

The Role of Capillaries in the Circulatory System

Biology · Answer Key · 15 Questions

1. What is the primary function of capillaries?

- A) Transporting blood away from the heart
- B) Exchanging substances between blood and tissues**
- C) Filtering waste products from the blood
- D) Pumping blood into the body

2. Capillaries are described as what kind of vessels?

- A) Large arteries
- B) Tiny vessels**
- C) Veins
- D) Lymphatic vessels

3. What makes up the thin wall of a capillary?

- A) Muscle tissue and elastic fibers
- B) Endothelium and a basement membrane**
- C) Connective tissue and nerve cells
- D) Cartilage and bone

4. Capillaries allow the exchange of which substances?

- A) Only oxygen and carbon dioxide
- B) Nutrients, proteins, waste products, and gases**
- C) Hormones and antibodies only
- D) Blood cells and platelets

5. Capillaries are organized into what structures?

- A) Arteries
- B) Veins
- C) Capillary beds**
- D) Aorta

6. What supplies blood to capillary beds?

- A) Arterioles
- B) Venules
- C) Metarterioles**
- D) Capillary sphincters

7. What regulates the blood flow through capillaries?

- A) The heart's pumping action
- B) The contraction and relaxation of precapillary sphincters**
- C) The elasticity of arteries
- D) The pressure in veins

8. In most resting tissues, what proportion of capillaries are actively involved in blood flow?

- A) All of them
- B) A large proportion
- C) A small proportion**
- D) None of them

9. What happens to capillaries during increased demand, such as during exercise?

- A) They close off completely
- B) Additional capillaries can open up**
- C) They shrink in size
- D) Their walls thicken

10. Where does blood go after leaving the capillaries?

- A) Into arteries
- B) Into arterioles
- C) Into postcapillary venules**
- D) Back into the heart directly

11. The thickness of a capillary wall is only one cell layer thick, specifically an endothelial cell. This statement is:

- A) False
- B) True**
- C) Partially true
- D) Depends on the tissue

12. What is a metarteriole?

- A) A large artery
- B) A small vein
- C) A vessel connecting arterioles to capillaries**
- D) A type of capillary

13. Precapillary sphincters are located at the junction of a metarteriole and a capillary. This statement is:

A) False

B) True

C) Only in certain organs

D) Not relevant to blood flow

14. Capillary beds are highly branched and present a significant surface area for exchange. This statement is:

A) False

B) True

C) Only in active muscles

D) Only in resting tissues

15. What are the components of the capillary wall mentioned in the text?

A) Muscle and elastic tissue

B) Endothelium and basement membrane

C) Nerve fibers and fat cells

D) Bone and cartilage