

GCSE PE Paper 1 Key terms

Adrenaline	Natural hormone released to speed heart rate up.
Aerobic	With oxygen. When exercise is not too fast and is steady, the heart can supply all the oxygen that the working muscles need. Summarised as: glucose + oxygen → energy + carbon dioxide + water.
Aerobic training zone	The aerobic training zone allows the aerobic system to be trained. To define aerobic training zone: 1. Calculate maximum heart rate (220 bpm) minus age: 220-age 2. Work at 60-80% of maximum heart rate
Agonist (prime mover)	Muscle or group responsible for the movement.
Agility	The ability to move and change direction quickly (at speed) whilst maintaining control.
Altitude	A geographical area (of land) which is over 2,000 m above sea level.
Altitude training (traditional)	Training at altitude where there is less oxygen. The body adapts by making more red blood cells to carry oxygen. The additional oxygen carrying red blood cells is an advantage for endurance athletes returning to sea level to compete.
Altitude sickness	Nausea caused by training at altitude.
Alveoli	Air sacs in the lungs.
Anaerobic	Without oxygen. When exercise duration is short and at high intensity, the heart and lungs cannot supply blood and oxygen to muscles as fast as the respiring cells need them. Summarised as: glucose → energy + lactic acid.
Antagonist	Acts to produce the opposite action to the agonist. They work in antagonistic pairs.
Articulating bones	Where two or more bones meet to allow movement at a joint.
Axis	Imaginary line through the body around which it rotates. Types of axis: • longitudinal (or vertical) – head to toe • transverse – through the hips • sagittal – through the belly button
Backflow	The flowing backwards of blood. Valves in the veins prevent this from happening.
Balance	The maintenance of the centre of mass over the base of support. Reference can be made to whilst static (still) or dynamic (whilst moving).
Blood pressure	The pressure that blood is under. Types of pressure: <input type="checkbox"/> systolic - when the heart is contracting <input type="checkbox"/> diastolic - when the heart is relaxed.
Body composition	The percentage of body weight which is fat and non-fat (muscle and bone).
Cardiac cycle	The process of the heart going through the stages of systole and diastole (see Blood pressure) in the atria and ventricles (see Heart chambers).
Cardiac output	The amount of blood ejected from the heart in one minute or stroke volume x heart rate.
Cardio-vascular endurance (aerobic power)	The ability of the heart and lungs to supply oxygen to the working muscles.
Circuit training	A series of exercise stations whereby periods of work are interspersed with periods of rest.
Closed season	Post (transition). It is defined as: <input type="checkbox"/> period of rest to recuperate <input type="checkbox"/> players doing gentle aerobic exercise to maintain general fitness <input type="checkbox"/> fully rested and ready for pre-season training.
Coordination	The ability to use different (two or more) parts of the body together, smoothly and efficiently.

Competition season (peak)	It is defined as: <input type="checkbox"/> playing season <input type="checkbox"/> taking part in matches every week <input type="checkbox"/> maintenance of fitness related to the activity but not too much training as it may cause fatigue, which would decrease performance <input type="checkbox"/> concentration on skills/set plays to improve team performance
Continuous training	Involves working for a sustained period of time without rest. It improves cardiovascular fitness. Sometimes referred to as a steady state training.
Delayed onset of muscle soreness (DOMS)	The pain felt in the muscles the day after exercise.
Excess post-exercise oxygen consumption (EPOC)	Sometimes referred to as oxygen debt (now an outdated term), EPOC refers to the amount of oxygen needed to recover after exercise. EPOC enables lactic acid to be converted to glucose, carbon dioxide and water (using oxygen). It explains why we continue to breathe deeply and quickly after exercise.
Expire	Breathe out.
Fartlek training	Swedish for 'speed play'. Periods of fast work with intermittent periods of slower work. Often used in running, ie sprint, jog, walk, jog, sprint, etc.
Fatigue	Either physical or mental, fatigue is a feeling of extreme or severe tiredness due to a build-up of lactic acid or working for long periods of time.
Fine movement	Small and precise movement, showing high levels of accuracy and coordination. It involves the use of a small group of muscles.
Fitness	The ability to meet/cope with the demands of the environment.
FITT	FITT is used to increase the amount of work the body does, in order to achieve overload (see SPORT). FITT stands for: <input type="checkbox"/> frequency – how often you train <input type="checkbox"/> intensity – how hard you train <input type="checkbox"/> time – the length of the training session <input type="checkbox"/> type – the specific method, eg continuous training.
Flexibility	The range of movements possible at a joint.
Gross movement	Using large muscle groups to perform big, strong, powerful movements.
Haemoglobin	The substance in the red blood cells which transports oxygen (as oxyhaemoglobin) and carbon dioxide.
Health	A state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity (as per the World Health Organisation- WHO). Ill health refers to being in a state of poor physical, mental and/or social well-being.
Heart attack	It occurs when the flow of oxygen-rich blood to a section of heart muscle suddenly becomes blocked.
Heart chambers	They include the right and left atria and ventricles.
Heart rate	The number of times the heart beats (usually measured per minute).
High intensity interval training (HITT)	It's an exercise strategy alternating periods of short intense anaerobic exercise with less intense recovery periods (see Interval training).
Hypertension	High blood pressure in the arteries.
Hypertrophy	The enlargement of an organ or tissue from the increase in the size of its cells.
Inspire	Breathe in.
Interval training	Periods of training/work that are followed by periods of rest, eg work, rest, work, rest (see High intensity interval training).
Isometric contraction	Muscle contraction where the length of the muscle does not alter. The contraction is constant, ie pushing against a load.
Isotonic contraction	Muscle contraction that results in limb movement: <input type="checkbox"/> concentric contraction - shortening of the muscle <input type="checkbox"/> eccentric contraction - lengthening of the muscle.
Lever	A rigid bar (bone) that turns about an axis to create movement. The force to move the lever comes from the muscle(s). Each lever contains: <input type="checkbox"/> a fulcrum - fixed point, effort (from the muscle(s) to move it) <input type="checkbox"/> load/resistance (from gravity).

Maximal heart rate	Calculated by: $220 - \text{age}$
Mechanical advantage	The efficiency of a working lever, calculated by: $\text{effort} \div \text{weight (resistance) arm}$
Minerals	Inorganic substances which assist the body with many of its functions, eg bone formation (Calcium).
Movement at a joint	Classified into: <ul style="list-style-type: none"> <input type="checkbox"/> flexion – decrease in the angle of the bones at a joint <input type="checkbox"/> extension – increasing the angle of bones at a joint <input type="checkbox"/> abduction – movement away from the midline of the body <input type="checkbox"/> adduction – movement towards the midline of the body <input type="checkbox"/> rotation – movement around an axis <input type="checkbox"/> plantar flexion – pointing the toes at the ankle/increasing the ankle angle <input type="checkbox"/> dorsi flexion – toes up at the ankle/decreasing the ankle angle.
Muscular endurance (similar to dynamic strength)	Ability of a muscle or muscle group to undergo repeated contractions, avoiding fatigue.
One rep max	The maximal amount that can be lifted in one repetition by a muscle/group of muscles (with the correct technique).
Plane	Imaginary lines depicting the direction of movement. Types of planes: <ul style="list-style-type: none"> <input type="checkbox"/> sagittal - forwards and backwards <input type="checkbox"/> frontal - left or right <input type="checkbox"/> transverse - rotation around the longitudinal axis.
Post season (transition)	Period of rest/active recovery/light aerobic work after the competition period (season).
Power/explosive strength (anaerobic power)	The product of strength and speed, ie $\text{strength} \times \text{speed}$.
Pre-season (preparation)	It is defined as: <ul style="list-style-type: none"> <input type="checkbox"/> period leading up to competition <input type="checkbox"/> usually using continuous/fartlek/interval training sessions to increase aerobic fitness <input type="checkbox"/> weight training to build up strength and muscular endurance <input type="checkbox"/> developing techniques specific to the sport in order to be fully prepared for matches at start of season and therefore be more successful.
Principles of overload	Frequency, intensity, time and type (see FITT).
Principles of training	Specificity, progressive overload, reversibility and tedium (see SPORT).
Prime mover (agonist)	Muscle or muscle group responsible for the movement.
Pulse raiser	Any activity that raises heart rate. Usually as part of a warm up, eg light jog.
Qualitative	More of a subjective than an objective appraisal. Involving opinions relating to the quality of a performance rather than the quantity (eg score, placing, number).
Quantitative	A measurement which can be quantified as a number, eg time in seconds or goals scored. There is no opinion expressed (qualitative). It is a fact.

Reaction time	The time taken to initiate a response to a stimulus, ie the time from the initiation of the stimulus (eg starting gun in 100 m) to starting to initiate a response (eg starting to move out of the blocks in 100 m).
Recovery	Time required to repair the damage to the body caused by training or competition.
Repetitions	The number of times an individual action is performed. A set is a group of repetitions.
Residual volume	Volume of air left in the lungs after maximal expiration.
Season	A period of time during which competition takes place or training seasons, dividing the year up into sectional parts for pre-determined benefits. Training seasons include: <ul style="list-style-type: none"> <input type="checkbox"/> pre-season (preparation) <input type="checkbox"/> competition season (peak) <input type="checkbox"/> post-season (transition).
Skeletal system	Skeletal system provides a framework of bones for movement, in conjunction with the muscular system.
Speed	The maximum rate at which an individual is able to perform a movement or cover a distance in a period of time, putting the body parts into action as quickly as possible. Calculated by: distance ÷ time
Spirometer trace	A measure of lung volumes, which includes: <ul style="list-style-type: none"> <input type="checkbox"/> tidal volume – volume of air inspired or expired/exchanged per breath <input type="checkbox"/> inspiratory reserve volume – the amount of air that could be breathed in after tidal volume <input type="checkbox"/> expiratory reserve volume – the amount of air that could be breathed out after tidal volume <input type="checkbox"/> residual volume – the amount of air left in the lungs after maximal expiration.
SPORT (the principles of training)	<p>Specificity Making training specific to the sport being played/movements used/muscles used/energy system(s) used.</p> <p>Progressive overload Gradual increase of the amount of overload so that fitness gains occur, but without potential for injury. Overload is the gradual increase of stress placed upon the body during exercise training (more than normal).</p> <p>Reversibility Losing fitness levels when you stop exercising.</p> <p>Tedium Boredom that can occur from training the same way every time. Variety is needed.</p>
Static stretching	Holding a stretch still/held/isometric.
Strength	The ability to overcome a resistance. This can be explosive, static or dynamic: <ul style="list-style-type: none"> <input type="checkbox"/> explosive – see Power <input type="checkbox"/> static – static ability to hold a body part (limb) in a static position. Muscle length stays the same/maximum force that can be applied to an immovable object <input type="checkbox"/> dynamic – see Muscular endurance for similarity.

Stroke volume	The volume of blood pumped out of the heart by each ventricle during one contraction.
Sub-maximal	Working below maximal intensity level.
Suppleness	As with flexibility, the range of movement possible at a joint.
Synovial joint	<p>An area of the body where two or more bones meet (articulate) to allow a range of movements. The ends of the bones are covered in articular cartilage and are enclosed in a capsule filled with fluid. For the purposes of this specification, the following structural features and roles should be known:</p> <ul style="list-style-type: none"> <input type="checkbox"/> synovial membrane – secretes synovial fluid <input type="checkbox"/> synovial fluid – provides lubrication <input type="checkbox"/> joint capsule – encloses/supports <input type="checkbox"/> bursae (sacks of fluid) – reduce friction <input type="checkbox"/> cartilage – prevents friction/bones rubbing together <input type="checkbox"/> ligaments – attach bone to bone.
Target zone	The range within which athletes need to work for aerobic training to take place (60-80% of maximum heart rate).
Training	A well-planned programme which uses scientific principles to improve performance, skill, game ability, motor and physical fitness.
Training thresholds	The actual boundaries of the target zone.
Validity	The extent to which a test or method measures what it sets out to measure.
Viscosity	Thickening of the blood.
Weight training	The use of weights/resistance to cause adaptation of the muscles.