

Blood vessels

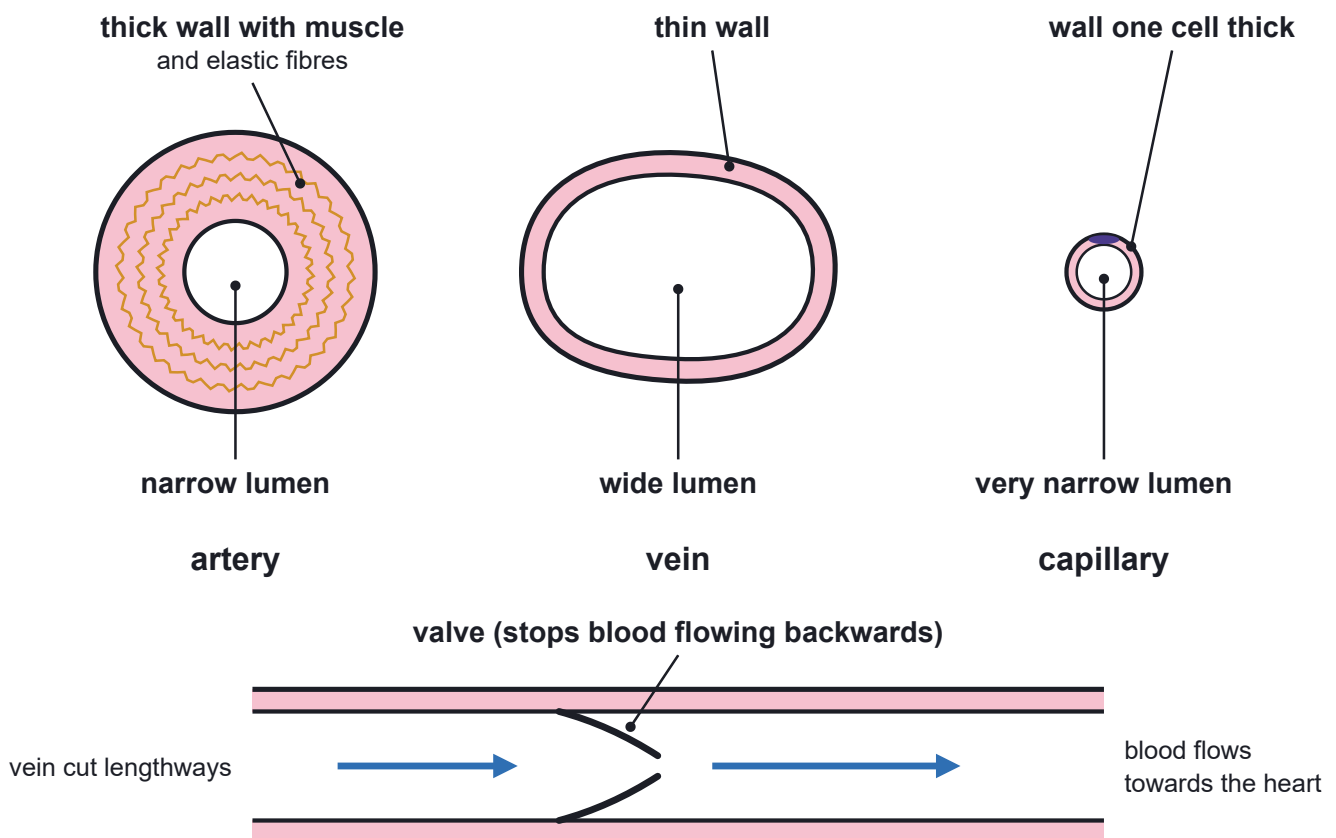
Revision notes • How the structures of arteries, veins and capillaries are related to their functions and to the pressure of the blood inside them.

For Cambridge IGCSE Combined Science 0653. **Supplement** is Extended content, only examined on Papers 2 and 4.

Blood vessels Spec B9.3

Arteries, veins and capillaries Spec B9.3.1, B9.3.2

Structure of blood vessels			
Vessel	Wall	Lumen	Valves
Artery	Thick	Narrow	No
Vein	Thin	Wide	Yes
Capillary	One cell thick	Very narrow	No



[\(opens full size in a new tab\)](#)

Arteries have thick walls, veins have a wide lumen and valves, capillaries have walls one cell thick. (The capillary is drawn much larger than its real size.)

Supplement

Structure related to pressure

Supplement

- **Arteries** carry blood away from the heart at high pressure. Their thick walls, containing muscle and elastic fibres, withstand the pressure and stretch and recoil with each beat. The narrow lumen helps to maintain the pressure.
- **Veins** carry blood back to the heart at low pressure. They need only thin walls, and the wide lumen gives little resistance to flow. Valves stop the blood flowing backwards.

Supplement

Exam tip: Do not say that veins have 'no muscle'. Say their walls are thinner because the blood is at lower pressure.

Quick check

1. Which blood vessels have valves?
2. **Supplement** Why do arteries have thick walls?

Quick check answers

Blood vessels

1. Veins.
2. They carry blood at high pressure, so the walls must withstand it.