

Arteries, veins and capillaries

Arteries- carry blood away from the heart

Veins- Carry blood to the heart

Capillaries- Fine networks of tiny tubes linking arteries and veins

Arteries

- Collagen fibres (outer layer)- provides strength
- Thick middle layer (elastic fibres, smooth involuntary muscle)- elasticity
- Endothelium
- No valves
- Blood leaves at a high pressure (in waves/pulses)- so they have thicker walls
- Elasticity- walls of arteries stretch when blood arrives at high pressure
- Energy stored as potential energy in elastic walls
- Stored energy used to maintain flow until ventricles contract when pressure of blood falls
- Elastic recall of arteries- pressure fluctuations of blood smoothed to give a continuous flow

Veins

- Contain valves to prevent backflow
- When surrounding muscles contract and press against veins, valves force blood from one valve to the next (return flow)
- Blood is at a lower pressure
- Collagen fibres (outer layer)
- Thin middle layer (elastic fibres and smooth involuntary muscle)
- Endothelium

Capillaries

- Branch profusely and bring blood circulation close to cells
- Blood is at a lower pressure by the time blood reaches capillaries- so they have thinner walls
- No collagen fibres
- No middle layer (elastic fibres)
- Endothelium
- No valves