Edexcel (A) Biology A-level

1.3 + 1.4 - The Cardiovascular System

Flashcards

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

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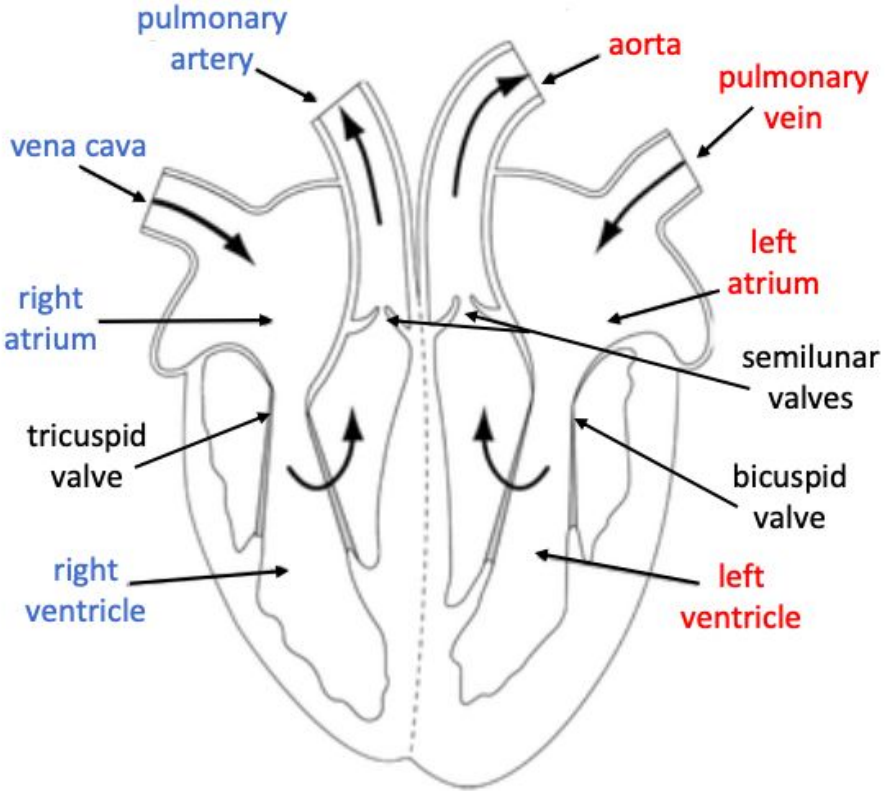

Relate the structure of the heart's chambers to their function.

Relate the structure of the heart's chambers to their function.

- Atria: thin-walled and elastic, so they can stretch when filled with blood
- Ventricles: thick muscular walls pump blood under high pressure. The left ventricle is thicker than the right because it has to pump blood all the way around the body.

Describe the function of the heart's major blood vessels.

Describe the function of the heart's major blood vessels.

- Vena cava = brings deoxygenated blood from the body to the heart.
- Pulmonary artery = takes blood from the heart to the lungs.
- Pulmonary vein = brings oxygenated blood from the lungs to the heart.
- Aorta = takes blood from the heart around the body.

Relate the structure of arteries to their function.

Relate the structure of arteries to their function.

Thick, muscular walls to handle high pressure without tearing. Elastic tissue allows recoil. Narrow lumen to maintain pressure.

Relate the structure of veins to their function.

Relate the structure of veins to their function.

Thin walls due to lower pressure.

Require valves to ensure blood doesn't flow backwards. Have less muscular and elastic tissue as they don't have to control blood flow.

Relate the structure of capillaries to their function.

Relate the structure of capillaries to their function.

- Walls only one cell thick; short diffusion pathway.
- Very narrow, so can permeate tissues and red blood cells can lie flat against the wall, effectively delivering oxygen to tissues.
- Numerous and highly branched, providing a large surface area.

Describe what happens during cardiac diastole.

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The heart is relaxed. Blood enters the atria, increasing the pressure and pushing open the atrioventricular valves. This allows blood to flow into the ventricles. Pressure in the heart 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.