

Subject specific vocabulary

The following subject specific vocabulary provides definitions of key terms used in our AS and A-level Physical Education specification (7581/7582). Students should be familiar with and gain understanding of these terms.

Applied anatomy and physiology

Altitude training (traditional)

Training at altitude where there is less oxygen. The body adapts by making more red blood cells to carry oxygen. These additional red blood cells are an advantage for endurance athletes returning to sea level to compete.

Anticipatory rise

An increase in heart rate prior to exercise, due to the release of adrenalin.

Articulating bones

Where two or more bones meet to allow movement at a joint.

Arterio-venous oxygen difference (A-VO₂ diff)

The difference in the oxygen content of the blood between the arterial blood and the venous blood.

Axis

Imaginary line through the body around which it rotates. Includes:

- longitudinal (sometimes referred to as vertical – head to toe)
- transverse (through the hips)
- sagittal (through the belly button).

Cardiac conduction system

A group of specialised cardiac muscle cells in the walls of the heart that send signals to the heart muscle, causing it to contract. The main components of the cardiac conduction system are:

- the SA node
- AV node
- bundle of His

- Purkinje fibres.

Excess post-exercise oxygen consumption (EPOC)

Increased rate of oxygen intake following strenuous activity, intended to pay back the oxygen deficit.

Indirect calorimetry

A technique that provides an estimation of energy expenditure from the amount of carbon dioxide produced and oxygen consumed during rest and steady-state exercise.

Lactate-producing capacity

The capacity to produce high levels of lactate during exercise.

Lactate threshold

An abrupt increase in blood lactate.

Oxygen deficit

The difference between the oxygen required during exercise and the oxygen supplied and utilised. Occurs at the onset of exercise.

Plane

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

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

Receptors

Part of the nervous system that detects changes in the body. Types of receptors:

- Baroreceptor - located in blood vessels, detects changes in blood pressure.
- Chemoreceptor - monitors and detects changes in blood acidity.

Respiratory exchange ratio (RER)

The ratio of carbon dioxide produced to the oxygen consumed.

VO₂ max

The maximum amount of oxygen that can be taken in, transported and used by the body per minute. Measured in millilitres for each kilogram body weight each minute (ml/kg/min).

Exercise physiology and biomechanical movement

Acceleration

The rate of change of velocity or the difference between final and initial velocities divided by the time taken. Measured in metres per second squared (m/s^2).

Acute injury

Sudden event where the cause and onset of pain are identifiable, eg fracture, sprain.

Chronic injury

Also known as an overuse injury which occurs over time, eg Achilles tendonitis, stress fracture.

Drag

The dynamic fluid force component that acts in opposition to the motion of an object with respect to a fluid, air or water.

High Intensity Interval Training (HIIT)

An exercise strategy alternating periods of short intense anaerobic exercise with less-intense recovery periods.

Impulse

The effect of a force acting over a period of time. Force multiplied by time. It is also a change in momentum. Impulse is measured in newtons per second (Ns) reduced to kg/s.

Lever

A rigid bar (bone) that turns about an axis to create movement. The force to move the lever comes from muscle/muscles. Each lever contains:

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

Lift

The dynamic fluid force component that acts perpendicular to the relative motion of an object through a fluid, air or water.

Momentum

The quantity of motion of a body. Mass multiplied by velocity. Measured in kg m/s, or Ns.

Objective

Based on empirical data, eg times, scores.

Reliability

Relating to the consistency and repeatability of a test.

Qualitative

More of a subjective than an objective appraisal. Involving opinions relating to the quality of a performance rather than the quantity (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.

Scalar

Quantities have only magnitude (size), eg distance, speed, mass.

Speed

The distance covered by a moving object in unit time taken. Distance divided by time. Measured in metres per second (m/s).

Subjective

An impression or judgement on how well a test was performed.

Validity

The extent to which a test or method measures what it sets out to measure.

Vectors

Quantities have both magnitude (size) and direction, eg displacement, velocity, acceleration, weight, momentum.

Velocity

The rate of change of displacement. Displacement divided by time. Measured in metres per second (m/s).

Skill acquisition

Anticipation

Predicting that something will happen. Types of anticipation:

- Temporal - refers to the timing of an action or when something will occur.

- Spatial - where an individual thinks an action will occur.

Behaviourism

Primarily concerned with observable and measurable aspects of human behaviour. Behaviourist learning theories emphasize changes in behaviour that result from stimulus-response associations made by the learner.

Constructivism (social)

The idea that meanings and understandings grow out of social encounters, eg young learners who are in contact with adults or more experienced learners. People who support this idea believe that culture is main determinant of individual development.

Hick's law

The more choices there are the slower reaction time.

Psychological refractory period

The delay in response to the second of two closely spaced stimuli.

Reaction time

The time taken between a stimulus and a response. Types of reaction time:

- Simple reaction time - the time taken to start a single response to a single stimulus.
- Choice reaction time - the time taken between a stimulus and an action which requires a choice.

Single channel hypothesis

A hypothesis suggesting that the brain can only deal with one piece of information at a time. When it receives several pieces in rapid succession, a 'bottleneck' is formed.

Social learning

Learning through observation.

Transfer of learning

When the learning of one skill has an effect on the learning of another.

Sport psychology

Aggression

An emotional response (involving anger) to an individual perceived as an enemy or frustrating rival.

Anxiety

A negative emotional state usually associated with feelings of apprehension and worry, caused by over arousal due to a person being stressed. Types of anxiety:

- Somatic - physiological reactions to stress.
- Cognitive - psychological reactions (unpleasant thoughts, usually concerned with under achieving) to stress.
- Trait - an enduring personality trait, giving a tendency to view all situations as threatening.
- State - anxiety felt in a particular situation.

Arousal

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

Assertive behaviour

Acceptable but forceful behaviour.

Attribution retraining

The coach changes the usual external attributions for failure into internal, unstable, controllable factors.

Cohesion

The dynamic forces that cause a team to stick together.

Cognitive dissonance

The lessening of one or more of the conflicting areas that have an impact on negative drive state (which create a feeling of psychological discomfort or tension) to change attitudes.

Evaluation apprehension

A sense of anxiety caused by a performers thinking that their performance is being watched and judged by somebody.

Learned helplessness

The state that occurs when a performer believes that failure is inevitable and that they have no way of changing that outcome.

Self-confidence

A person's belief in their ability to achieve success.

Self-efficacy

Situation specific self-confidence.

Self-serving bias

The tendency to attribute success to internal factors and losses or failures to external factors. Protects self-esteem.

SMARTER

- Specific
- Measurable
- Achievable
- Realistic
- Time bound
- Evaluate
- Re-do.

Social facilitation

The beneficial influence of the presence of others on performance (eg coach, audience, co-actors doing the same activity).

Sport and society

Amateurism

The views and principles of a person who engages in a sport for pleasure rather than for profit.

Amateur

This term describes someone:

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

Anabolic steroids

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

Beta blockers

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

Commercialisation

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

Doping

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

Erythropoietin (EPO)

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

Gamesmanship

'Bending the rules' – often seen as time wasting in some sports.

Media

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

Media includes:

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

National Governing Bodies

Organisations responsible for the promotion, development and regulation of a sport in the UK.

Olympic oath

A solemn promise made by:

- one athlete - as a representative of each of the participating Olympic competitors
- one judge - as a representative of each officiating Olympic referee or other official

at the opening ceremonies of each Olympic Games.

Professional

Someone who receives direct payment for their participation in sporting activities.

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.

UK Sport

The UK wide organisation responsible for delivering world-class sporting success in conjunction with a range of partner organisations.

Whole sport plans

A four year plan produced by a National Governing Body for the development of its sport.

Sport and society and the role of technology in physical activity and sport

Deviance

Behaviour that falls outside the norms or outside what is deemed to be acceptable.

Golden triangle

The link between sports events, sponsorship by businesses and the media.

Indirect calorimetry

A technique that provides an estimation of energy expenditure from the amount of carbon dioxide produced and oxygen consumed during rest and steady-state exercise.

Socialisation

The learning of society's social norms and values.