

Blood Vessels

Section 7.4 Questions on page 255

1) Explain what happens in the blood vessels when someone blushes. Why does this happen?

Blushing is caused by the vasodilation (*dilation of the vessel – increase in blood flow*) of the arterioles leading to skin capillaries. Red blood cells close to the surface of the skin produce the pink colour.

2) Are all the capillaries open all the time? Why or why not? What determines whether a capillary is open?

Not all capillaries are open at all times. They only open when cells in the area require blood. Only in the brain do the majority of capillaries remain open.

3) What are the advantages and disadvantages of capillaries being composed of a single cell layer?

Advantages	Disadvantages
<ul style="list-style-type: none">• Ideal for diffusion	<ul style="list-style-type: none">• Easily damaged<ul style="list-style-type: none">▪ High blood pressure▪ Impact

4) Explain the importance of William Harvey's theory of blood circulation.

Because of his experiments, we now know that veins contain valves that steer blood towards the heart.

5) Why are aneurysms dangerous?

Aneurysm is a condition where a weakened segment of the artery protrudes as blood passes through. The thinner wall offers less support, and it can eventually rupture. Less oxygen and nutrient are then delivered to the tissues resulting in cell death.

6) Why are fat deposits dangerous in arteries

As fat droplets meet, they form larger fat deposits which lead to blockages in the arteries. Because it narrows the passage in the artery, it can lead to high blood pressure. Moreover, blood clots can form around the fat deposits.

7) Fluid pressure is very low in veins. Explain how blood gets back to the heart.

- Valves are found in the veins that steer the blood towards the heart as they only open in one direction.
- Skeletal muscles also aid the blood flow. The pressure in the veins increase as the sequential skeletal muscles contractions push against the vein and reduce its diameter allowing the blood to return towards the heart.

8) What causes varicose veins? What lifestyle changes could prevent the development of varicose veins?

If the valves in the veins are not functioning properly, gravity can carry the blood towards the feet which creates pooling of blood. Surface veins will then gradually become larger and begin to bulge.