Chapter 17 Circulation

Study Guide

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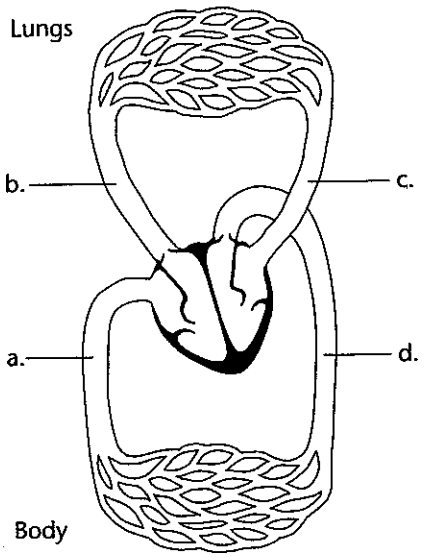
SECTION 17-1 **REVIEW AND REINFORCE**

The Body's Transportation System

◆ Understanding Main Ideas

Use the diagram to answer the following questions on a separate sheet of paper.

1. Draw arrows on the diagram to show the path of the blood flow throughout the body.
2. What is the function of the atria? What is the function of the ventricles?
3. Which of the large blood vessels labeled *a*, *b*, *c*, and *d* are arteries and which are veins? Explain how you know.



◆ Building Vocabulary

From the list below, choose the term that best completes each sentence.

aorta	capillaries	cardiovascular system	force
heart	pacemaker	valve	

4. The _____ is a group of cells that adjusts the heart rate.
5. The muscular organ that pumps blood through the body is called the _____.
6. The _____ is made up of the heart, blood vessels, and blood.
7. A(n) _____ is a flap of tissue that prevents blood from flowing backward.
8. The largest artery is called the _____.
9. Substances are exchanged between the blood and body cells in the _____.

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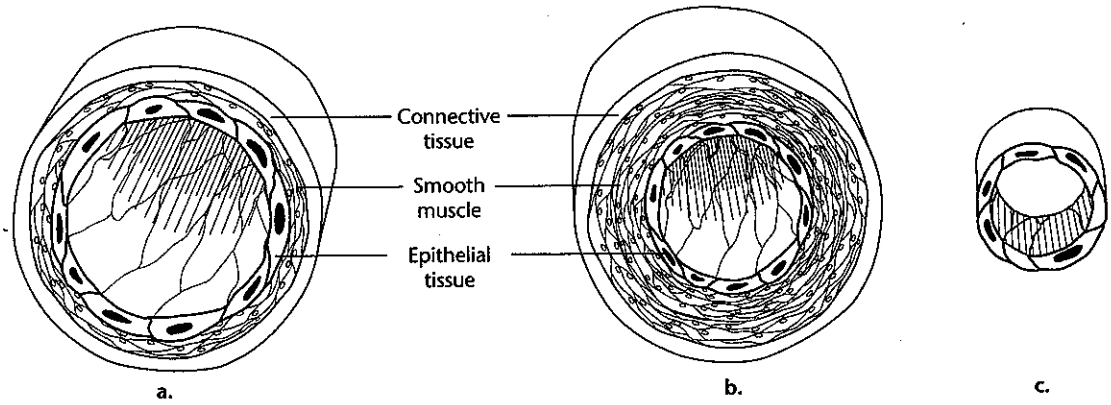
SECTION 17-2 REVIEW AND REINFORCE

A Closer Look at Blood Vessels

◆ Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. Identify the three kinds of blood vessels shown in the diagram.



2. After blood leaves the heart, through what kinds of vessels and in what order does blood move?

3. In which kind of vessel is blood pressure usually highest?

4. Which vessel allows diffusion through its walls?

5. What causes blood pressure?

6. What factors help blood move through veins?

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **7.** blood pressure

_____ **8.** pressure

_____ **9.** diffusion

_____ **10.** coronary artery

_____ **11.** sphygmomanometer

a. the movement of molecules from an area in which they are highly concentrated to an area in which they have a lower concentration

b. the force that something exerts over a given area

c. an instrument that measures blood pressure

d. a vessel that supplies the heart itself with blood

e. caused by the force with which the ventricles contract

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SECTION 17-3 **REVIEW AND REINFORCE**

Blood and Lymph

◆ Understanding Main Ideas

Complete the table. Then answer the questions on a separate sheet of paper.

Blood Component	Description	Function
Plasma		
Red Blood Cell		
White Blood Cell		
Platelet		

1. If a person with type B blood needs a transfusion, which types of blood can he or she safely receive? Explain your answer.
2. How does fluid in the blood become lymph? How is it returned to the blood?

◆ Building Vocabulary

From the list below, choose the term that best completes each sentence.

blood transfusion fibrin hemoglobin
lymph node lymphatic system

3. A small knob of tissue that filters lymph is called a(n) _____.
4. _____ is a chemical that weaves a net of tiny fibers across a wound.
5. The transference of blood from one person to another is called a(n) _____.
6. _____ is an iron-containing protein that binds to oxygen molecules.
7. The _____ is the network of vessels that returns fluid to the bloodstream.

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SECTION 17-4 REVIEW AND REINFORCE

Cardiovascular Health

◆ Understanding Main Ideas

Write each of the given behaviors in the appropriate column on the chart.

Behaviors: eating foods high in fat, running, smoking, eating low-sodium foods, playing basketball, eating salty foods, eating foods low in cholesterol, being overweight

Behaviors That Affect Your Heart	
Healthy	**Harmful**
1.	**5.**
2.	**6.**
3.	**7.**
4.	**8.**

Answer the following questions on a separate sheet of paper.

9. Why is atherosclerosis dangerous?

10. Describe how hypertension affects your heart and blood vessels. Why is it called the "silent killer"?

11. Explain why hypertension is related to atherosclerosis.

◆ Building Vocabulary

Write a definition for each of the following terms on the lines below.

12. atherosclerosis

_____

13. cholesterol

_____

14. heart attack

_____

15. hypertension

_____

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Choose the letter of the correct answer.

1. Which component of blood carries oxygen to the body cells?
   [A] white blood cells [B] plasma [C] platelets [D] red blood cells

2. When the ventricles contract, blood is pumped
   [A] through the septum. [B] into the heart. [C] into veins. [D] out of the heart.

3. If your pulse rate increases, your heart is beating
   [A] more forcefully than before. [B] with less pressure than before.
   [C] slower than before. [D] faster than before.

4. Which component of blood is 90 percent water?
   [A] white blood cells [B] red blood cells [C] plasma [D] platelets

5. Needed substances are carried to the body cells by
   [A] white blood cells. [B] lymph. [C] blood. [D] platelets.

6. Exercise is important for cardiovascular health because it
   [A] increases blood pressure. [B] makes the coronary arteries wider.
   [C] strengthens heart muscle. [D] reduces sodium in the blood.

7. Which of the following blood types can a person with type O blood safely receive in a transfusion?
   [A] only type A [B] only type O [C] only type B [D] both type AB and type O

8. Which chamber of the heart pumps oxygen-poor blood to the lungs?
   [A] right ventricle [B] left atrium [C] left ventricle [D] right atrium

9. What causes blood pressure?
   [A] the force with which the ventricles contract
   [B] the speed at which oxygen is returned to blood in the lungs
   [C] the rate at which blood flows through the heart
   [D] the strength of the muscles in the walls of the capillaries

Choose the letter of the correct answer.

10. The heart rate changes to correspond to the body's

    [A] need for carbon dioxide. [B] oxygen needs.

    [C] creation of waste products. [D] ability to fight disease.

11. What instrument is used to measure blood pressure?

    [A] thermometer [B] sphygmomanometer [C] blood bank [D] stethoscope

Fill in the word or phrase that best completes the statement(s).

12. The marker molecules on red blood cells determine a person's _____.

13. A buildup of cholesterol in artery walls can lead to a condition called _____.

14. A person who receives the wrong type of blood during a blood _____ may die.

15. Red blood cells contain _____, a protein that carries oxygen from the lungs.

16. To help prevent atherosclerosis, eat a balanced diet that is low in _____.

17. Blood returns to the heart from the body through blood vessels called _____.

18. Blood that is rich in oxygen leaves the heart through the blood vessel known as the _____.

19. Substances are exchanged between the blood and body cells in the blood vessels known as _____.

If the statement is true, write true. If it is false, change the underlined word or words to make the statement true.

20. Lymph nodes may <u>enlarge</u> when they are helping the body fight an infection.

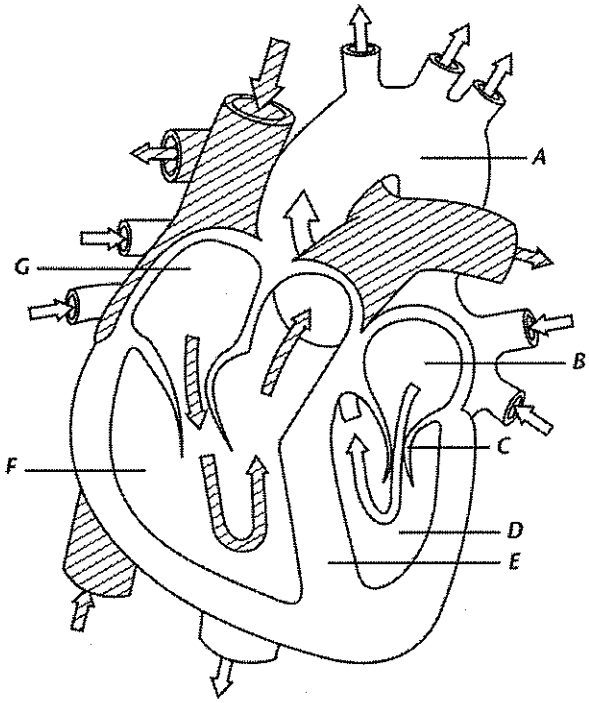
21. The blood pressure of a person with hypertension is <u>lower</u> than normal.

22. People with blood type O can safely receive blood transfusions from people with blood type <u>O</u>.

23. <u>White</u> blood cells are the most numerous type of cells in whole blood.

Use the diagram to answer the question(s).

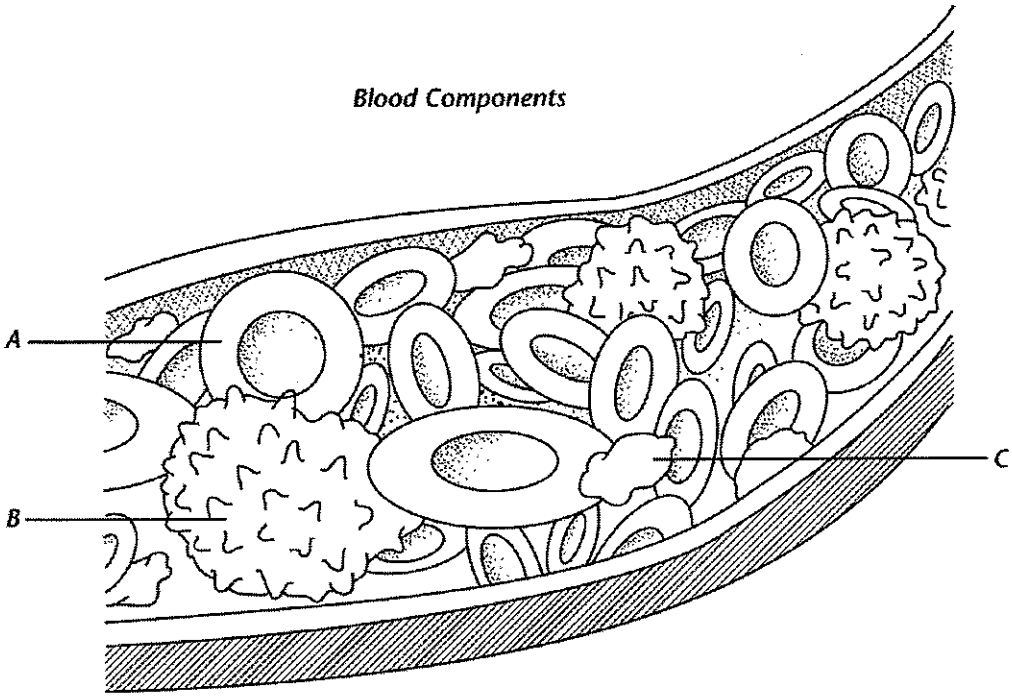
The Heart



24. Identify structure B.

25. Identify the structure labeled D. When blood enters structure D, is the blood low in oxygen or high in oxygen? Explain.

Use the diagram to answer the question(s).



26. Identify the type of cell shown by A.

Write an answer to the following question(s).

27. Describe the two main phases of the action of the heart.

28. Explain why people with type AB blood can accept transfusions of any type blood.

29. Describe how blood pressure changes as blood flows through the body after leaving the heart. Explain why this happens.

30. Explain where the lymph was before it entered the lymphatic system. Then explain how the lymphatic system returns lymph to the bloodstream.