Exercise walk-through

Blood vessels ▪ 9.3

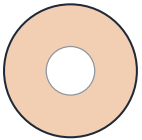
eXercise

You must be able to

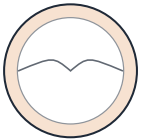
- compare arteries, veins and capillaries (wall, lumen, valves, job)
- explain how each is adapted to its function
- name the main blood vessels

Method — The three vessels

Artery: thick wall, away from heart, high pressure. Vein: thin wall, valves, back to heart. Capillary: one cell thick, exchange



artery
thick muscular, elastic wall; narrow lumen; high pressure

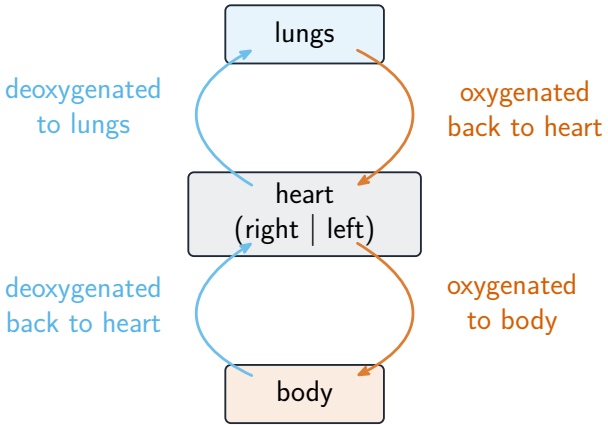


vein
thin wall; wide lumen; has **valves**; low pressure

capillary
wall one cell thick; lets substances be exchanged

Cross-sections of an artery, a vein and a capillary

Method — The three vessels



Arteries, veins and capillaries in the circulation

Practice 2.1 ▪ 1 mark

State which vessel carries blood away from the heart.

Solution 2.1

Method: The three vessels

Worked steps

an artery B1.

Practice 2.2 ▪ 1 mark

State why veins have valves.

Solution 2.2

Method: The three vessels

Worked steps

to stop the low-pressure blood flowing backwards B1.

Exam-style 3.1 ▪ 1 mark

A capillary is well adapted for exchange because its wall is:

A thick and muscular

B one cell thick

C full of valves

D very elastic

Solution 3.1

Method: The three vessels

A thick and muscular

B one cell thick ✓

C full of valves

D very elastic

Worked steps

B. A capillary wall is one cell thick, giving a short distance for exchange.

Exam-style 3.2 ▪ 2 marks

Arteries carry blood at high pressure.
(a) Explain how the artery wall is adapted to high pressure.
(b) Name the artery that carries blood from the heart to the body.

Solution 3.2

Method: The three vessels

Worked steps

(a) it has a thick, muscular and elastic wall M1; to withstand and cope with the high pressure A1.
(b) the aorta B1.