

Subject specific vocabulary

The following subject specific vocabulary provides definitions of key terms used in our GCSE Physical Education specification (8582). Students should be familiar with, and gain understanding of, these terms.

Ability

Inherited, stable traits that determine an individual's potential to learn or acquire a skill.

Adaptability

The potential to change with ease.

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.

Aggression

A deliberate intent to harm or injure another person, which can be physical or mental (see direct and indirect aggression).

Agility

The ability to move and change direction quickly (at speed) whilst maintaining control.

Agonist (prime mover)

Muscle or group responsible for the movement.

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.

Amateur

This term defines someone who:

- takes part in an activity as a hobby, rather than for financial gain
- has another main job outside of sport
- takes part for fun
- could be at a lower level.

Anabolic steroids

Artificially produced male hormones mimicking testosterone. They promote muscle and bone growth, and reduce recovery time. Often used by power athletes, eg sprinters.

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.

Arousal

A physical and mental (physiological and psychological) state of alertness/readiness, varying from deep sleep to intense excitement/alertness.

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).

Balanced diet

It is defined as eating:

- the right amount (for energy expended)
- the right amount of calories
- according to how much you exercise
- different food types to provide suitable nutrients, vitamins and minerals.

Beta blockers

Drugs that are used to steady nerves by controlling heart rate. They have a calming and relaxing effect.

(Blood) doping

Defined by World Anti-Doping Agency (WADA) as the misuse of techniques and/or substances to increase one's red blood cell count.

Blood pressure

The pressure that blood is under. Types of pressure:

- systolic - when the heart is contracting
- diastolic - when the heart is relaxed.

Body composition

The percentage of body weight which is fat and non-fat (muscle and bone).

Calorie

A unit which measures heat or energy production in the body, normally expressed as Kcal.

Carbohydrate

The body's preferred energy source.

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:

- period of rest to recuperate
- players doing gentle aerobic exercise to maintain general fitness
- fully rested and ready for pre-season training.

Closed skill

A skill which is not affected by the environment or performers within it. The skill tends to be done the same way each time.

Commercialisation

To manage or exploit (an organisation, activity, etc) in a way designed to make a profit.

The specification refers to commercialised activity as being sponsorship and the media only.

Coordination

The ability to use different (two or more) parts of the body together, smoothly and efficiently.

Competition season (peak)

It is defined as:

- playing season
- taking part in matches every week
- maintenance of fitness related to the activity but not too much training as it may cause fatigue, which would decrease performance
- concentration on skills/set plays to improve team performance.

Continuous training

Involves working for a sustained period of time without rest. It improves cardio-vascular fitness. Sometimes referred to as a steady state training.

Contract to compete

Unwritten agreement to follow and abide by the written and unwritten rules.

Deep breathing

Slow, deep breaths whilst relaxed.

Dehydration

Excessive loss of body water interrupting the function of the body.

Hydration

Having enough water to enable normal functioning of the body.

Rehydration

Consuming water to restore hydration.

Direct aggression

Aggressive act which involves physical contact with others, eg a punch.

Diuretic drugs

Drugs that remove fluid from the body, elevating the rate of bodily urine excretion.

Delayed onset of muscle soreness (DOMS)

The pain felt in the muscles the day after exercise.

Ectomorph

A somatotype characterised by being tall and thin. Individuals with narrow shoulders and narrow hips.

Embolism

Blockage of a blood vessel.

Endomorph

A somatotype, characterised by a pear shaped body/fatness. Individuals with wide hips and narrow shoulders.

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.

Erythropoietin (EPO)

A type of peptide hormone that increases the red blood cell count.

Etiquette

A convention or unwritten rule in an activity. It is not an enforceable rule but it is usually observed.

Expire

Breathe out.

Externally-paced skill

The skill that is started because of an external factor. The speed, rate or pace of the skill is controlled by external factors, eg an opponent.

Extrinsic feedback

Received from outside of the performer, eg from a coach. See Kinaesthetic feedback for a comparison.

Extrovert

Sociable, active, talkative, out-going personality type usually associated with team sports players.

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.

Feedback

Information a performer receives about their performance. Feedback can be given during and/or after performance.

Fine movement (skill classification)

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:

- frequency – how often you train
- intensity – how hard you train
- time – the length of the training session
- type – the specific method, eg continuous training.

Flexibility

The range of movements possible at a joint.

Gamesmanship

Attempting to gain an advantage by stretching the rules to their limit, eg time wasting.

Goal setting (SMART goals)

A method to increase motivation and reduce anxiety. Goals should be SMART:

- specific – specific to the demands of the sport/muscles used/movements used
- measurable – it must be possible to measure whether they have been met
- accepted – they must be accepted by the performer and others involved, eg coach
- realistic – they are actually possible to complete
- time bound – over a set period of time.

Goal types (performance goals and outcome goals)

Performance goals

Personal standards to be achieved.

Performers compare themselves against what they have already done or suggest what they are going to do. There is no comparison with other performers.

Outcome goals

Focus on end result/winning.

Gross movement (skill classification)

Using large muscle groups to perform big, strong, powerful movements.

Guidance

A method to convey information to a performer. Guidance methods:

- visual (seeing)
- verbal (hearing)
- manual (assist movement – physical)
- mechanical (use of objects/aids).

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).

Hooliganism

Disorderly, aggressive and often violent behaviour by spectators at sporting events.

Home field advantage

Gaining an advantage in a sporting event from being in familiar surroundings, with the majority of the spectators supporting you.

Hypertension

High blood pressure in the arteries.

Hypertrophy

The enlargement of an organ or tissue from the increase in the size of its cells.

Indirect aggression

Aggression which does not involve physical contact. The aggression is taken out on an object to gain advantage, eg hitting a tennis ball hard during a rally.

Information processing

Making decisions. Gathering data from the display (senses), prioritising the most important stimuli to make a suitable decision.

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).

Intrinsic feedback

See Kinaesthetic feedback.

Introvert

A quiet, passive, reserved, shy personality type, usually associated with individual sports performance.

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:

- concentric contraction - shortening of the muscle
- eccentric contraction - lengthening of the muscle.

Kinaesthetic feedback

It's a type of intrinsic feedback, received via receptors in the muscles. Sensations that are felt by the performer, providing information from movement.

Level playing field

The same for all competitors.

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:

- a fulcrum - fixed point, effort (from the muscle(s) to move it)
- load/resistance (from gravity).

Lifestyle

See sedentary lifestyle.

Masculinity

Displaying masculine (male) stereotypical behaviour.

Maximal heart rate

Calculated by: $220 - \text{age}$

Mechanical advantage

The efficiency of a working lever, calculated by: $\text{effort} \div \text{weight (resistance) arm}$

Media

Diversified technologies which act as the main means of mass communication. These include:

- printed media (eg newspapers)
- broadcast media (eg TV and radio)
- internet/social media (eg Facebook)
- outdoor media (eg billboards).

Mental health and well-being

A state of well-being in which every individual realises his/her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (as per WHO). It works in conjunction with physical and social health.

Mental rehearsal/visualisation/imagery

Cognitive relaxation techniques involving control of mental thoughts and imagining positive outcomes.

Mesomorph

A somatotype, characterised by a muscular appearance. Individuals with wide shoulders and narrow hips.

Minerals

Inorganic substances which assist the body with many of its functions, eg bone formation (Calcium).

Motivation (intrinsic motivation and extrinsic motivation)

The drive to succeed or the desire (want) to achieve something/to be inspired to do something. This can be:

- intrinsic – the drive that comes from within (eg for pride, satisfaction, a sense of accomplishment, self-worth)

or

- extrinsic – the drive to perform well or to win in order to gain external rewards (eg prizes, money, praise).

Movement at a joint

Classified into:

- flexion – decrease in the angle of the bones at a joint
- extension – increasing the angle of bones at a joint
- abduction – movement away from the midline of the body
- adduction – movement towards the midline of the body
- rotation – movement around an axis
- plantar flexion – pointing the toes at the ankle/increasing the ankle angle
- dorsi flexion – toes up at the ankle/decreasing the ankle angle
- circumduction – turning or circular motion around a joint (which occurs in more than one plane).

Muscular endurance (similar to dynamic strength)

Ability of a muscle or muscle group to undergo repeated contractions, avoiding fatigue.

Narcotic analgesics

Drugs that can be used to reduce the feeling of pain.

Nutrition

The intake of food, considered in relation to the body's dietary needs. Good nutrition is an adequate, well balanced diet, combined with regular physical activity.

Obese

A term used to describe people with a large fat content, caused by an imbalance of calories consumed to energy expenditure. A body mass index (BMI) of over 30 or over 20% above standard weight for height ratio.

One rep max

The maximal amount that can be lifted in one repetition by a muscle/group of muscles (with the correct technique).

Open skill

A skill which is performed in a certain way to deal with a changing or unstable environment, eg to outwit an opponent.

Peptide hormones

Drugs that stimulate the production of naturally occurring hormones (eg EPO), which increase red blood cell count/oxygen carrying capacity.

Physical health and well-being

All body systems working well, free from illness and injury. Ability to carry out everyday tasks. It works in conjunction with social and mental health.

Physiology

Study of how our cells, muscles and organs work together, and how they interact.

Plane

Imaginary lines depicting the direction of movement. Types of planes:

- sagittal - forwards and backwards
- frontal - left or right
- transverse - rotation around the longitudinal axis.

Positive self-talk

Developing cognitive positive thoughts about your own performance.

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 strength x speed.

Pre-season (preparation)

It is defined as:

- period leading up to competition
- usually using continuous/fartlek/interval training sessions to increase aerobic fitness
- weight training to build up strength and muscular endurance
- 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.

Reliability

Relating to the consistency and repeatability of a test (ie to produce same or similar scores).

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.

Role model

A person looked to by others as an example to be imitated.

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:

- pre-season (preparation)
- competition season (peak)
- post-season (transition).

See these terms for definitions.

Sedentary lifestyle

A lifestyle with irregular or no physical activity.

Self-paced skill

The skill is started when the performer decides to start it. The speed, rate or pace of the skill is controlled by the performer.

Skeletal system

Skeletal system provides a framework of bones for movement, in conjunction with the muscular system.

Skill

A learned action/learned behaviour with the intention of bringing about pre-determined results, with maximum certainty and minimum outlay of time and energy.

Skill classification

Categorisation of sporting skills in accordance with set continua. These include:

- simple/complex continua
- open/closed continua
- self-paced/externally-paced continua
- gross/fine continua.

Social health and well-being

Basic human needs are being met (food, shelter and clothing). The individual has friendship and support, some value in society, is socially active and has little stress in social circumstances. It works in conjunction with physical and mental health.

Somatotype

A method of classifying body type. Body types:

- ectomorph
- endomorph
- mesomorph

See these terms for definitions of individual somatotypes.

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: $\text{distance} \div \text{time}$

Spirometer trace

A measure of lung volumes, which includes:

- tidal volume – volume of air inspired or expired/exchanged per breath
- inspiratory reserve volume – the amount of air that could be breathed in after tidal volume
- expiratory reserve volume – the amount of air that could be breathed out after tidal volume
- residual volume – the amount of air left in the lungs after maximal expiration.

Sponsor

An individual or group that provides financial support to an event, activity, person, or organisation.

SPORT (the principles of training)

Specificity

Making training specific to the sport being played/movements used/muscles used/energy system(s) used.

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).

Reversibility

Losing fitness levels when you stop exercising.

Tedium

Boredom that can occur from training the same way every time. Variety is needed.

Sponsorship

Provision of funds or other forms of support to an individual or event in return for some commercial return.

Sportsmanship

Conforming to the rules, spirit and etiquette of a sport.

Static stretching

Holding a stretch still/held/isometric.

Stimulants

Drugs that have an effect on the central nervous system, ie they increase mental and/or physical alertness.

Strength

The ability to overcome a resistance. This can be explosive, static or dynamic:

- explosive – see Power
- 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
- 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

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:

- synovial membrane – secretes synovial fluid
- synovial fluid – provides lubrication
- joint capsule – encloses/supports
- bursae (sacks of fluid) – reduce friction
- cartilage – prevents friction/bones rubbing together
- ligaments – attach bone to bone.

Tangible

Something that can be seen and touched, eg a trophy.

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.

Vitamins

Organic substances that are required for many essential processes in the body, eg Vitamin A for structure and function of the skin.

Weight training

The use of weights/resistance to cause adaptation of the muscles.

Well-being

Involves physical, mental and social well-being. The dynamic process that gives people a sense of being comfortable, healthy or happy.