

9.3 Blood vessels

Name: _____ Class: _____ Date: _____ **Total: 6 marks**

KEY WORDS blood vessels 血管 • lumen 管腔 • ions 离子 • veins 静脉 • arteries 动脉

Objective

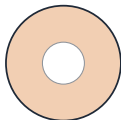
Build the skills to answer exam questions on **blood vessels** 血管 — **arteries** 动脉, **veins** 静脉 and **capillaries** 毛细血管, and how each is adapted.

You must be able to:

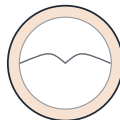
- compare arteries, veins and capillaries (wall, lumen, valves, job)
- explain how each is adapted to its function
- name the main blood vessels

1 Worked examples

■ The three vessels



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

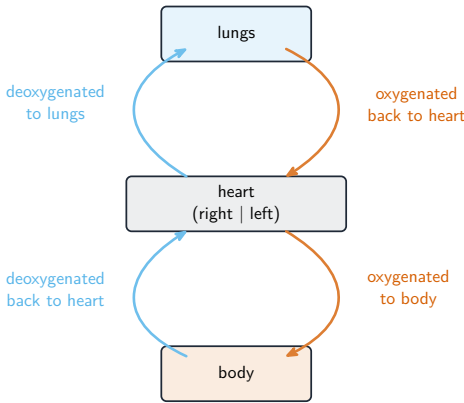


vein
thin wall;
wide lumen;
has **valves**;
low pressure



capillary
wall one cell
thick; lets
substances be
exchanged

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



Arteries, veins and capillaries in the circulation

2 Practice

2.1 State which vessel carries blood away from the heart. [1]

2.2 State why veins have valves. [1]

3 Exam-style questions

3.1 A capillary is well adapted for exchange because its wall is: [1]

- **A** thick and muscular
- **B** one cell thick
- **C** full of valves
- **D** very elastic

3.2 Arteries carry blood at high pressure.

(a) Explain how the artery wall is adapted to high pressure. [2]

(b) Name the artery that carries blood from the heart to the body. [1]

Solutions

2.1 an artery.

2.2 to stop the low-pressure blood flowing backwards.

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

3.2 (a) it has a thick, muscular and elastic wall; to withstand and cope with the high pressure.

(b) the aorta.