

Blood Vessels

Arteries – Thick muscular walls to deal with high blood pressure, take blood away from the heart

Veins – Have valves, take blood towards the heart

Capillaries – One cell thick to allow diffusion to take place

Spirometer Trace

Tidal Volume – normal amount of air inhaled or exhaled per breath

Inspiratory Reserve Volume – amount of air that can be forced in after tidal volume

Expiratory Reserve Volume – amount of air that can be forced out after tidal volume

Residual Volume – air left in the lungs after maximal expiration

Total Lung Capacity – maximum amount of air that can fill the lungs

Vital Capacity – the largest volume of air that can be forcibly expired after the deepest possible inspiration

Impact of exercise?

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Levers

F1

L2

E3

1st Class – Fulcrum in the middle
Football throw (extension at the elbow)

2nd Class – Load in the middle
Jumping (plantar flexion)

3rd Class – Effort in the middle
Bicep curl (flexion at elbow)

Fulcrum – fixed point lever rotates around

Load – the resistance being moved by the lever

Effort – force required to move the load

Methods of Training

Circuit Training – A series of exercises performed at stations in an organised pattern

Weight training – Involves working against a resistance of weights

Continuous Training – Keeps the heart rate high for a sustained period without rest

Fartlek – Training constantly changing speed or terrain without rest

Interval – Periods of high intensity followed by periods of low intensity or rest

Altitude – Training 2000m above sea levels for a month to improve oxygen carrying capacity

Plyometric – Leaping and bounding to develop explosive strength in the limbs

GCSE PE

Bread & Butter



Principles of Training

Specificity – training specific to your sport

Progression Overload – must make it gradually harder to help make you improve

Frequency/Intensity/Time/Type

Reversibility – if you stop training the gains you have made will reverse to their original state

Tedium – you must mix your training methods and focus to avoid getting bored

Flexion – Decrease of the angle at a joint (↑ *bicep curl*)

Extension – Increase of angle at a joint (↓ *bicep curl*)

Abduction – limb moving away from midline of the body (↑ *Star jump*)

Adduction – limb moving towards the midline of the body (↓ *Star jump*)

Rotation – A circular movement (*breathing in swimming at the neck*)

Dorsi Flexion – Toes moving towards the shin at the ankle (↓ *squat*)

Plantar Flexion – Pointing your toes downwards towards the floor (*Jumping*)

Muscular Endurance – The ability of voluntary muscles to withstand fatigue (*1min press-up test*)

Coordination – Combining two or more body parts into one fluid motion (*Alternate hand throw*)

Flexibility – The range of movement at a joint (*Sit & Reach*)

Dynamic Strength – The ability of voluntary muscles to continuously contract without tiring (*Sit Up Bleep Test*)

Maximal Strength – Maximum amount of force a muscle can exert in one movement (*One Rep Max test*)

Components of Fitness

Balance – The ability to maintain centre of mass over the base of support (*Stork Stand*)

Explosive Strength – A short burst of maximal force (*Vertical Jump*)

Power – The combination of speed and strength (*Standing Long Jump*)

Static Strength – The maximum force that can be exerted against an immovable object (*Plank Test*)

Cardiovascular Endurance – Ability of the heart & lungs to deliver oxygen to the muscles for a sustained period (*12 Minute Cooper Run*)

Agility – Ability to change direction at speed (*Illinois Agility Test*)

Reaction Time – The time taken to respond to an external stimulus (*Ruler Drop*)

Speed – Ability to move body parts quickly (*30m Sprint*)