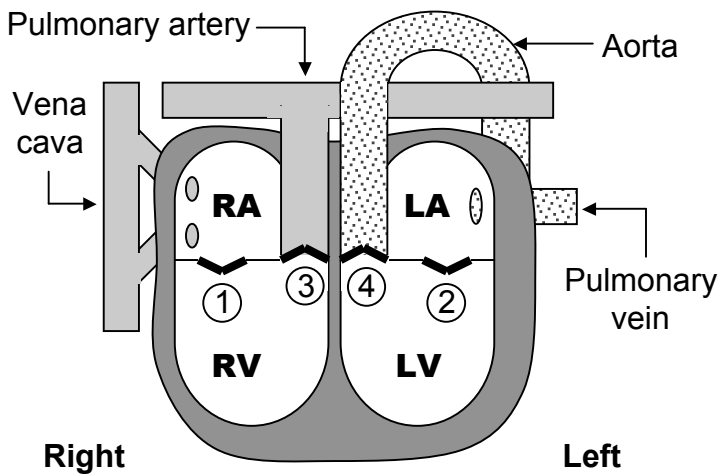


The Transport System (6.2)

Structure and function of the heart (6.2.1 - 6.2.3)



- Deoxygenated blood (from body) returns to the **right atrium** via the **vena cava**
- It is pumped into the **right ventricle** where the *tricuspid valve* (1) prevents backflow
- Blood then passes into the **pulmonary artery** (to lungs)
- The *pulmonary valve* (3) prevents backflow
- Oxygenated blood (from lungs) returns to the **left atrium** via the **pulmonary vein**
- It is pumped into the **left ventricle** where the *bicuspid valve* (2) prevents backflow
- Blood then passes into the **aorta** (to body)
- The *aortic valve* (4) prevents back flow
- The heart is supplied with oxygen and nutrients by **coronary arteries**

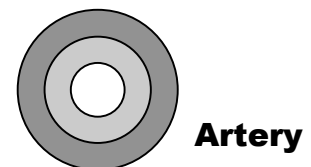
Outline how the heart beats (6.2.4)

- The contraction of the cardiac muscle is **myogenic** (the signal arises in the heart itself)
- It is initiated at a plexus of nerve fibres called the sinoatrial node (SAN = **pacemaker**)
- The SAN sets the sinus rhythm by stimulating muscle contraction via **nerves**
- The rate at which the heart beats is regulated by the **medulla oblongata** (brain stem)
- It can increase heart rate by releasing **adrenaline** into the bloodstream

Explain the relationship between structure & function for blood vessels (6.2.5)

Arteries

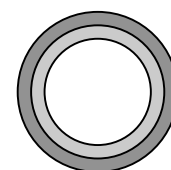
- Moderately narrow lumen (*blood at high pressure*)
- Thick outer layer of collagen (*withstand high pressure*)
- Thick circular layer of elastic & muscle fibres (*pulse flow*)



Artery

Veins

- Large lumen (*blood at low pressure*)
- Thin outer layer (*pressure low & allows nearby muscles to push blood*)
- Thin circular layer (*blood not in pulses*)
- Has valves (*prevents blood pooling at lower extremities*)



Vein

Capillaries

- Wall is fenestrated and one cell thick (*allows diffusion*)
- Very narrow lumen (*single file blood cells increase exchange of materials*)

Capillary

Composition of blood (6.2.6)

Plasma: Fluid component of blood

Erythrocytes: Red blood cells; carry oxygen

Leukocytes: White blood cells; fight infection

Platelets: Involved in blood clotting (haemostasis)

Material transport in blood (6.2.7)

Remember: NACHO, UH

Nutrients (*e.g. glucose*)

Antibodies

Carbon dioxide

Hormones

Oxxygen

Urea

Heat