

OCR (B) Biology A-level

2.2.1 - The heart and monitoring heart function

Flashcards

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Why do mammals require mass transport systems?



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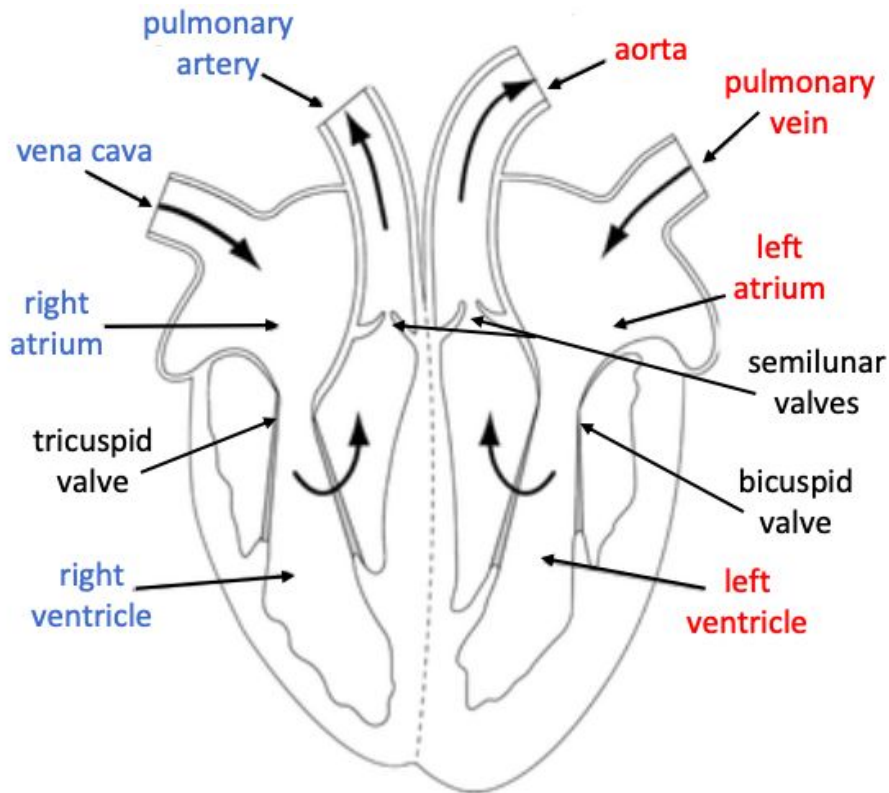
- Large size (small surface area to volume ratio) and multicellular; subsequently high basal metabolic rates.
- Demand for oxygen is high, so need a specialised system to ensure a strong supply to all respiring tissues.



Draw a diagram of the human heart,
including the names of chambers,
vessels, and valves.



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Describe what happens during cardiac diastole.



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The heart is relaxed. Blood enters the atria, increasing the pressure and opening the atrioventricular valves. This allows blood to flow into the ventricles. Pressure in the ventricles is lower than in the arteries, so semilunar valves remain closed.



Describe what happens during atrial systole.



Describe what happens during atrial systole.

The atria contract, pushing any remaining blood into the ventricles.



Describe what happens during ventricular systole.



Describe what happens during ventricular systole. The ventricles contract. The pressure increases, closing the atrioventricular valves to prevent backflow, and opening the semilunar valves. Blood flows into the arteries.



What does myogenic mean?



What does myogenic mean?

The heart's contraction is initiated from within the muscle itself, rather than by nerve impulses.



Explain how the heart contracts.



Explain how the heart contracts.

- SAN initiates and spreads impulse across the atria, so they contract.
- AVN receives, delays, and then conveys the impulse down the bundle of His.
- Impulse travels into the Purkinje fibres which branch across the ventricles, so they contract from the bottom up.



How do you calculate cardiac output?



How do you calculate cardiac output?

cardiac output = heart rate x stroke volume



How is pulse rate measured and interpreted?



How is pulse rate measured and interpreted?

The strongest pulses can be found in the wrist (radial), neck (carotid), or elbow (brachial). Index and third finger placed over the chosen area. Count the number of pulses in 15 seconds and multiply by four to obtain beats per minute.



What is an electrocardiogram (ECG)?



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A graph showing the electrical activity in the heart during the cardiac cycle.



Describe types of abnormal activity that may be seen on an ECG.



Describe types of abnormal activity that may be seen on an ECG.

- Tachycardia= fast heart rate (over 100 bpm)
- Bradycardia= slow heart rate (under 60 bpm)
- ST elevation= trace higher than baseline
- Fibrillation= irregular, fast heartbeat



What treatment is given to a person in suspected cardiac arrest?



What treatment is given to a person in suspected cardiac arrest?

- Cardiopulmonary resuscitation (CPR) involves chest compressions and artificial ventilation in order to keep the brain oxygenated while the heart is not beating.
- Defibrillators deliver a large electric current to the heart in order to restore its natural rhythm.

