1 Applied anatomy and physiology: definitions of key terms

See pages 5–30

These are the key terms from Chapter 1. Try cutting them out and then matching the key terms with their definitions or asking friends and family to test you. They could give you the key term and ask you to provide the definition or give you the definition and ask you to provide the key term.

Abduction	movement of a bone or limb away from the midline of the body
Adduction	movement of a bone or limb towards the midline of the body
Aerobic exercise	working at a low to moderate intensity so that the body has time to use oxygen for energy production and can work for a long period of time
Alveoli	small air sacs in the lungs where gaseous exchange takes place
Anaerobic exercise	working for short periods of time at a high intensity without oxygen for energy production
Antagonist	the muscle or group of muscles that relax to allow a movement to take place. The antagonist works in an antagonistic pair with the agonist
Articulating bones	bones that meet at a joint to enable movement
Backflow	the flowing backwards of blood. Valves in the veins prevent backflow
Blood pressure	the pressure that blood is under. The systolic reading measures the pressure the blood is under when the heart contracts. The diastolic reading measures the pressure the blood is under when the heart relaxes

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Capillaries	a network of microscopic blood vessels. They are only one cell thick
Cardiac cycle	one cycle of diastole and systole is called the cardiac cycle
Cardiac output (Q)	the volume of blood ejected from the heart in one minute. Cardiac output (Q) = stroke volume (SV) × heart rate (HR)
Cardio-respiratory system	the name used to describe the respiratory system and the cardiovascular system working together
Deoxygenated blood	blood containing a low concentration of oxygen
Diastole	the phase of the heartbeat when the chambers of the heart relax and fill with blood
Diffusion pathway	the distance travelled during diffusion. The diffusion pathway is short in gaseous exchange
DOMS	Delayed Onset Muscle Soreness, the pain you feel in your muscles the day after you exercise
Dorsiflexion	movement at the ankle joint that flexes the foot upwards and decreases the angle at the ankle joint
Excess Post-exercise Oxygen Consumption (EPOC)	the amount of oxygen needed to recover after exercise. It is characterised by an increased breathing rate and deeper breathing after exercise
Exhalation	the process of breathing out. Also known as expiration

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Expiration	the process of breathing out. Also known as exhalation
Expiratory reserve volume	the amount of air that can be forced out after tidal volume (after a normal expiration). Expiratory reserve volume decreases during exercise
Extension	increase in the angle of bones at a joint
Fatigue	physical fatigue is a feeling of extreme or severe tiredness due to a build-up of lactic acid in the muscles or working for a long period of time
Flexion	decrease in the angle of bones at a joint
Gaseous exchange	the process where oxygen from the air in the alveoli moves into the blood in the capillaries, while carbon dioxide moves from the blood in the capillaries into the air in the alveoli
Haemoglobin	the protein found in red blood cells that transports oxygen (as oxyhaemoglobin) and carbon dioxide around the body
Heart rate	the number of times your heart beats in one minute. One heartbeat is one contraction and relaxation of the heart. Heart rate is measured in beats per minutes (bpm)
Hypertrophy	the enlargement of an organ or tissue caused by an increase in the size of its cells. When a muscle is trained, small tears are created. As they heal, they become thicker and increase in size
Inhalation	the process of breathing in. Also known as inspiration
Inspiration	the process of breathing in. Also known as inhalation

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Inspiratory reserve volume	the amount of air that can be forced in after tidal volume (after a normal inspiration). Inspiratory reserve volume decreases during exercise
Intensity	the amount of energy needed to complete an activity. Working at a high intensity requires a large amount of energy. Working at a low intensity requires less energy
Isometric contraction	a muscle contraction where the length of the muscle does not change when it contracts. There is no limb movement as a result
Isotonic contraction	a muscle contraction where the muscle changes length when it contracts, resulting in limb movement. Isotonic contractions can be concentric (when the muscle contracts and shortens) or eccentric (when the muscle contracts and lengthens)
Lactic acid	a mild poison and waste product of anaerobic respiration
Musculoskeletal system	the name used to describe the muscular system and the skeletal system working together
Oxygenated blood	blood containing a high concentration of oxygen
Oxyhaemoglobin	a chemical formed when haemoglobin bonds to oxygen
Plantar flexion	movement at the ankle joint that points the toes and increases the angle at the ankle joint
Prime mover (or 'agonist')	the muscle or group of muscles that contract to create movement. The prime mover works in an antagonistic pair with the antagonist
Pulse	the rhythmic throbbing that you can feel as your arteries pump blood around the body. You can measure your heart rate using your pulse

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Residual volume	the amount of air that remains in the lungs after maximal expiration. There is no change in residual volume during exercise
Rotation	a circular movement around a joint or, in other words, a movement around an axis
Stroke volume (SV)	the volume of blood pumped out of the heart by each ventricle during one contraction
Synovial joint	an area of the body where two or more articulating bones meet
Systole	the phase of the heartbeat when the chambers of the heart contract and empty of blood; when blood is ejected from the heart
Tendon	connective tissue that attaches muscle to bone. Its role is to transfer the effort created by a contracting muscle to the bone, resulting in the movement of that bone
Tidal volume	the normal amount of air inhaled or exhaled per breath. Tidal volume increases with exercise
Vasoconstriction	the narrowing of the internal diameter of a blood vessel to decrease blood flow. The arteries constrict during exercise so that less blood is delivered to inactive areas
Vasodilation	the widening of the internal diameter of a blood vessel to increase blood flow. The arteries dilate during exercise so that more blood is delivered to active areas, increasing their oxygen supply
Vital capacity	the largest volume of air that can be forcibly expired after the deepest possible inspiration