Glossary

### VCE Physical Education Units 1–4

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| Term | Definition |
| Biophysical | **Includes** anatomical, biomechanical, physiological and skill acquisition |
| Sociocultural | Of, or relating to the interaction of social and cultural elements such as family, peers, community, gender, socio-economic status, cultural beliefs and traditions |
| Movement skill | Coordinated body movement through space that encompasses all activity types (physical activity, sport and exercise) |

### Unit 1

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| Term | Definition |
| Fast twitch muscle fibres | Muscle fibres that have the capacity for rapid force production |
| Slow twitch muscle fibres | Muscle fibres that have a high oxidative capacity |
| Concentric | Muscle action where the muscle is developing force whilst shortening |
| Eccentric | Muscle is developing force whilst lengthening |
| Isometric | The muscle length remains constant while force is developed |
| Agonist | The muscle that is the prime mover and contracts during a movement |
| Antagonist | The muscle that relaxes to allow movement to occur |
| Stabilisers | Muscles which contract to fixate the area so that another limb or body segment can exert a force and move |
| Reciprocal inhibition | The pairing of agonist and antagonist muscles on opposite sides of a joint to create movement |
| Lever | A rigid bar that overcomes a resistance whilst rotating around an axis |
| Motor unit | A motor nerve and all the muscle fibres it innervates |
| Size principle | The principle by which motor units are recruited in order of their size from smallest to largest |
| All or nothing principle | The principle indicates that all muscle fibres in a motor unit will contract maximally if or not at all, based on whether the nerve impulse surpasses the threshold for that motor unit |
| Degrees of freedom | The number of independent variables (muscles, joint angles) that must be simultaneously controlled to produce purposeful movement |
| Thermoregulation | The body’s ability to maintain core body temperature |
| Vasodilation | The dilation of blood vessels where diameter gets larger |
| Vasoconstriction | The constriction of blood vessels where diameter gets smaller |
| Stroke volume (SV) | The amount of blood ejected by the left ventricle per beat |
| Heart rate (HR) | The number of heart beats per minute |
| Cardiac output (Q) | The amount of blood ejected by the left ventricle in one minute.  Q = SV x HR |
| Tidal volume (TV) | The amount of air breathed into the lungs in one breath |
| Respiratory rate (RR) | The number of breaths taken per minute |
| Ventilation | The amount of air breathed in and out of the lungs in one minute.  V = TV x RR |
| Gaseous exchange | The diffusion of gases from areas of higher concentration to areas of lower concentration |
| Erythropoietin (EPO) | A polypeptide hormone naturally produced in the kidneys or produced synthetically that produces red blood cells |
| Beta blockers | A class of drugs used to prevent stimulation of cell activity, including adrenaline, such as causing heart rate to slow down |
| Gene doping | The non-therapeutic use of gene modification to enhance performance |
| Blood doping | The misuse of techniques to increase red blood cells in the body |
| Altitude training | Training undertaken at high elevation with low oxygen levels |

### Unit 2

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| Term | Definition |
| Physical inactivity | Failure to meet physical activity guidelines  Or  Insufficient physical activity to achieve measurable health outcomes |
| Sedentary behaviour | Activities that do not increase energy expenditure significantly above resting level |
| Subjective methods | Instruments to monitor physical activity and sedentary behaviour that rely on individual memory, perception and interpretation |
| Objective methods | Instruments to monitor physical activity and sedentary behaviour that use a device and/or tool that aim to remove the bias associated with subjective methods |
| Recall | Remembering and describing the characteristics of behaviour from a defined time period |
| Diary | Regular recording of the characteristics of behaviour |
| Pedometry | Device that records the number of steps taken |
| Observation tools | The watching and recording of behaviour in real time by a trained facilitator |
| Digital tools | Technological devices that may include wearable technologies, smart watches and phones, video recording |
| Wearable technology | Included above |
| Social Ecological Model | A model that recognises the interwoven relationship that exists between the individual and their environment and the factors that affect their behaviour |
| Aerobic Power | The rate of energy production from the aerobic energy system |
| Muscular Endurance | The ability of a muscle or group of muscles to sustain repeated contractions in the face of fatigue |
| Muscular Strength | Peak force that a muscle can develop |
| Flexibility | The ability of muscles and joints to move through their full range of motion |
| Functional movement assessment | A movement assessment undertaken prior to participating in a personalised plan which aims to evaluate an individual’s functional movement patterns, skills and stability |
| Self-management skills | Skills that help people to control and regulate their emotions, thoughts and behaviour effectively in different situations |
| Intrapersonal | Issues that occur within oneself, either physiologically or psychologically |
| Mental fitness | A state of optimal psychological well-being with the ability to cope with stress and challenges |
| Interpersonal | Issues that occur with interactions and relationships between people and the dynamics of how individuals relate to and influence one another |
| Geographic location | Position on earth |
| Safeguarding athletes | A set of measures, policies, and actions implemented to protect individuals, ensuring their well-being and promoting their safety |
| Sports technology | The application of scientific and technological advancements to enhance athletic performance, improve training methodologies, and optimize the overall sports experience |
| Ability diverse | Differences in cognitive, social-emotional, and physical abilities |
| Gender and sexual diversity | Encompassing the range of [sex characteristics](https://en.wikipedia.org/wiki/Sex_characteristics), [sexual orientations](https://en.wikipedia.org/wiki/Sexual_orientation) and [gender identities](https://en.wikipedia.org/wiki/Gender_identities) |
| Gender equity | Fair and unbiased treatment of individuals of all genders, ensuring equal opportunities, rights, and access to resources in various aspects of life |

### Unit 3

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| Term | Definition |
| Fundamental movement skill | A set of skills that are the core of more complex sport specific skills |
| Sport specific skills | Skills necessary for participation in particular sports |
| Open skill | Skills that are more externally paced, have higher variability and lower predictability |
| Closed skill | Skills that are more internally paced, have lower variability and higher predictability |
| Gross skill | Use of larger muscle groups, often involving powerful, whole-body movements |
| Fine skill | Use of smaller muscle groups, often involving precise movements and manipulation using hands and fingers |
| Discrete skill | A skill with a clear beginning and end point |
| Serial skill | A combination of discrete skills linked together to form a specific sequence |
| Continuous skill | A skill that has no distinct beginning or end point |
| Stages of learning | Theory of motor learning that considers the attentional demands of learning a skill and required practice time needed to see progress through the 3 stages: cognitive, associative and autonomous |
| Linear theories of skill acquisition | Skill acquisition is viewed as occurring at a linear rate, progressing from basic movement patterns with minimal variability to more complex movements once mastery has occurred. The theory implies that the rate of learning is proportional to the amount of time spent practicing the skill and is associated with direct instruction. |
| Non linear theories of skill acquisition | The acquisition of movement skills with a strong emphasis on exploratory behaviors that allow the development of individualised movement skills through the interactions between the individual, the task and the environment. |
| Direct coaching approach | A coach-oriented instruction model where the individual is given direct instruction on skill execution (what to do) and tactical awareness (when to do it). Often used in initial skill development |
| Constraints based coaching approach | A discovery-based, learner-orientated model in which coaches facilitate learning of skill execution and tactical awareness within a modified game context. This occurs through the understanding and manipulation of constraints (task, individual and environment) |
| Confidence | A belief in oneself and their ability to be successful at a task/in sport |
| Motivation | A determinant/factor of behaviour that drives participation |
| Arousal | A psychological state of alertness and anticipation that prepares the body for action |
| Concentration | Ability to process information and perform a skill whilst maintaining attentional focus |
| Blocked practice | Each skill component is practiced repetitively as an independent block |
| Random practice | Skills practised in a random order without predictability |
| Massed practice | Each skill component is practised with little rest between activities or as a few longer sessions across a week |
| Distributed practice | Each skill component is practised with rest between activities or as shorter sessions throughout the week |
| Part practice | Subroutines of a skill are practised before combining them |
| Whole practice | Entire skill is practised |
| Intrinsic feedback | Feedback that comes from a participant’s internal senses |
| Augmented feedback | Feedback that comes from external sources |
| Knowledge of results | Feedback about the outcome of the skill performed |
| Knowledge of performance | Feedback about the technique of the skill performed |
| Torque | The turning effect of an eccentric force  Torque = moment arm x force applied |
| Force | A push or a pull on an object |
| Momentum | The quantity of motion an object has  Momentum = mass x velocity |
| Impulse | A change in momentum  impulse = *F* × *t* |
| Speed | The rate of motion  Speed = distance/time |
| Velocity | The rate of change of displacement  Velocity = displacement/time (*v = d / t)* |
| Inertia | The resistance of a body to a change in its state of motion |
| Newtons law of inertia | An object will remain at rest or in constant linear motion unless acted upon by an external force |
| Newtons law of acceleration | A force applied to an object will produce a change in motion in the direction of the applied force, directly proportional to the size of the force and inversely proportional to its mass  F = mass x acceleration *(F = m x a)* |
| Newtons law of action-reaction | For every action there is an equal and opposite reaction |
| Moment of inertia | An objects reluctance to rotate  MOI = mass x radius2  Measure of an object’s resistance to change in its rate of rotation |
| Angular velocity | How quickly an object rotates around an axis |
| Angular momentum | The quantity of rotation of a body around an axis  Angular momentum = MOI x angular velocity |
| Force summation/summation of momentum | The correct timing and sequencing of body segments through a range of motion to overcome inertia and maximise force production |
| Lever | A rigid bar that overcomes a resistance whilst rotating around an axis |
| Projectile motion | The motion that any object or body possesses when released into the air |
| Mechanical advantage (MA) | The degree to which a lever amplifies force or speed  MA = force arm/resistance arm |
| Equilibrium | All forces acting on a body are balanced and can be stationary (static) or moving at a constant velocity (dynamic) |
| Stability | Ability to resist changes to your state of equilibrium |
| Balance | Ability to control equilibrium |
| Centre of gravity/mass | The point in an object where the weight is evenly distributed in all directions |
| Line of gravity | A vertical line extending from the centre of gravity to the ground |
| Base of support | Area of the ground the body is in contact with |
| Qualitative movement analysis | Detailed process and assessment of the quality of a movement that includes four phases: preparation, observation, evaluation and error correction |
| VO2 | The amount of oxygen the body takes in, transports and uses in one minute |
| Vo2max | The maximum amount of oxygen the body takes in, transports and uses in one minute. Can be measured as an absolute (L/min) or relative measurement (mL/kg/min) |
| Oxygen deficit | When oxygen supply is less than oxygen demand |
| Steady state | When oxygen supply meets oxygen demand |
| Excess post exercise oxygen consumption (EPOC) | When oxygen supply is greater than oxygen demand post exercise |
| Acute | The immediate physiological response(s) to meet the demand of exercise |
| Adenosine triphosphate (ATP) | The high energy compound required for muscular contraction |
| ATP-CP energy system | An anaerobic energy system, that breaks down CP to produce energy (at a rapid rate) |
| Anaerobic glycolysis energy system | The incomplete breakdown of glycogen, in the absence of oxygen, to produce energy |
| Aerobic energy system | The complete breakdown of fuelsin the presence of oxygen to produce energy |
| interplay | The three energy systems working together to produce the energy required for the activity being undertaken. |
| Active recovery | Moving at a low intensity immediately post exercise |
| Passive recovery | Resting (sitting/standing) immediately post exercise |
| Thermoregulatory fatigue | The fatigue resulting from an inability to maintain a stable body temperature |
| Fuel depletion | Significantly low levels of fuel that negatively impact performance |
| Accumulation of metabolic by-products | When the production of a by-product exceeds its removal, inhibiting muscular contractions and negatively impacting performance |

### Unit 4

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| Term | Definition |
| Skill frequencies | Number of times a skill is performed throughout a set time period of a game |
| Movement patterns | Locomotor movements showing how and where a player has moved across a playing space |
| Work to rest ratio | A comparison of the total time spent exercising against the total time spent resting, expressed in its simplest form |
| Physiological requirements | Demands of the activity, including muscles groups and actions, energy systems and fitness components |
| Aerobic power | The rate of energy production from the aerobic energy system |
| Anaerobic capacity | The total amount of energy obtainable from the anaerobic energy systems (the combined capacity of the ATP-CP and anaerobic glycolysis systems) |
| Muscular power | The ability of a muscle or group of muscles to exert a maximum amount of force in the shortest period of time |
| Muscular endurance | The ability of a muscle or group of muscles to sustain repeated contractions against a resistance for an extended period of time |
| Muscular strength | Peak force that a muscle can develop |
| Agility | The ability to change direction and position of the body quickly and effectively while under control |
| Speed | The ability to move the body or body parts from point A to point B in the fastest possible time |
| Flexibility | The ability of muscles and joints to move through their full range of motion |
| Balance | Ability to control equilibrium |
| Coordination | The ability of the body to create smooth and efficient movements |
| Digital tools | Technological devices that may include wearable technologies, smart watches and phones, video recording |
| Frequency | Number of times per week that training is conducted |
| Intensity | How hard the exercise is, can be measured in %HRMax, RPE, %RM |
| Duration/Time | The length of interval or rest period, training session or program |
| Type | The training method used |
| Tapering | Gradual reduction in training volume in the lead up to a competition, with no change to intensity |
| Specificity | Train the muscle groups, energy systems and fitness components that mimic the sport/activity |
| Individuality | Each person will have unique needs and response to training that should be accounted for |
| Diminishing returns | Rate of improvement in response to training decreases over time |
| Detraining | The loss of training adaptations and fitness when training stops |
| Maintenance | Upholding training and fitness through a reduction in frequency whilst maintaining intensity |
| Variety | Change in training activity that is still aligned to training goals to maintain interest |
| Overtraining | Decline in performance due to insufficient recovery |
| Progression | An increase in training load in order to bring about (or resulting in) physiological adaptations. Only one variable of training between 2–10% should be increased |
| Continuous training | Training that goes for an extended period of time with no rest periods |
| Fartlek training | Training that goes for an extended period of time with periodic increases in intensity however no rest periods |
| Interval training | Set work and rest periods completed according to the desired energy system to be trained, including short, intermediate and long interval training |
| HIIT training | Work periods of high intensity (90–100% VO2 max or 90–100% HR max) exercise interspersed with periods of passive rest or low intensity active recovery |
| Resistance training | Use of free, machine or body weight to develop muscular power, endurance and/or strength |
| Plyometrics training | Exercises that draw on the elastic nature of muscles and tendons to provide maximum force in as short a time period as possible; for example: jumping |
| Flexibility training | Stretching muscles and connective tissue to increase their range of motion around a joint |
| Circuit training | Rotation through a variety of stations that can train multiple areas of the body/muscle groups |
| Chronic adaptations | Physiological changes of the cardiovascular, respiratory and muscular systems as a result of long-term training |
| Vo2 max | The maximum amount of oxygen the body takes in, transports and utilizes in one minute. Can be measured as an absolute (L/min) or relative measurement (mL/kg/min) |
| LIP | The final point that can be held where lactate production equals lactate removal |
| Lactate tolerance | Ability of an athlete to continue to exercise at high intensities, despite the accumulation of lactate |