WJEC England Biology GCSE

2.2 - Transport systems in humans

Flashcards

Why do mammals need a double circulatory system?

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Double circulatory systems have blood at a higher pressure, allowing it to flow faster and move substances quickly around the body

Describe the double circulatory system in mammals

Describe the double circulatory system in mammals

The heart pumps blood to the lungs, the oxygenated blood returns to the heart and is then pumped around the body

Which side of the heart receives blood from the body and pumps it to the lungs?

Which side of the heart receives blood from the body and pumps it to the lungs?

The right side of the heart

Which side of the heart receives blood from the lungs and pumps it to the body?

Which side of the heart receives blood from the lungs and pumps it to the body?

The left side of the heart

Why is the wall of the left ventricle thicker than the wall of the right ventricle?

Why is the wall of the left ventricle thicker than the wall of the right ventricle?

The left ventricle has to pump blood a further distance around the whole body so the blood needs to be under a higher pressure

Describe the blood flow through the right side of the heart

Describe the blood flow through the right side of the heart

- Deoxygenated blood flows into the right atrium from the vena cava
- This blood passes through the right AV valve into the right ventricle
- The blood is then pumped out of the heart to the lungs through the right SL valve and into the pulmonary artery

Describe the blood flow through the left side of the heart

Describe the blood flow through the left side of the heart

- Blood enters into the left atrium from the pulmonary vein
- The blood is then pumped through the left AV valve into the left ventricle
- The blood is then pumped out through the left SL valve and into the aorta

What is the function of the valves in the heart?

What is the function of the valves in the heart?

The valves prevent backflow of the blood so it only flows in one direction

What is the name of the wall that separates the right and left sides of the heart?

What is the name of the wall that separates the right and left sides of the heart?

The septum

What type of muscle is the heart made of?

What type of muscle is the heart made of?

Cardiac muscle

What is the difference in function between veins, arteries and capillaries?

What is the difference in function between veins, arteries and capillaries?

Arteries carry blood **a**way from the heart

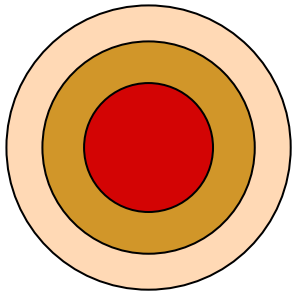
Ve**in**s carry blood towards (**in**to) the heart

Capillaries flow close to tissues for exchange

Describe the structure of arteries

Describe the structure of arteries

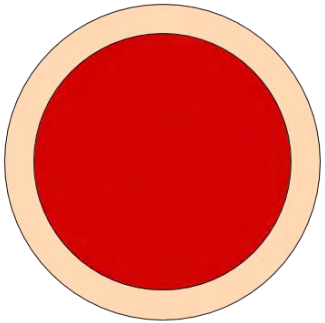
They have thick walls made of muscle and elastic tissue and a small lumen to transport blood under high pressure



Describe the structure of capillaries

Describe the structure of capillaries

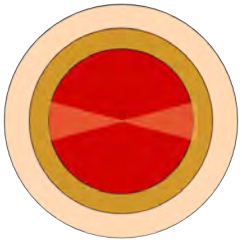
They have thin walls about one cell thick to allow for the easy exchange of substances at the tissues



Describe the structure of veins

Describe the structure of veins

Veins have less muscle and elastic tissue than arteries and they have a larger lumen as the blood is at lower pressure. They also have valves to prevent backflow.



Name 4 components of the blood

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- Red blood cells
- White blood cells
- Platelets
- Plasma

How are red blood cells adapted to their function?

How are red blood cells adapted to their function?

- Contain haemoglobin to carry oxygen
- Biconcave shape to maximise surface area and allow them to squeeze through capillaries
- No nucleus to maximise space for haemoglobin

How is plasma adapted as a transport medium?

How is plasma adapted as a transport medium?

Plasma is the liquid part of the blood and most molecules transported in blood need to be dissolved in water

How are platelets adapted to their function?

How are platelets adapted to their function?

Platelets help in blood clotting by:

- Proteins on their surface make them sticky
- Proteins they secrete to make blood clot

How are white blood cells adapted to their function?

How are white blood cells adapted to their function?

- Lobed nucleus so they can squeeze out of capillaries into tissues
- Some white blood cells can produce antibodies
- Other white blood cells contain enzymes to break down pathogens