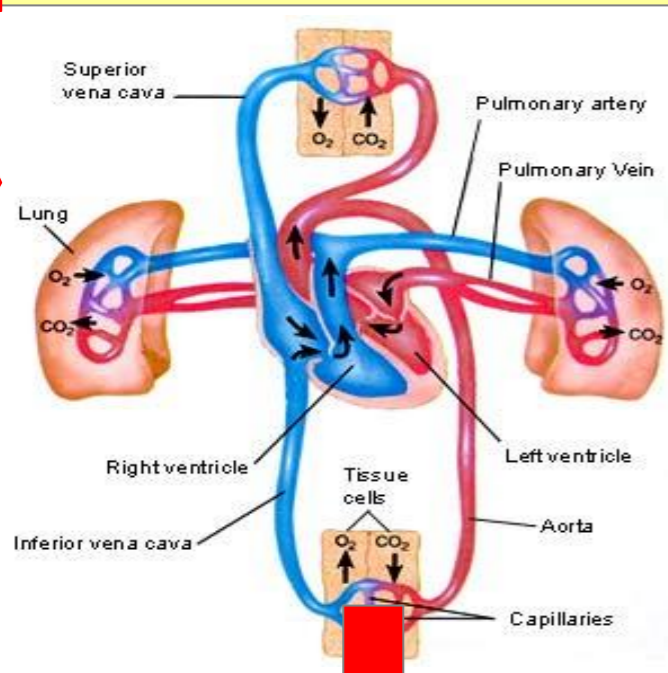
Apply

Cardiovascular system consists of - **Heart, blood and blood vessels**

The heart is a 'double pump'

1) Pulmonary Circulation

is where blood is pumped to the lungs then back to the heart.



2) Systemic circulation

pumps blood to the body and back to the heart.

Effects of exercise on CV system

- Decreased resting heart rate
- Heart recovery rate is faster
- Increased stroke volume
- Cardiac output improves

$$\text{Cardiac Output} = \text{Stroke Volume} \times \text{Heart Rate}$$

- Lower blood pressure
- Size and volume of heart increases
- Increased number of capillaries in heart muscle
- In case of heart attack - less damage than in an unfit person (long term benefit)

Negative lifestyle effects on CV system

- ↓ Drugs
- ↓ Stress
- ↓ Inactivity
- ↓ High cholesterol

Systolic/diastolic pressure

Systolic - max pressure in arteries when heart contracts and pushes blood out through the aorta.

Diastolic - pressure of the blood during relaxation phase between heart beats

Pulse pressure - difference between systolic and diastolic blood pressure

KEY TERMS

Cardiac output

This is the amount of blood ejected from heart in one minute.

Heart rate

This is the number of times your heart beats per minute - decreases with training.

Stroke volume

The volume of blood pumped out of the heart by each ventricle during one contraction- increases with training.

Blood pressure

The force exerted by circulating blood on the walls of the blood vessels

Blood vessels help to control your body temperature

Vasoconstriction - blood vessels under skin contract making them smaller to reduce blood flow to prevent heat loss

Vasodilatation - blood vessels under the skin expand making them bigger to increase heat loss.

Did you know

- that men, on average, have higher stroke volumes than women.



- that adrenaline is the main cause of changes in heart rate

Strong heart & clear blood vessels = strong cardiovascular (CV) system which means good CV fitness.

CV fitness - ability of the body to exercise for long periods of time

THINK HEART!

Research:

- What can you do to reduce the risk of high blood pressure?
- How does smoking and alcohol consumption effect blood pressure?
- What is an average heart rate and blood pressure?

Key words:
Circulation
Cholesterol
capillaries,
(de)oxygenated blood
diabetes
cardiovascular



Diet, health & hygiene



St. Helens Council

Key task words:

Describe

Analyse

Identify

Recall

Explain

Apply

Diet

The eatwell plate



Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



Carbohydrates= energy . pasta, bread, nuts, potatoes.

Fat => energy (slow release) e.g. fried food, cheese

Protein => growth and repair e.g. meat, fish

Fibre => digestion e.g. cereal, vegetables

Water => keeps the body hydrated e.g. drinks

Vitamins & minerals => nutrients that regulate the body e.g. fruit

A balanced diet means eating a diet that matches your energy needs (e.g. a marathon runner needs more carbohydrates than a weight lifter)



Positive effects of exercise Health



Short-term:

- *Increases well-being
- *Improves fitness levels
- *Contributes to a better performance
- *Improves concentration
- *Contributes to social and mental well-being
- *Weight management

Long-term:

- *Reduces heart disease
- *Raises self-esteem and confidence
- *Reduces risk of diabetes
- *Reduces the risk of osteoporosis
- *Improves condition of cardio-vascular system



What is body composition?

In physical fitness, body composition is used to describe the percentages of fat, bone and muscle in human bodies. Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people at the same height and same body weight may look completely different from each other because they have a different body composition.

The National Institute of Health recommends that a healthy adult male's body should have between 13 and 17 percent fat. A healthy female's body should be composed of 20 and 25 percent fat. Levels significantly above these amounts may indicate excess body fat. Athletes, leaner individuals, and more muscular individuals will have a body fat percentage lower than these levels.

Hygiene

Athlete's foot	A parasitic fungus that can be passed from person to person caught in moist environments e.g. baths, showers, locker rooms. It is flaky & split skin in a toe web space
Veruccas	Infection typically occurs on moist walking surfaces. The virus can survive many months without a host, making it highly contagious
Perspiration	The body excretes sweat after exercise that can cause body odour. The function of perspiration is to cool the body down. Correct clean, clothing helps to control sweat

Did you know...



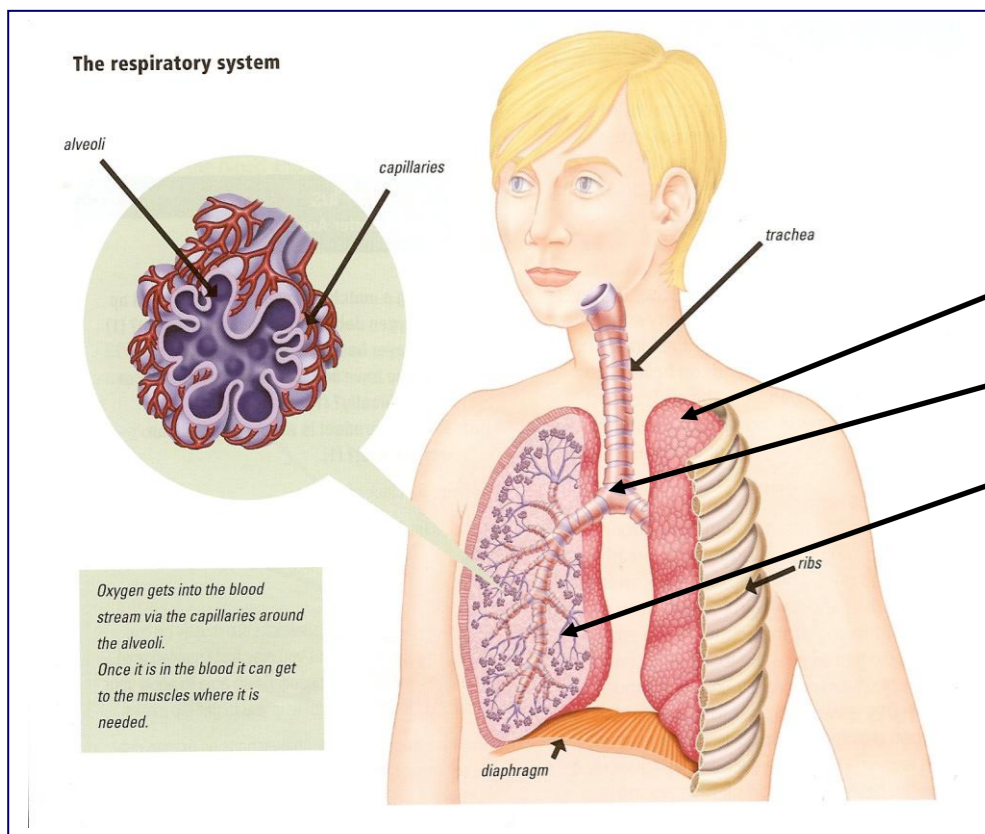
The U.S have the highest average daily per capita calorie intake of 3770; then Ireland 3690 then France 3650

Key words:

drug, osteoporosis, hygiene, stimulant, diuretic, protein (de)hydration, calories, nutrition

The Respiratory System

Key task words: Describe Analyse Identify Recall Explain Apply



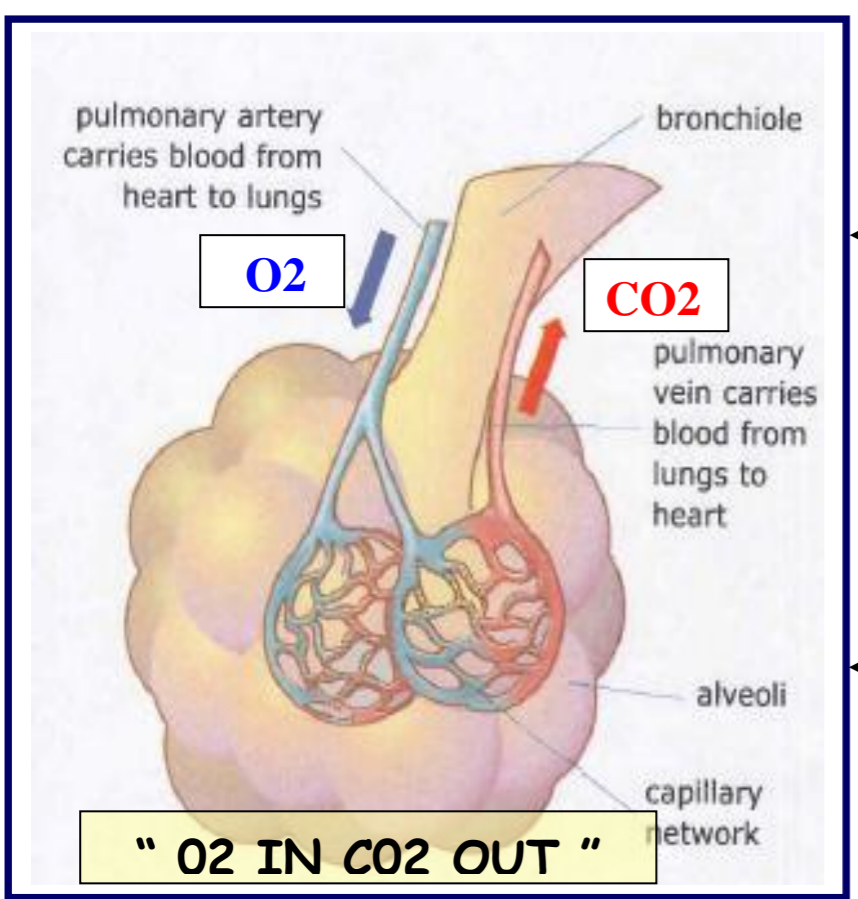
- Effects of regular exercise on the respiratory system**
- Lung capacity increases
 - Increased vital capacity
 - Number of alveoli increases
 - Gaseous exchange in the alveoli -
 - Improved by regular exercise
 - Damaged by nicotine in cigarettes

KEY TERMS TO KNOW!

Vital capacity - greatest amount of air that can be made to pass into and out of lungs

Tidal volume - amount of air inspired and expired with each normal breath.

Oxygen debt - amount of O₂ consumed during recovery above that which would have normally been consumed in the same time at rest (results in shortfall in O₂ available)



Oxygen is delivered via the alveoli into the blood stream to get to the working muscles

2 main functions of respiratory system

- O₂ in
- CO₂ out

Carbon dioxide is carried from the blood into the alveoli and breathed out. CO₂ is a waste product

INSPIRATION v EXPIRATION

Composition of inhaled air

- 79% = nitrogen
- 20% = oxygen
- trace = carbon dioxide

What is the difference?

Composition of exhaled air

- 79% = nitrogen
- 16% = oxygen
- 4% = carbon dioxide

Research

- Why do you need to rest after exercise?
- What are the effects of drugs on respiratory system?
- What is the bi-product of oxygen debt?

Aerobic respiration 'With oxygen'

- if exercise is steady and not too fast then the heart can supply all the oxygen that the muscles need.

Anaerobic respiration 'Without oxygen'

- exercise in short, fast bursts then the heart cannot supply blood and oxygen to muscles as fast as the cells use them.

Did you know..?

Aerobic exercise increases the volume and efficiency of the lungs

Attempts at breaking world records holding breath involves 'apnea' where there is no movement of the muscles of respiration and the volume of the lungs initially remains unchanged. Untrained humans cannot sustain voluntary apnea for more than one or two minutes. Illusionist David Blaine held his breath underwater in May 2008 for 17 minutes and 4 seconds.

Key words:

- diaphragm,
- alveoli,
- trachea,
- aerobic,
- anaerobic
- bronchioles
- oxygen
- respiratory

Risk assessment & Prevention of Injuries

Key task words:

Describe

Analyse

Identify

Recall

Explain

Apply

Types of Fracture

Closed Fractures
Also known as a simple fracture, the bone is broken but has not pierced the skin.

Open Fractures
Also known as a compound fracture, the bone is broken but has pierced the skin causing a wound.

Complicated Fractures
Here there is serious damage to the blood vessels and/or the nerves, causing heavy bleeding, which can be more dangerous than the break.

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Dislocations

The bone is pulled of it's normal position. It is most common in the shoulder, knee, elbow, jaw, finger and causes severe pain, swelling and bruising - seek medical attention, dial 999 for an ambulance - do not attempt to put the dislocated bone back!



R.I.C.E

Treatments of soft-tissue injuries



- Rest
- Ice
- Compression
- Elevation

Sprains

A sprain occurs at a joint, where there has been an overstretching or tearing of the ligaments which hold the bones of the joint together.

Sprains are usually a direct result of a sudden wrench or twisting. The most common joint to suffer this injury is the ankle.



Sprained Ankle

Here the ankle joint is over rotated and the ligaments holding it together become weaker.

Strains

These are the result of overstretching, twitching or wrenching of a muscle. The muscles of the back and legs most commonly suffer strains - e.g. lifting objects



Dr. ABC Routine

Dr. ABC is a simple routine, which can be easily followed to assist any injured person (casualty).

It involves assessing their condition at a number of stages and taking appropriate action to ensure they continue to breath and their blood circulates, until an ambulance arrives.

- D → Danger
- R → Response
- A → Airway
- B → Breathing
- C → Circulation

Concussion

Bang or blow to the head most common in contact sport - leads to unconsciousness, feeling sick, memory loss, dizziness. Dial 999



Risk Avoidance Preventing Sporting Injuries

Warm up/cool down prevent injury, cool down - disperse lactic acid

Equipment/facilities check for safety, good condition i.e. Pitch free from debris

Clothing/footwear Wear protective clothing/equipment where appropriate Eg. hockey goalkeepers, batsman in cricket

Balanced competition Make sure competition is balanced - same gender/age/handicap system etc

Playing to the rules of the competition - reduces risk of injury Playing to rules - fair play, safety, spirit of the game.



HYPOTHERMIA

hypo = below or under; *thermia* = heat
Often called 'exposure' is where the body temperature goes below normal function (around 37°C.)

(DE) HYDRATION

Lack of watering the body - can lead to dizziness and weakness.
Hydration is of special importance as part of the preparation, participation and recovery of every athlete from the stresses of training or competition.

KEY WORDS:-

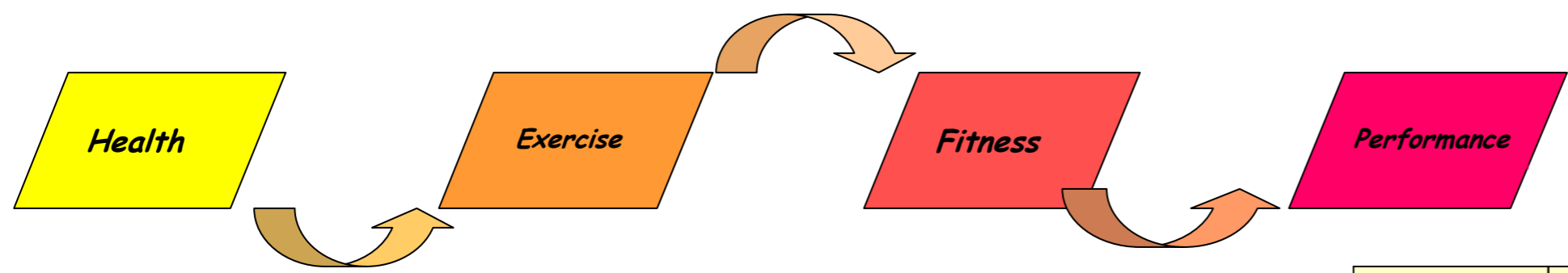
- Concussion
- Dehydration
- Hypothermia
- Elevation
- Compound
- PAR-Q
- Haemorrhage

Research:-

- What sports have the most reported injuries?
- What is haemorrhage?
- Where could you learn the skills to deal with sports-related injuries?
- What is PAR - Q?
- What is the difference between strain and sprain?

Health, exercise, fitness and performance

Key task words: Describe Analyse Identify Recall Explain Apply



What is...

Health? A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Exercise? A form of physical activity, done to maintain /improve health and physical fitness.

Fitness? The ability to meet the demands of the environment.

Performance? How well a task is completed.

Cardiovascular Fitness
The ability to exercise the entire body for long periods of time

Muscular Strength
The amount of force a muscle can exert against a resistance

Muscular Endurance
The ability to use the voluntary muscles many times without getting tired

Flexibility
The range of movement possible at a joint

Body Composition
The percentage of body weight that is fat, muscle and bone

HRF
HEALTH RELATED FITNESS

Fitness Performance

Speed
The time in which a distance or movement is completed, e.g. 100 m sprint race

Agility
The ability to change direction quickly with control, e.g. goalkeeper in football

Reaction
Speed of response to a stimulus e.g. sprint start in response to the gun

Coordination
The ability to use complex moves using two or more body parts together.

Balance
controlled moments of stillness, e.g. handstand

Power
The ability to complete strength performances quickly (strength + speed = power) e.g. release in shot putt

SRF
SKILL RELATED FITNESS

- Key words:**
- Performance
 - Disease
 - Coordination
 - Reaction
 - Cardiovascular
 - Flexibility

Research:

What is BMI?

Complete a battery of skill-related fitness tests and compare your results to that of a friend.

What are hypokinetic diseases?

Did you know?
Sir Steve Redgrave has Diabetes and Colitis

Joints, Tendons & Ligaments

Key task words: Describe Analyse Explain Identify

Joints in the body.

PIVOT (Neck)

FIXED (cranium)

BALL & SOCKET (shoulder)

BALL & SOCKET (hip)

FIXED (coccyx)

HINGE (elbow)

HINGE & GLIDING (ankle)

HINGE (knee)

CONDYLOID (wrist)

Fixed joints

Bones in a fixed joint can't move at all (immoveable)
Bones are joined together by tough fibre, such as the cranium

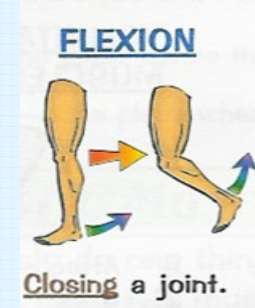
Slightly moveable joints

Bones in a slightly moveable joint can move a little. Bones are held together with ligaments and joined by cartilage e.g. joints of vertebrae

Types of Joint Movements:

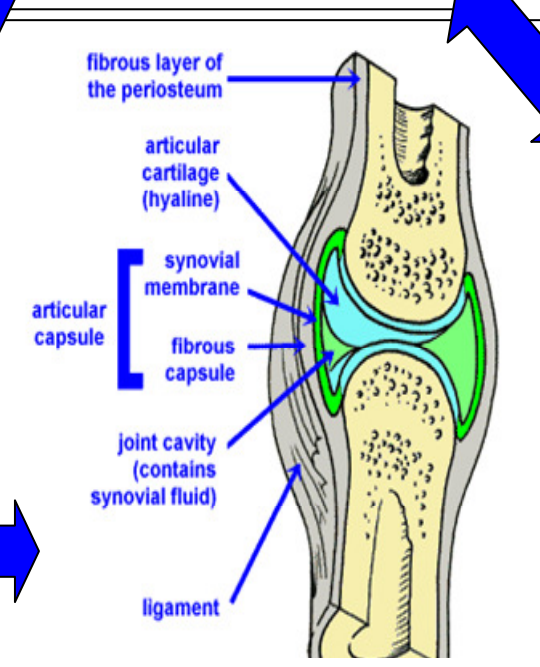
Flexion = decreasing the angle at a joint (the opposite of extension) e.g. forward bending

Extension = straightening at the joint (the opposite of flexion) e.g. leg extension



Joint (or articular) capsule	hold bones together and protects joints - like an envelope of connective tissue surrounding the synovial joint
Tendons	join muscle to bone - without these muscles would float around the bone and movement would be impossible. They are non-elastic and act like an 'anchor' allowing muscles to shorten and bring about different actions
Ligaments	Join bone to bone and keeps them in place and have to be strong and elastic. If they are stretched too far they tear and dislocate
Cartilage	is a shock absorber, protects the ends of the bones so cushions the bones to stop them rubbing together
Synovial membrane	is the soft tissue that lines the capsule and produces synovial fluid that lubricates the joints

Synovial joint



Freely moving joints

Bones at a freely moveable joint can move freely.
These joints offer the body the most movement
Also known as **synovial joints**

Key words: synovial fluid, fibres, cartilage, ligaments, dislocate, rotation, flexion, abduction, adduction, flexibility, extension, motion



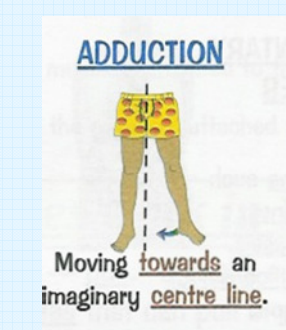
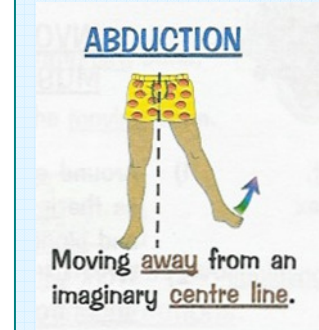
Did you know...

At the age of 16, Mark Eccleston had an accident in which he severed his spinal cord.

He was left tetraplegic, paralysed from the chest down and was told he would never walk again. Now he is an Olympian Tetraplegic Paralympic Champion and the World's first Tetraplegic Tennis Coach

Abduction = moving a limb or bone away from the body

Adduction = moving a limb or bone towards the body



Rotation: Turning around an axis

Circumduction = to move a limb in a circular manner which is a combination of flexion, extension, adduction and abduction and occurs at synovial joints.

Feature!

What are the short and long-term effects of exercise on:

- Joints
- Tendons

Research

Describe how the following types of joints are used in particular sporting actions:

- ball and socket
- hinge
- pivot

The Muscular System

Key task words:

Describe

Analyse

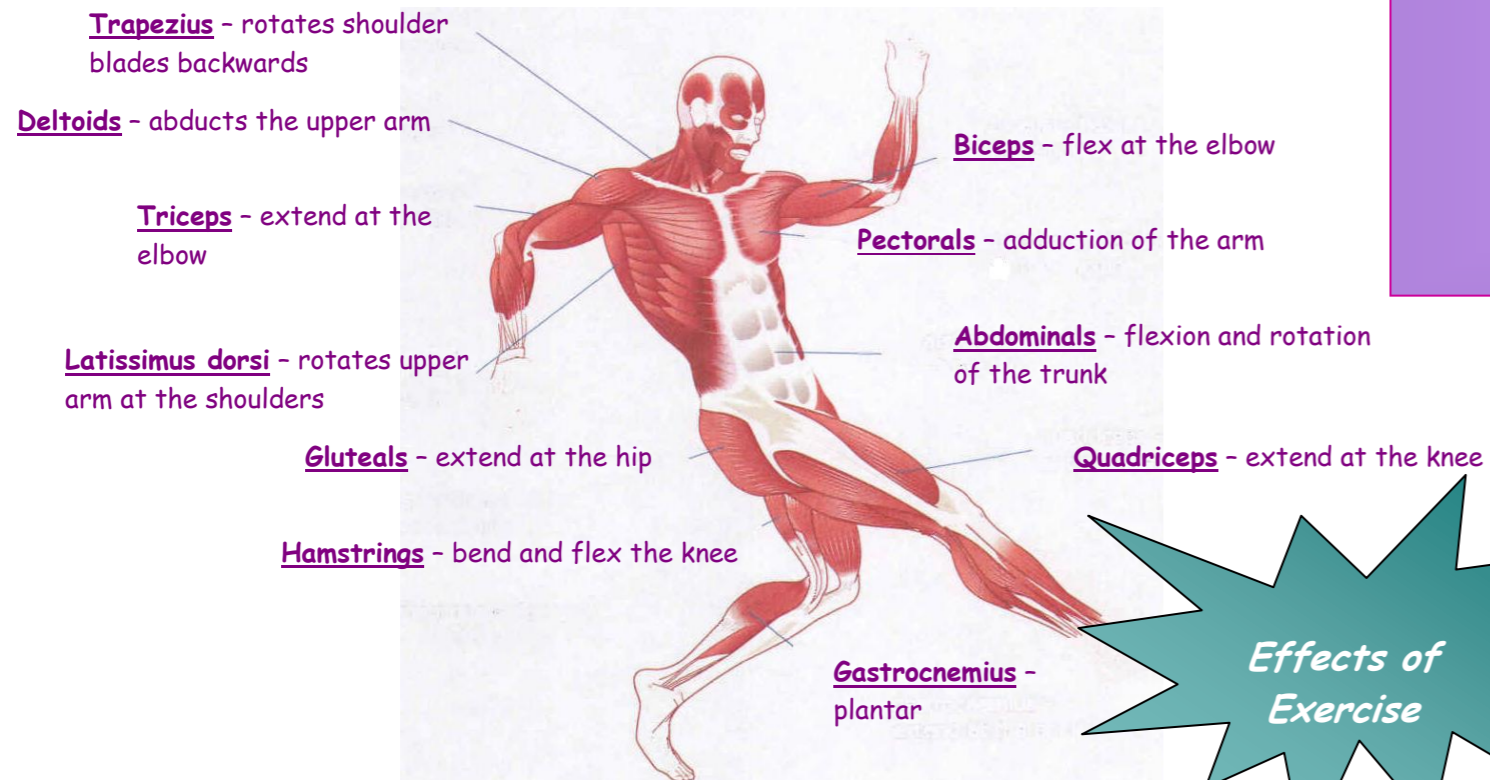
Identify

Recall

Explain

Apply

Location and functions of 11 Major Muscles

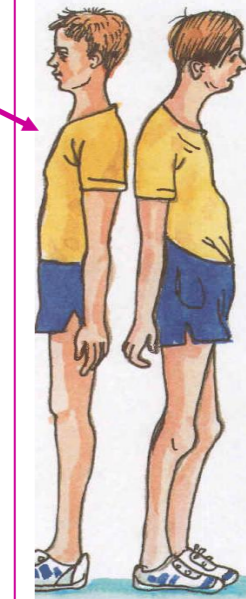


Good posture: is the position that puts the least strain on your muscles and bones.

Benefits of good posture:

- Improve self-esteem
- Prevents strain and injury
- Enhances your body shape

Muscle tone:- is a state of partial contraction



Antagonist Muscles

Muscles are arranged in pairs - as one muscle contracts (shortens) its partners relaxes (lengthens) eg Biceps / triceps

Agonist Muscles

Describes a muscle that causes specific movement or possibly several movements to occur through the process of its own contraction.

Good or Bad?

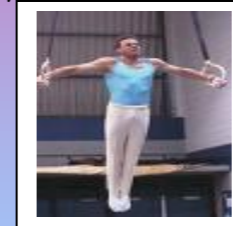
Isotonic contraction

Muscle contraction that results in limb movement e.g. running, jumping

Isotonic contraction is where tension remains unchanged and the muscles' length changes.

Isometric contraction

Static, immovable state



This means in these exercises the length of the muscle does not change e.g. handstand / crucifix

AN EXAMPLE OF ANTAGONIST MUSCLES

Flexion at leg - Hamstrings contract
Quadriceps relax

Extension at leg - Hamstrings relax
Quadriceps contract



Fast twitch fibres

- Contact quickly with force
- Tire quickly
- Suited More suited to power and strength sports



Slow twitch fibres

- Contract slowly without much force
- Do not tire easily
- More suited to endurance.



A top-class long-distance runner has sinewy muscles that can keep working over long periods.

Fibre Types

Immediate effects

- Body's demand for more O₂ and glycogen so muscles can function
- If O₂ demand too high then Lactic acid produced - can cause cramp
- More waste products produced

Long term effects

- Increase muscle size - hypertrophy, strengthens muscles as well
- Regular warm up - minimise muscle injury
- Regular cool down - disperse lactic acid
- Improved muscle tone (state of partial Contraction)
- Better posture, stronger tendons

Soft tissue injuries

- Involves ligaments, tendons, muscles.
- Tears, pulls, strains
- Stopping training results in **Muscle Atrophy**
- You **strain** a muscle but **sprain** a joint
- Drugs can damage your health

Tip:-

Effects of Exercise

Research

- In which parts of the body are these muscles found - give examples:-
 - ❖ voluntary
 - ❖ involuntary
 - ❖ cardiac
- Which food group helps repair muscles?
- What effect do anabolic steroids have on

Key words:

Agonist, Antagonist
Isotonic, Isometric
Flexion
Anabolic
Hypertrophy,
Atrophy

The Principles of Training

Key task words: Describe Analyse Identify Recall Explain Apply

The Principles

Individual needs / differences

Matching training to the requirements of an individual i.e. PEP

Specificity

Matching training to the requirements of an activity eg Rugby forwards train for strength but the backs need to be fast and agile

Progressive Overload

To gradually increase the amount of overload so that fitness gains occur, but without potential for injury i.e. When an athlete increases their training more than their norm so as to increase fitness levels

Rest and recovery

The period of time allotted to recovery

FITT

Frequency, intensity, time, type (Used to increase the amount of work the body does, in order to achieve overload)

Reversibility

Any adaptation that takes place as a consequence of training will be reversed when you stop training

Do you know who they are and their method of training?



P.E.P

Personal Exercise Plan

F.I.T.T

Frequency

How OFTEN you train

Intensity

How HARD you train

Time

How LONG you train

Type

What TYPE of exercise

HR/Training Zone

Target zone is 60% of maximum HR.

Maximum HR is 220 - age.

At least 20 mins activity per session should be in the target zone.

Research

Can you design your own 6-week PEP?

Identify principles of training for a marathon runner?

What is your target zone?

Key words:
Specificity
Reversibility
Progressive overload
Frequency
Intensity
Adaptation

The Skeletal System

Key task words: Describe Analyse Identify Recall Explain Apply

Functions of a Skeleton

What is a skeleton for and what do bones do?
3 main functions

Protection - the skeleton protects vital organs

Support - as bones are strong they keep us upright

Allow blood production - blood production occurs in the bone marrow

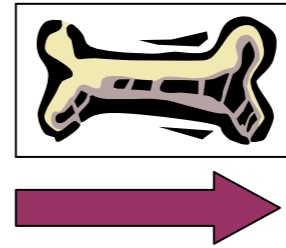
Help to shape us - bones give us our general framework and shape

Movement - allows muscles to attach to them and allow movement

What long-term effect does regular participation in basketball and exercise have on his bones?

Did you know that... Osteoporosis affects about 3m people in the UK who have the condition. It is more common in women than men. 1 in 2 women and 1 in 5 men over the age of 50 will have a fracture.

Weight bearing exercises such as walking, and running help strengthen bone, this in turn can help prevent osteoporosis or delay its onset.

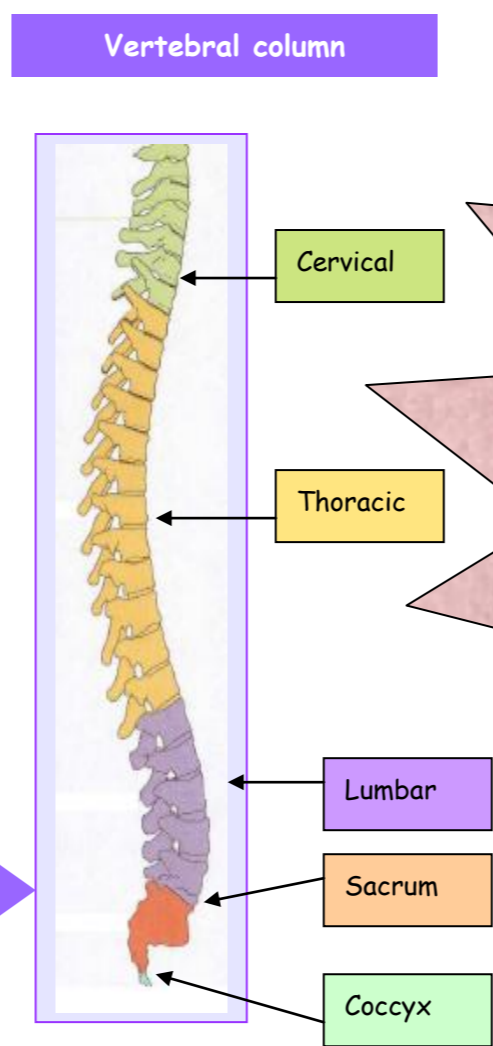


Ossification

ossi = bone

ossification = when bones begin as cartilage when we are born.

They then begin to harden as we grow older. This process is called *ossification*



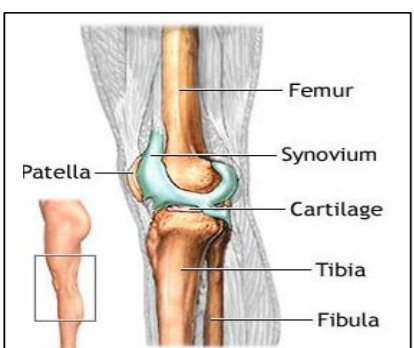
Diet

Calcium

Low fat - milk, cheese, yoghurts

Vitamin D

Sunlight



Also see your 'Joints & tendons' worksheet

The Lumbar Region is the largest and strongest vertebrae in the column.

This is probably the region of the back most vulnerable to injury

Research:

- What sports are most likely to cause joint inflammation?
- What is osteo-arthritis and how does it affect the skeletal system?
- Why do you need calcium?

FACTS!

- There are 206 bones in the human body and the largest and longest is the femur (thigh bone)
- A child's skeleton is replaced cell by cell every 2 years
- It stops growing in length after about 16-18 years.
- Bones deteriorate from age 35 years onwards

Key words:
 Cartilage
 Ossification
 Ligaments
 Tendons
 Skeleton
 Vertebral column

Cartilage: prevents bones from rubbing together

Marrow cavity: produces red and white blood cells

Spongy bone: helps to shock absorb and makes blood cells