

AQA GCSE PE

GCSE PE Revision Booklet

Applied Anatomy & Physiology

Answers



thepeclassroom.com

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Introduction

This revision work-booklet includes topic overview sheets and exam questions.

The topic overview sheets include a range of key information, images and diagrams in order to help you revise each topic. There are lots of gaps within these sheets which you will need to fill in. Lets look at an example.

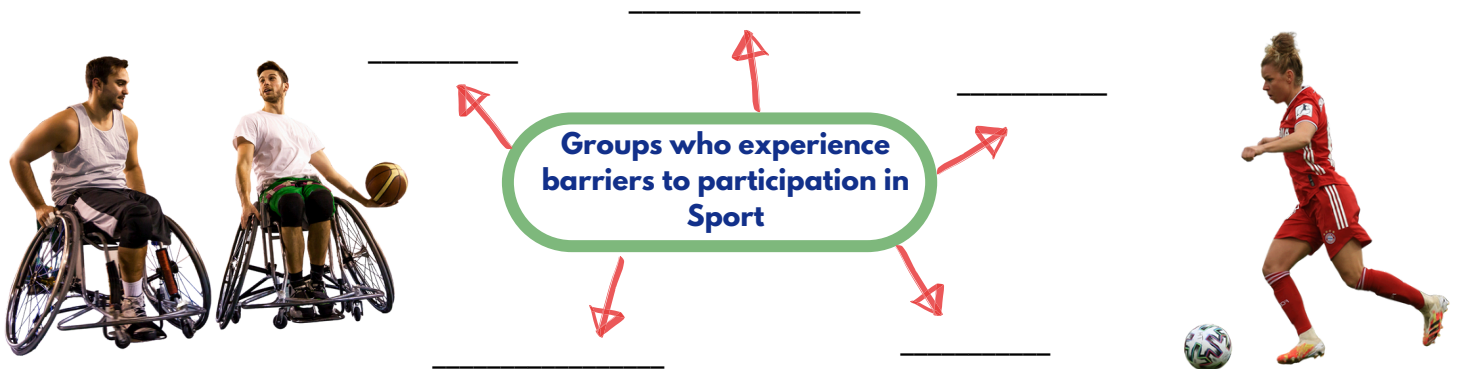
As you can see, there are two gaps in the definition of heart rate shown below.

Heart Rate  The amount of _____
the heart beats each _____

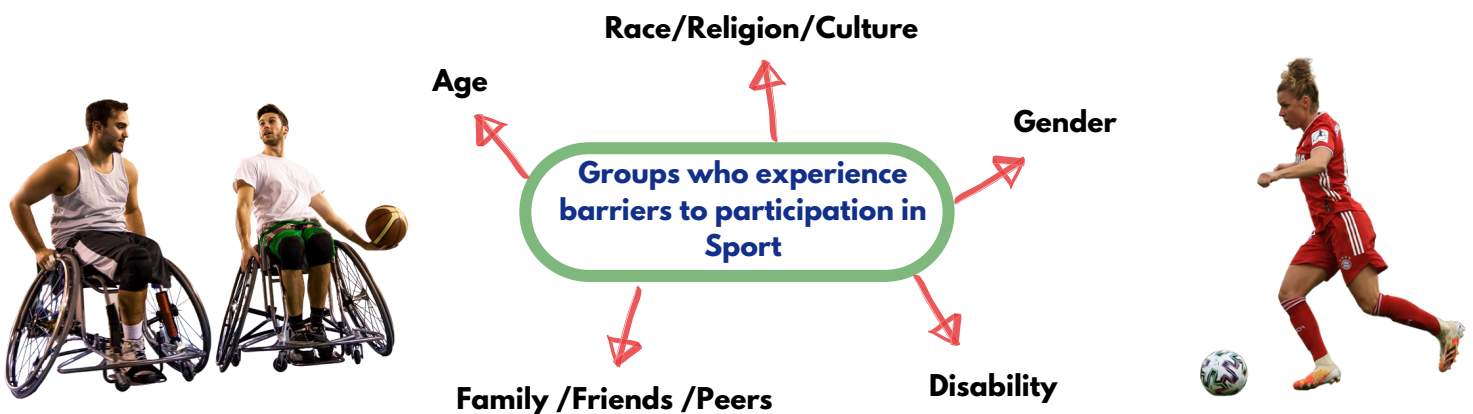
You simply need to fill in the gaps in order to complete the definition.

Heart Rate  The amount of **times**
the heart beats each
minute

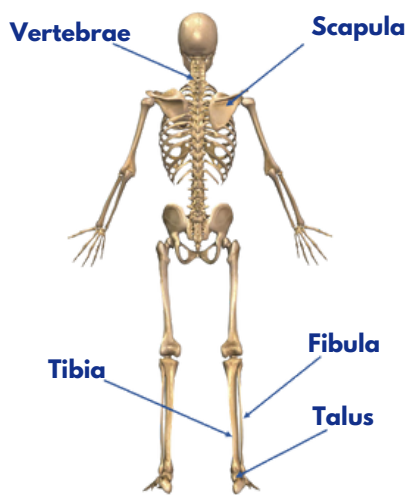
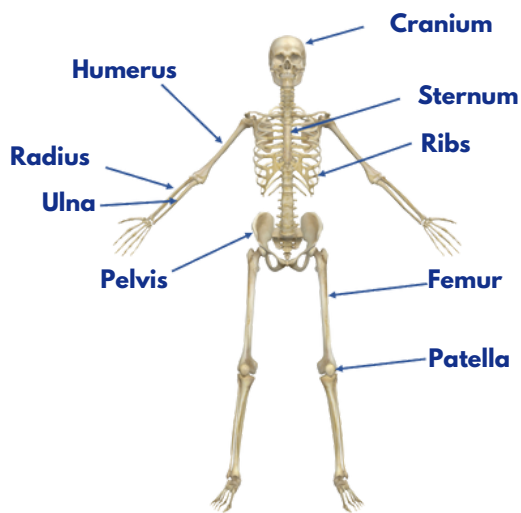
The example below shows that you need to complete the spider diagram covering the barriers to participation.



After filling in the gaps, the completed spider diagram should look like this:

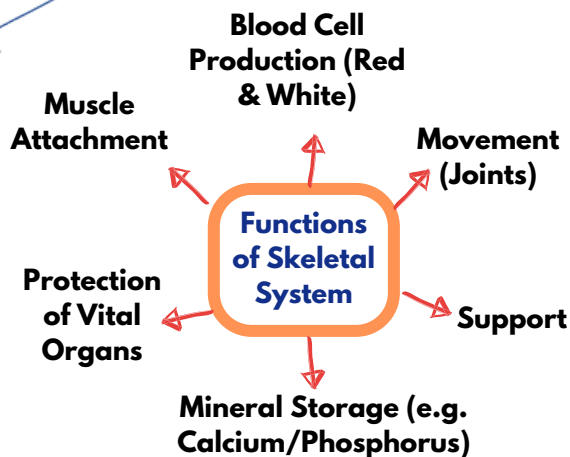


You will also be required to answer a number of exam questions throughout the booklet. Read each question carefully and pay close attention to the amount of marks available.



➔ A synovial joint is a place where **two or more** bones meet

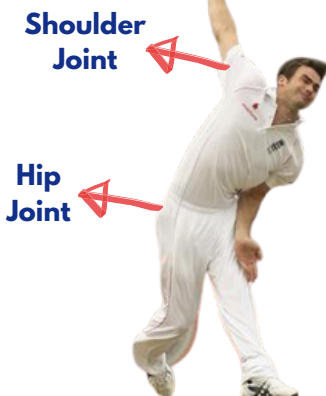
➔ Joints are important for **movement and rotation**



Ball & Socket Joints



PE COMPONENT 1 - SKELETAL SYSTEM



Hinge Joints



A **Synovial Joint** is made up of the following components:

- Synovial Membrane
- Synovial Fluid
- Joint Capsule
- Ligament
- Cartilage
- Bursae

Long Bones	➔	Longer than they are wide	➔	e.g. Humerus
Short Bones	➔	Roughly same size in length, width & thickness	➔	e.g. Talus
Flat Bones	➔	Protect vital organs	➔	e.g. Sternum
Irregular Bones	➔	Have odd shapes and perform a range of functions	➔	e.g. Vertebrae



Complete the table with the bones found at each location.

Location	Bones at the location
Head/neck	<ul style="list-style-type: none">• <u>Cranium</u>• <u>Vertebrae</u>
Shoulder	<ul style="list-style-type: none">• <u>Scapula</u>• <u>Humerus</u>
Chest	<ul style="list-style-type: none">• <u>Ribs</u>• <u>Sternum</u>
Elbow	<ul style="list-style-type: none">• <u>Humerus</u>• <u>Radius</u>• <u>Ulna</u>
Hip	<ul style="list-style-type: none">• <u>Pelvis</u>• <u>Femur</u>
Knee	<ul style="list-style-type: none">• <u>Femur</u>• <u>Tibia</u>• <u>Patella (in front of knee joint)</u>
Ankle	<ul style="list-style-type: none">• <u>Tibia</u>• <u>Fibula</u>• <u>Talus</u>



1 Markers

1. Give an example of a hinge joint in the body. (1 mark)

Mark One – Knee/Elbow/Ankle

2. Which of the following can be classified as a long bone? Circle the correct answer.

- A) Talus
- B) Femur - **Correct Answer**
- C) Patella
- D) Pelvis



3. Which one of these bones is located at the ankle joint?

- A) Humerus
- B) Scapula
- C) Talus - **Correct Answer**
- D) Femur



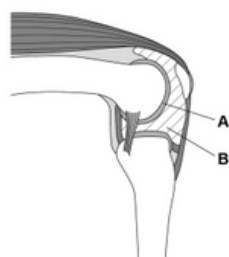
2 Markers

4. Give an example of a ball & socket joint in the body and explain how this joint is important for performance in a sport of your choice. (2 marks)

Mark One – The shoulder is an example of a ball & socket joint

Mark Two – This is important in cricket as it allows the rotation required when bowling the ball

5. Identify labels A and B in the image below.



A: Cartilage (1 mark)

B: Synovial Fluid (1 mark)



3 Markers

6. Protection is a function of the skeletal system. Explain how the application of this function can have a positive effect on performance when heading a ball in football. (3 marks)



Mark 1 – When heading the ball the cranium will protect the player

Mark 2 – The cranium will protect the brain from becoming injured

Mark 3 – This allows the footballer to continue playing the match without becoming injured/Allows the player to make a successful header without sustaining an injury

Accept Other Appropriate Answers

7. Aside from 'protection', explain how one other function of the skeletal system allows a netball player to produce an effective performance. (3 marks)



Mark 1 – A function of the skeletal system is 'joints for movement'

Mark 2 – An example of a joint in the body is the knee joint

Mark 3 – The knee joint allows for flexion and extension which are important actions when producing an effective shot in netball

Accept Other Appropriate Answers (may relate to the functions 'blood cell production', 'muscle attachment', 'storing calcium & phosphorus' or 'support')

8. The shape and type of bones determine the amount of movement that is possible.



Explain the role of long bones during a game of tennis. (3 Marks)

Mark 1 - Identify the role of a long bone.

Mark 2 - Apply knowledge to tennis by explaining how long bones contribute to movements.

Mark 3 - Give an example in Tennis of this.

E.g. Long bones give leverage for movement (1). Long bones act as levers to generate movement (1), allowing powerful actions such as serving, hitting, and sprinting (1).



Joint Actions

Flexion is the **narrowing of the angle** at a joint

Extension is the **widening of the angle** at a joint

Abduction is movement **away** from the **midline** of the body

Adduction is movement **towards** the **midline** of the body

Plantarflexion is the **widening** of the angle at the **ankle joint** (pointing the toes down)

Dorsiflexion is the **narrowing** of the angle at the **ankle joint** (pointing the toes up)

Rotation is the action of **rotating around** an axis or centre

Circumduction is the action of **rotating 360 degrees** around an axis or centre

Voluntary Muscles



A muscle which you can control

Involuntary Muscles



A muscle which you cannot control

Cardiac Muscles



A muscle found in the wall of the heart

Antagonistic Pairs

- Biceps & Triceps
- Quadriceps & Hamstrings
- Gastrocnemius & Tibialis Anterior
- Hip Flexors & Gluteals
- Pectorals & Deltoid
- Abdominals & Latissimus Dorsi



PE COMPONENT 1 - MUSCULAR SYSTEM

ISOMETRIC Muscle Contraction

A muscle contracts but its length does not change (no movement)

ISOTONIC Muscle Contraction

A muscle contracts and movement is present



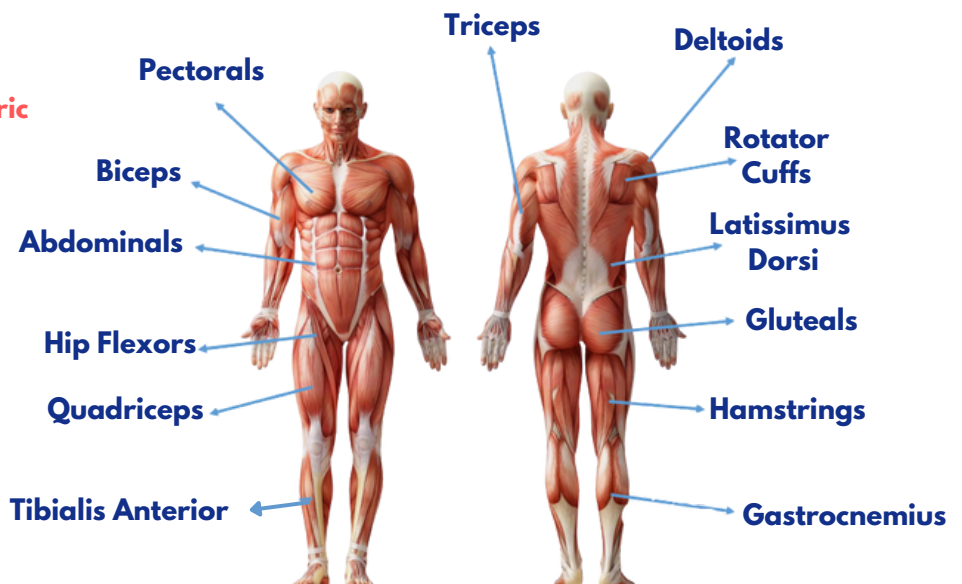
As one muscle **CONTRACTS**, another muscle will **RELAX**

→ Isotonic Contraction: **Concentric Contraction**



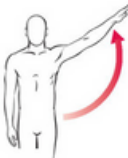
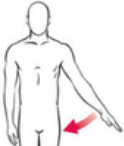
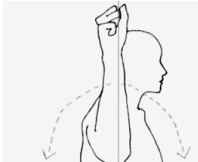



Muscle shortens therefore generating force

→ Isotonic Contraction: **Eccentric Contraction**

Muscle lengthens due to a greater opposing force



Identify the joint action movement in the image and locations this occurs.

Image	Movement	Location
	<u>Flexion</u>	<u>Shoulder</u> <u>Elbow</u> <u>Hip</u> <u>Knee</u>
	<u>Extension</u>	<u>Shoulder</u> <u>Elbow</u> <u>Hip</u> <u>Knee</u>
	<u>Abduction</u>	<u>Shoulder</u>
	<u>Adduction</u>	<u>Shoulder</u>
	<u>Rotation</u>	<u>Shoulder</u>
	<u>Circumduction</u>	<u>Shoulder</u>
	<u>Plantar flexion</u>	<u>Ankle</u>
	<u>Dorsi flexion</u>	<u>Ankle</u>

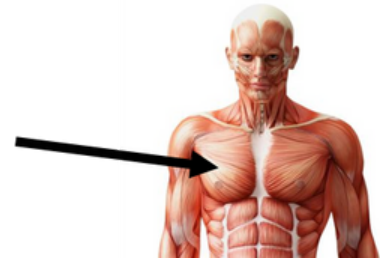
1 Markers

1. What is the name of the muscle shown in the image to the right? (1 mark)



Mark One – Tibialis Anterior

2. What is the name of the muscle shown in the image to the right? (1 mark)



Mark One – Pectorals

3. Define the term 'concentric contraction'. (1 mark)

Mark One – Concentric contractions occur when the muscles shorten, therefore generating force

2 Markers

4. Using an example, explain what is meant by the term 'isometric contraction'. (2 marks)

Mark One – An isometric contraction is where a muscle contracts but the length of the muscle does not change

Mark Two – An example of an isometric contraction is a scrum in rugby/tug of war

Accept other appropriate answers

5. Identify two types of movement that occur at the ankle.

Mark One – Plantarflexion

Mark Two – Dorsiflexion



3 Marker

6. Analyse the antagonistic muscle action taking place at the elbow as the goalkeeper makes the save. (3 marks)



Mark One – The antagonistic muscle action is extension at the elbow joint

Mark Two – The tricep is the agonist/muscle contracting

Mark Three – The bicep is the antagonist/muscle relaxing

Accept other appropriate answers and examples

4 Markers

7. Using an example from a sport of your choice, identify the two types of movement that can occur at the knee joint.



Mark One – Flexion takes place at the knee joint

Mark Two – For example, as a footballer prepares to take a shot, flexion will take place

Mark Three – Extension takes place at the knee joint

Mark Four – For example, as a rugby player kicks the ball, extension will take place during the follow through

Accept other appropriate answers and examples

8. Using an example for each, explain the difference between concentric and eccentric contractions. (4 marks)

Mark One – Concentric contraction takes place when a muscle shortens, therefore generating force

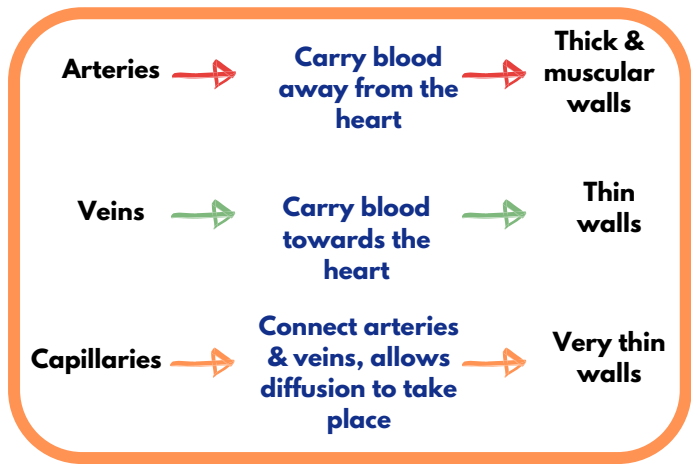
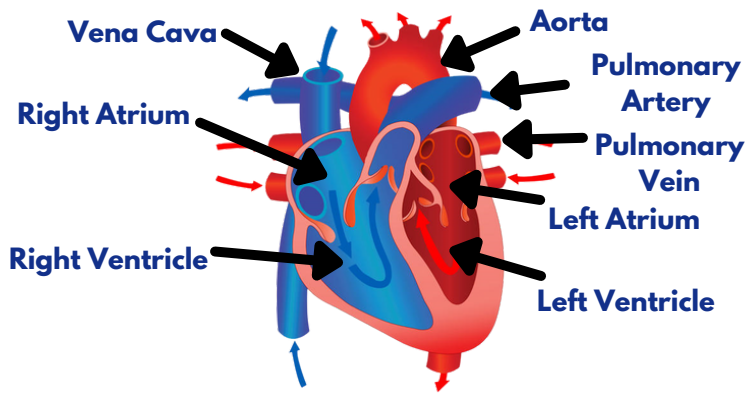
Mark Two – An example of this is when performing a bicep curl. The bicep will contract and shorten

Mark Three – Eccentric contraction is when a muscle lengthens due to a greater opposing force

Mark Four – For example, during the downward phase of a squat, the quadriceps will eccentrically contract

Accept other appropriate answers and examples





Valves in the heart open and close to allow blood to pass through
 Valves prevent the back-flow of blood

Redistribution of Blood Flow

Vasodilation

↓
 Blood vessels become wider, increasing the amount of blood that is delivered to active areas

Dilate = Diameter Increases

Vasoconstriction

↓
 Blood vessels become narrower, restricting the amount of blood that is delivered to inactive areas

Constrict = Diameter Decreases



PE COMPONENT 1 - CV SYSTEM

Blood Pressure
 There are two types of blood pressure:

- **Systolic blood pressure;** The pressure of the blood as the heart contracts
- **Diastolic blood pressure;** The pressure of the blood as the heart relaxes
- **Arteries** carry blood at high pressure
- **Veins** carry blood at low pressure

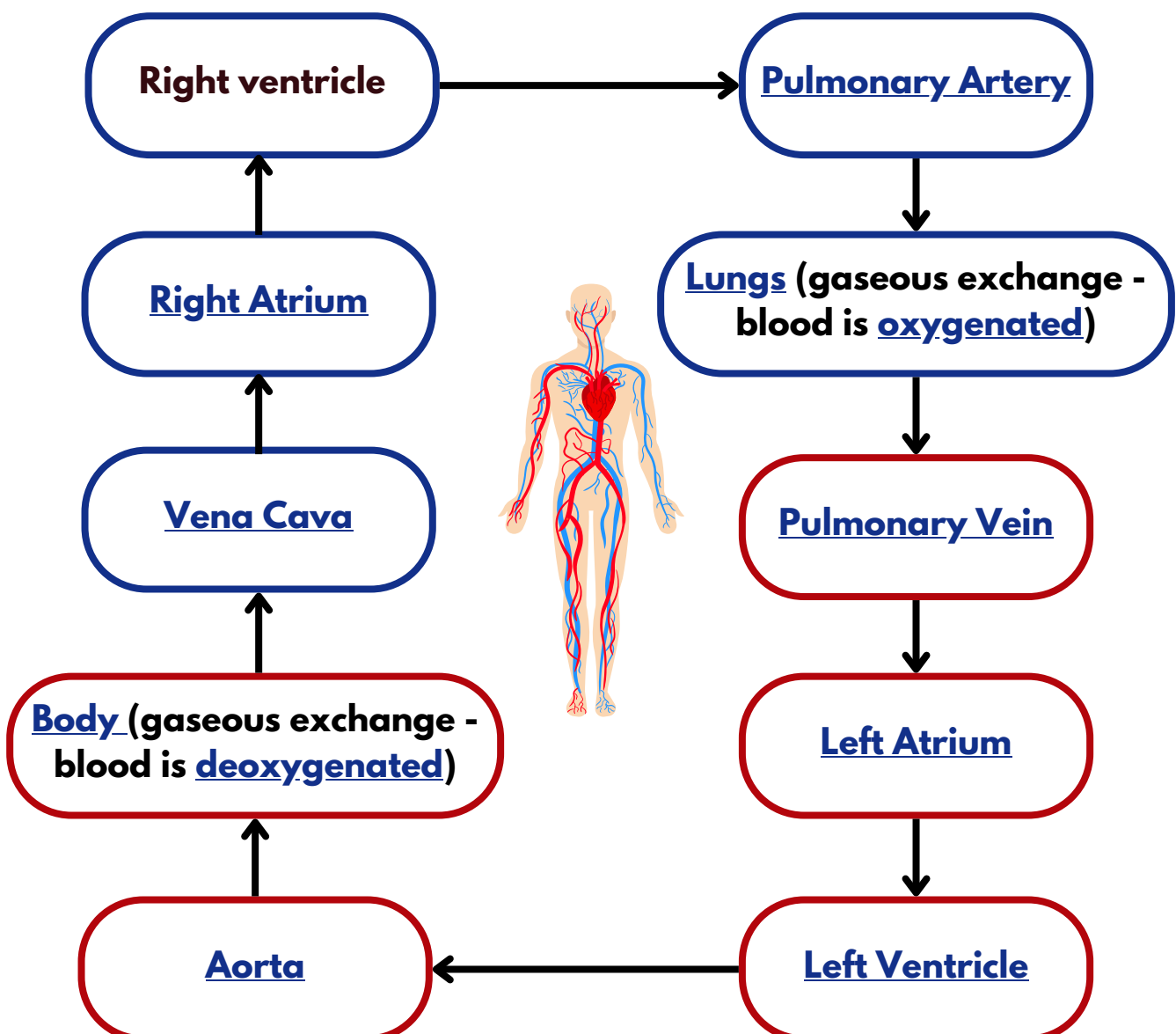


Heart Rate	→	The amount of times the heart beats each minute
Stroke Volume	→	The amount of blood that is ejected from the heart each beat
Cardiac Output	→	Heart Rate x Stroke Volume – The amount of blood that is ejected from the heart each minute
Anticipatory Rise	→	An increase in heart rate that typically occurs just before an activity is to be undertaken

Summarise the characteristics of each blood vessel type

	Size/Diameter	Wall Thickness	Valves
Arteries	<u>Up to 10mm</u>	<u>Thick & Muscular</u>	<u>No</u>
Veins	<u>Up to 10mm</u>	<u>Thin</u>	<u>Yes</u>
Capillaries	<u>5-10 micrometers</u>	<u>Thin</u>	<u>No</u>

Pathway of blood (starting from the right ventricle)



1 Markers

1. What type of blood vessel carries blood away from the heart? (1 mark)

Mark One - Artery



2. Which of the following is the correct definition of Stroke Volume? (1 mark)

A) The amount of times the heart beats each minute

B) The amount of blood that is ejected from the heart each beat - **Correct**

Answer

C) The amount of blood that is ejected from the heart each minute

D) An increase in heart rate that typically occurs just before an activity is to be undertaken

2 Markers

3. An example of a blood pressure reading is 140/90? State the names of each type of blood pressure given in this reading. (2 marks)

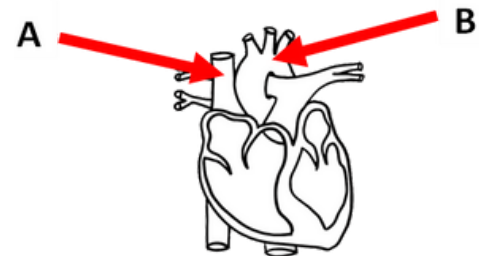
Mark One - Systolic Blood Pressure

Mark Two - Diastolic Blood Pressure

4. What do letters A & B represent in the image shown? (2 marks)

Mark One - A represents the Vena Cava

Mark Two - B represents the Aorta



5. Explain why the redistribution of blood during exercise is necessary. (2 marks)

Mark One - Active muscles require more oxygen during exercise

Mark Two - Less blood is distributed/required by other organs during exercise (e.g. stomach/digestive system)



3 Markers

6. Using a sporting example of your choice, explain how vasodilation can result in the body cooling down. (3 marks)



Mark One – Vasodilation is the widening of blood vessels/blood vessels get closer to the surface of the skin/diameter increases

Mark Two – This results in more heat being lost from the body and therefore the body will cool down

Mark Three – For example a 5000m runner will experience vasodilation as their body temperature will naturally rise during a race/during a race on a hot day

Accept other appropriate answers and examples

7. Outline three features of veins. (3 marks)

Mark One – Veins contain valves which prevent the backflow of blood

Mark Two – Veins carry blood at low pressure

Mark Three – Veins have thin walls



Accept other appropriate answers



9 Marker

8. Explain how the redistribution of blood flow occurs and evaluate how this process can benefit a rugby throughout a match? (9 marks)



Examples of A01 (max. 2 marks)

- This is where oxygen is redistributed away from inactive areas, towards active areas during exercise
- Vasodilation widens the internal diameter of the arteries supplying oxygenated blood to the active areas
- Vasoconstriction narrows the internal diameter of the arteries supplying oxygenated blood to the inactive areas

Examples of A02 (max. 2 marks)

- Vasoconstriction prevents as much oxygen getting to inactive areas such as the digestive system during a rugby match
- Vasodilation ensures that enough oxygen gets to the active muscles such as the quadriceps/hamstrings during a rugby match

Examples of A03 (max. 5 marks)

- The intensity levels will change frequently throughout a match between running, jogging, walking and rest
- During periods of high intensity such as when a player sprints towards the try line, vasodilation will occur to ensure that the required oxygen reaches the active areas
- During periods of rest vasoconstriction will also occur, after recovery has taken place
- Towards the end of the match when the rugby player is beginning to get fatigued, redistribution of blood flow is very important to keep performance levels high
- The redistribution of blood flow can also help to get more oxygen to the leg muscles following a sprint, helping to repay oxygen debt and remove lactic acid



TRACHEA

AKA Wind Pipe. Air travels through the trachea to reach the lungs

BRONCHI

The air travels through larger branches called Bronchi

BRONCHIOLES

The air then reaches smaller branches called Bronchioles

ALVEOLI

At the end of the bronchioles lies millions of tiny air sacs called alveoli, this is where gas exchange takes place

DIAPHRAGM

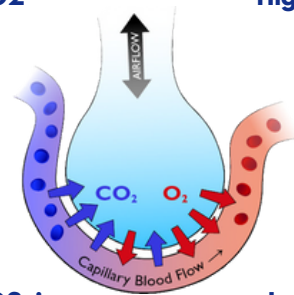
Responsible for inspiration
Moves to a flat position when inhaling to push the lungs up, enabling air to rush in
When exhaling moves to a dome position, allowing the lungs to lower and air to rush out



Low concentration CO₂ in alveoli

High concentration O₂ in alveoli

along pressure gradient ↑



↓ along pressure gradient

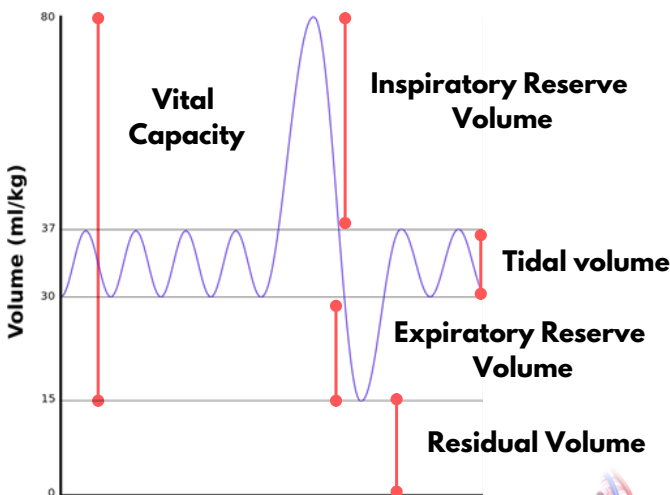
High Concentration CO₂ in blood vessel

Low Concentration O₂ in blood vessel



PE COMPONENT 1 - RESPIRATORY SYSTEM

Labelling a Spirometer Trace



Gas Exchange at the Alveoli

- The **oxygen** in the alveoli diffuses into the **bloodstream** and is transported to the working **muscles** by haemoglobin as **oxyhaemoglobin**
- The **CO₂** from the **bloodstream** diffuses into the alveoli and is carried by haemoglobin in order to be exhaled by the **lungs**

Alveoli



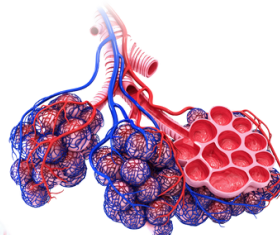
Tiny **sacs of air** that have a high concentration of oxygen after breathing in



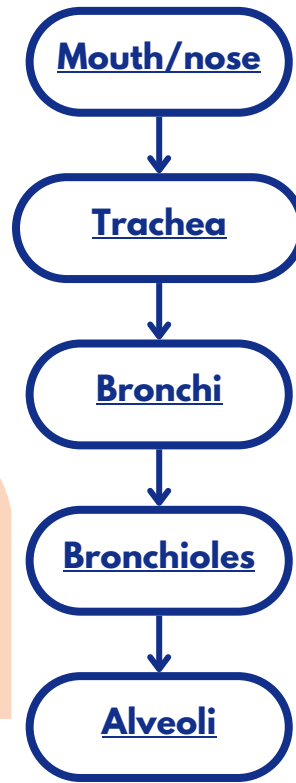
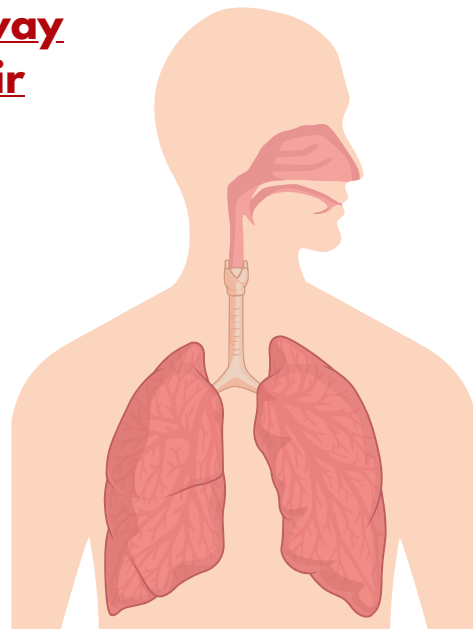
Oxygen diffuses through the moist, thin walls & into the blood stream. This happens as gases move from areas of high concentration, into areas of low concentration



Alveoli have a large surface area and are surrounded by capillaries, helping gas exchange



Pathway of air



Mechanics of Breathing

At Rest

	Inhalation	Exhalation
Intercostals	<u>Contract</u>	<u>Relax</u>
Rib Cage	<u>Upwards and Outwards</u>	<u>Downwards and Inwards</u>
Diaphragm	<u>Contracts/Flattens</u>	<u>Relaxes/Domed</u>

During Exercise

	Lungs expand/contract due to
Inspiration	<u>Use of pectorals and sternocleidomastoid</u>
Rib Cage	<u>Abdominal muscles cause rib cage to be pulled down quicker</u>



1 Markers

1. Which one of these lung volumes is defined as 'the volume of air left in the lungs after maximal expiration?' (1 mark)

- A) Residual Volume
- B) Inspiratory Reserve Volume
- C) Expiratory Reserve Volume - **Correct Answer**
- D) Tidal Volume



2. Which part of the respiratory system is also known as the 'wind pipe'? (1 mark)

- A) Trachea - **Correct Answer**
- B) Bronchi
- C) Bronchioles
- D) Diaphragm



2 Markers

3. Define the term residual volume and explain what will happen to residual volume during exercise. (2 marks)

Mark One – Residual volume is the amount of air left in the lungs following forceful expiration

Mark Two – Residual volume will stay the same during exercise



4. Define the term tidal volume and explain what will happen to tidal volume during exercise. (2 marks)

Mark One – Tidal volume is the amount of air inspired or expired with each normal breath (at rest or during exercise)

Mark Two – During exercise tidal volume will increase due to an increase in breathing rate/increase in demand for oxygen



3 Marker

5. Gas exchange takes place at the alveoli. Describe three features of the alveoli which makes it ideal for gas exchange. (3 marks)

Mark One – The alveoli have thin walls

Mark Two – The alveoli have a large surface area

Mark Three – The alveoli are surrounded by capillaries

4 Marker

6. Diffusion takes place at the site of the lungs. Explain the process of diffusion at the site of the lungs. (4 marks)



Mark One – Diffusion is when gases move from an area of high concentration to an area of low concentration

Mark Two – (At the lungs) the alveoli have a high concentration of oxygen and a low concentration of carbon dioxide

Mark Three – The bloodstream has a high concentration of carbon dioxide and a low concentration of oxygen

Mark Four – Therefore the oxygen will travel down the concentration gradient from the alveoli to the bloodstream/The Co₂ will travel down the concentration gradient from the bloodstream to the alveoli

Accept other appropriate answers



Aerobic Respiration



Oxygen debt leads to **Excess Post-Exercise Oxygen Consumption (EPOC)** - there is an increased rate of oxygen intake following activity to pay back the oxygen debt

Anaerobic Respiration



As we exercise anaerobically, our muscles produce energy without the presence of oxygen



There is an increase in the production of CO_2 , causing a build up of lactic acid within the muscles



Oxygen debt occurs as a result of these processes



EPOC will take place in the form of an increased breathing rate

Anaerobic Respiration - high intensity exercise e.g. weightlifting

PE COMPONENT 1 - AEROBIC & ANAEROBIC RESPIRATION

Lactic Acid

Lactic acid builds up following **anaerobic exercise** due to a lack of oxygen being present in the muscles. This is known as **oxygen debt**

This is **toxic** and causes your muscles to ache and **cramp** (and eventually stop working)



Aerobic Respiration - low intensity exercise e.g. long distance running



Recovery Methods

Cool Down - light exercise such as jogging and stretching after anaerobic exercise will keep HR elevated and allow the oxygen debt to be repaid



Ice Baths & Massage - helps to repair muscle tissue and prevent DOMS. These methods are not accessible to everyone and are mainly by elite athletes

Manipulation of Diet - rehydrating and increasing carbohydrate intake after anaerobic exercise will help to replenish diminished stores and accelerate recovery



1 Markers

1. Write out the equation for anaerobic respiration. (1 mark)

Mark One – Glucose = Energy + Lactic Acid



2. Write out the equation for aerobic respiration. (1 mark)

Mark One – Glucose + Oxygen = Energy + CO₂ + Water



3. A cool-down is most important following

A) Aerobic Exercise

B) Anaerobic Exercise - **Correct (1 mark)**



2 Markers

4. Give an example of a sport which requires aerobic respiration. Justify your answer. (2 marks)

Mark One – Marathon runner

Mark Two – A marathon takes place over a long period of time (low intensity) so the performer has time to create energy with oxygen present

5. 'Football is a sport that requires both aerobic and anaerobic respiration.'

Use examples to justify this statement. (2 marks)

Mark One – Aerobic respiration is required in football. A match lasts for 90mins and throughout this time there is a large amount of low intensity exercise e.g. jogging

Mark Two – Anaerobic respiration is required in football. Throughout a match a player will need to produce short bursts of explosive energy e.g. when sprinting onto a through ball



3 Markers



6. Discuss whether weight training is an aerobic or anaerobic activity. (3 marks)

Anaerobic – (sub-max 2 marks)

- Weight training is usually a high intensity (heavy weights/low reps) which means it can only be performed over a short period of time
- Lactic acid may be produced due to a lack of oxygen available to the muscles

Aerobic – (sub-max 2 marks)

- Weight training can be at a lower intensity (light weights/high reps) which means it can be performed over a long period of time
- Little rest in between sets or exercises replicates cardiovascular / muscular endurance which is aerobic (1)

7. State three benefits that can be experienced from cooling down immediately after exercise. (3 marks)

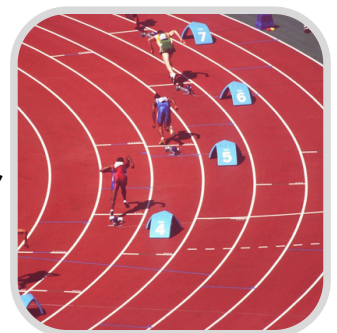
Any three from:

- Allows breathing rate or heart rate to return to its resting state slowly
- Brings body temperature back down to its normal level
- Removes lactic acid / CO₂ /waste products
- To help repay the oxygen debt
- Prevents(delayed onset of) muscle soreness or DOMS

4 Marker

8. Jamie has just finished a 400m race and he is experiencing EPOC (Excess Post-Exercise Oxygen Consumption).

Describe what happens to Jamie's breathing immediately after the race and explain the reasons for this. (4 marks)



Mark One – Jamie will continue to breathe quickly/deeply following the race

Mark Two – This is because the race has led to an oxygen debt/Muscles need to be replenished with oxygen

Mark Three – Due to the fact that the 400m race is an anaerobic activity

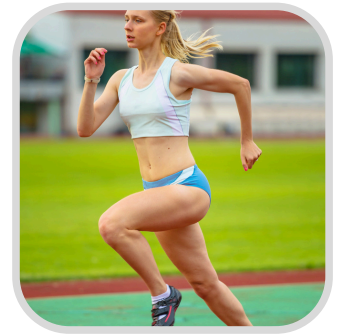
Mark Four – The repayment of the oxygen debt will remove the lactic acid from his body



6 Marker

9. A 400m race can be classed as anaerobic exercise. Evaluate the methods that a 400m runner can use after a race in order to aid recovery. (6 marks)

A01 = 1, A02 = 2, A03 = 3



A01 – Knowledge of anaerobic exercise/lactic acid (1 mark max.)

- Anaerobic exercise is when energy is produced without the use of oxygen
- Lactic acid is produced as a result of anaerobic exercise

A02 – Application to of recovery methods e.g. (2 marks max.)

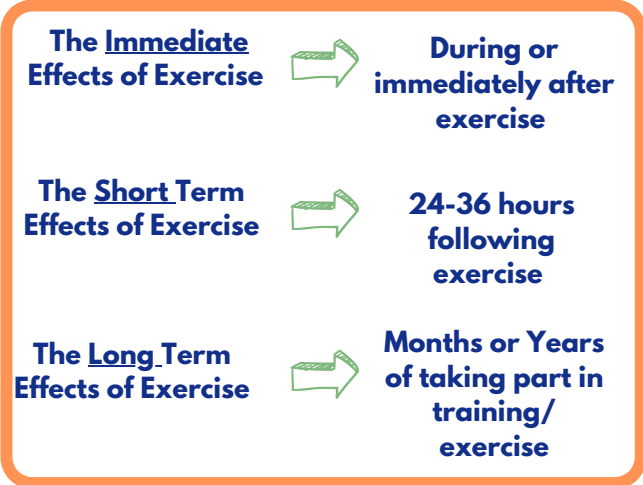
- A cool down could be used in order to get oxygen back to the working muscles and repay the oxygen debt
- Manipulation of diet – the runner could rehydrate and take on carbohydrates in order to replenish his glycogen stores
- Ice baths/massage could be used to prevent DOMS

A03 – Analysis/evaluation of the recovery methods (3 marks max.)

- A cool down will keep the breathing rate high, ensuring EPOC is addressed and lactic acid is reduced. This will allow the athlete to feel less fatigue, enabling them to return to training quicker
- Taking on carbohydrates post exercise will mean that the athlete will have full glycogen stores within 24-48 hours, meaning that training can resume and the athlete can begin to prepare for future races
- DOMS stands for Delayed Onset of Muscle Soreness. This occurs between 24-72 hours after vigorous exercise. Massage/Ice baths can prevent this soreness occurring, meaning the athlete can take part in training/races again sooner
- It has not been proven that ice baths/massage work as a recover method – they may not always be effective in preventing DOMS
- Rest and recover is also very important in preventing cramps, aches or DOMS and it is important that the athlete undertakes this after an event

Accept other appropriate answers





The Immediate Effects of Exercise



The Short Term Effects of Exercise



Tiredness/ Fatigue → Following intense exercise, **adrenaline** will still be pumped around the body so the feeling of **tiredness** does occur immediately

PE COMPONENT 1 - EFFECTS OF EXERCISE

Light Headedness
Nausea

↓
Pushing the body to its **limits** through **strenuous** activity can result in nausea and light headedness



The Long Term Effects of Exercise



Aching/DOMS/ Cramp

↓
DOMS stands for the **delayed onset of muscle soreness**. Anaerobic activity can lead to **DOMS** and **Cramp**



1 Markers

1. Which one of the following is a long term benefit of exercise? (1 Mark)

- A Higher resting heart rate
- B Higher blood pressure
- C Lower Resting Heart Rate - **Correct Answer**
- D Reduced tidal volume



2. The short-term effects of exercise fall into which bracket? (1 Mark)

- A Effects that take place immediately during exercise
- B Effects that take place 24-36 hours after exercise - **Correct Answer**
- C Effects that take place after months and years of exercising

2 Markers

3. State two immediate effects of exercise. (2 marks)

Mark One – Increased Heart Rate

Mark Two – Increased breathing rate/depth

Accept other appropriate answers (e.g. hot/sweaty)



4. Naomi is a long-distance swimmer. She has taken part in a six-week training programme in order to improve her performance.

Other than Cardiac Hypertrophy, state two long-term effects of exercise that Naomi will have experienced. (2 marks)

Mark One – Lower resting heart rate

Mark Two – Increased muscular endurance

Accept other appropriate answers (related to long distance swimming/ endurance/cv fitness)



3 Markers

5. Cardiac Hypertrophy is a long-term effect of exercise. Explain what Cardiac Hypertrophy is and evaluate how this long-term effect can benefit performance in a sport of your choice. (3 marks)

Mark One – Cardiac Hypertrophy is when the heart increases in strength and size

Mark Two – This will benefit performance in marathon running (accept any other aerobic activity)

Mark Three – As the heart is bigger in size it will be capable of pumping out more blood per beat (stroke volume) to the working muscles during a race. Therefore the marathon runner will be able to run at a quicker pace for a longer period without becoming tired

Accept other appropriate answers

6. State three short-term effects of exercise (3 marks)

Mark One – Tiredness/Fatigue

Mark Two – Light Headedness/Nausea

Mark Three – Achimg/DOMs/Cramp

Accept other appropriate answers



UNIT CHECKLIST

Skeletal System



Bones/Skeleton

Identify the bones at the following locations: head/neck, vertebrae, shoulder, chest, elbow, hip, knee and ankle.

Classification of Bones

- Understand how bones can be classified in four different ways. Be able to give examples of each type of bone and describe its features.

Functions of the Skeleton

- Understand the 6 functions of the skeletal system and be able to apply each function to performance in physical activity.

Structure of a Synovial Joint

- Identify each part a synovial joint and assess how each part can help to prevent injury. Give examples of different types of joint e.g. hinge, ball & socket

UNIT CHECKLIST

Muscular System

Muscles of the Body

- Identify the location of the muscles within the body: Understand the role of tendons (attaching muscle to bones) and ligaments (attaching bones to bones).

Muscles & Movement

- Understand the different types of movement that muscles can create at each joint: flexion/extension, abduction/adduction, plantar flexion/dorsiflexion, rotation, circumduction. Apply these movements to specific sporting actions

UNIT CHECKLIST

Cardiovascular System



Blood Vessels - Structure

Understand the three type of blood vessels and their differing features

Blood Vessels - Functions

- Understand the role that blood vessels have in gas exchange, blood flow, redistribution of blood flow.

Structure of the Heart

- Positioning of the atria and ventricles

Cardiac Cycle & Pathway of Blood

- Understand the pathway of blood as it moves between the lungs-heart-body

Cardiac Output, Stroke Volume and Heart Rate

- Be able to define and explain each of these terms

UNIT CHECKLIST

Respiratory System

Pathway of Air

- Identify the pathway that air takes from the nose/mouth through to he alveoli

Gas Exchange

- Understand where and how gas exchange takes place. Be able to describe the features of the alveoli that make gas exchange possible/efficient

Mechanics of Breathing

- Understand the interaction of the intercostal muscles, ribs and diaphragm whilst breathing

Interpretation of a Spirometer Trace

- Define/describe tidal volume, expiratory reserve volume, inspiratory reserve volume, residual volume.

UNIT CHECKLIST

Aerobic v Anaerobic Exercise



Aerobic Exercise

- Understand and define aerobic exercise. Be able to give practical examples of sports whereby aerobic respiration takes place

Anaerobic Exercise

- Understand and define anaerobic exercise. Be able to give practical examples of sports whereby anaerobic respiration takes place

Excess Post-Exercise Oxygen Consumption (EPOC)

- Define of the term EPOC and understand that EPOC (oxygen debt) is caused by anaerobic exercise (lactic acid)

Recovery Process from Vigorous Exercise

- Be able to explain/evaluate the following recovery methods: Cool down, Diet Manipulation, Ice Baths, Massage
- Understand when and how DOMS takes place (Delayed Onset of Muscle Soreness)

UNIT CHECKLIST

The Effects of Exercise

Immediate Effects of Exercise (during exercise)

- Give examples of the immediate effects of exercise

Short-Term Effects of Exercise (24-36 hours after exercise)

- Give examples of the short-term effects of exercise

Long-Term Effects of Exercise (months and years of exercising)

- Give examples of the long-term effects of exercise



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