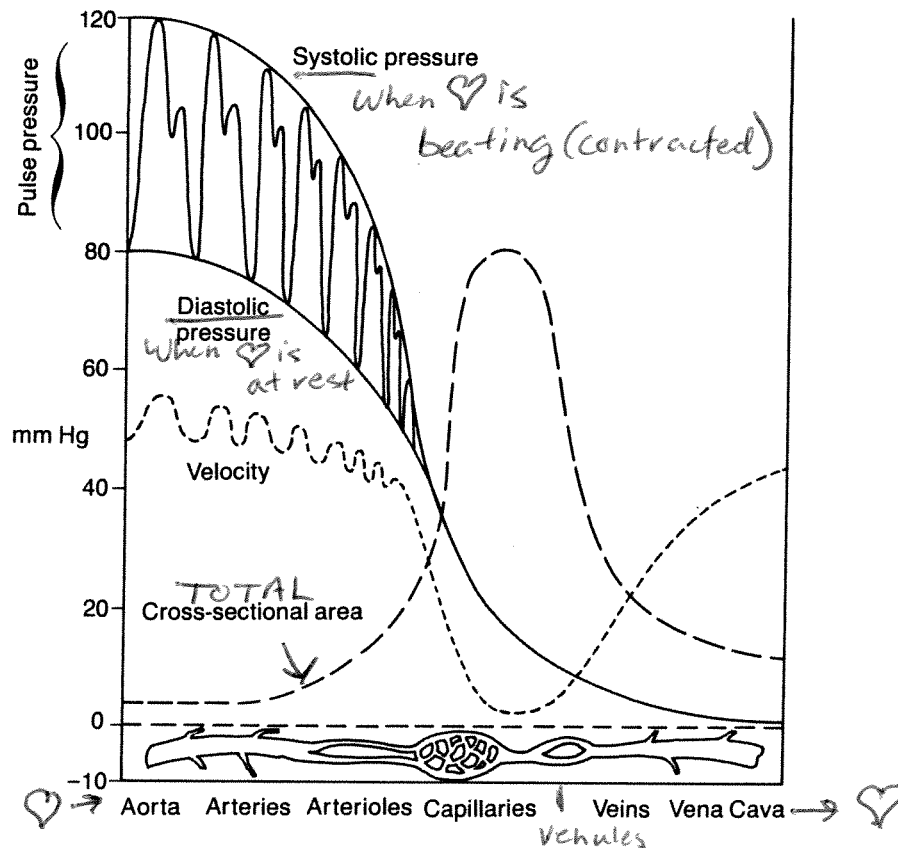


Circulation

SKILLS

Interpreting a Graph

The graph below shows how several characteristics of circulation change as blood flows away from the heart. The graph shows changes in blood pressure and changes in the speed or velocity at which blood flows. The graph also shows changes in the cross-sectional area of the vessels through which the blood flows. Study the graph. Then for each of the questions that follow, circle the letter that corresponds to the correct answer.



- The difference between systolic pressure and diastolic pressure becomes smaller and then disappears in the
 - arteries
 - arterioles
 - capillaries
 - venules
- The difference between systolic pressure and diastolic pressure disappears when each pressure reaches
 - 0 mm Hg
 - 20 mm Hg
 - 40 mm Hg
 - 80 mm Hg
- The speed or velocity of blood flow is lowest in the
 - arteries
 - arterioles
 - capillaries
 - venules
- The speed or velocity of blood flow is highest in the
 - aorta
 - arteries
 - arterioles
 - capillaries

5. The cross-sectional area is highest in the
- a. arteries b. arterioles c. capillaries d. venules
6. The cross-sectional area is lowest in the
- a. aorta b. arteries c. arterioles d. capillaries
7. Which of the following statements is the best explanation of why the cross-sectional area is higher in capillaries than in arterioles?
- a. A capillary has a larger diameter than an arteriole.
- b. Each arteriole branches into many capillaries.
- c. Each capillary branches into many venules.
- d. Several capillaries join to form one venule.
8. Which of the following statements best describes the relation between velocity and cross-sectional area?
- a. There is no relation between velocity and cross-sectional area.
- b. Changes in velocity are opposite to changes in cross-sectional area (velocity and cross-sectional area are inversely related).
- c. Changes in velocity are opposite to changes in cross-sectional area (velocity and cross-sectional area are inversely related).
- d. Velocity is too irregular to establish a relation to cross-sectional area.
9. Notice the label *Pulse pressure* at the upper left of the graph. Which of the following statements is NOT supported by the graph?
- a. Pulse pressure is the difference between systolic and diastolic pressure.
- b. Pulse pressure decreases as blood flows away from the heart.
- c. Pulse pressure decreases from 120 mm Hg to about 40 mm Hg.
- d. Pulse pressure decreases from 40 mm Hg to 0 mm Hg.
10. Which of the following statements is NOT true of the capillaries?
- a. Pressure falls from about 35 mm Hg to about 15 mm Hg.
- b. Pressure in the capillaries is lower than in any other part of the circulation.
- c. There is no pulse pressure in the capillaries.
- d. Blood velocity is at its lowest in the capillaries.
11. If pressure within the chambers of the heart were to be measured, which of the following would be the best way to add the data to the graph?
- a. Place the data for the left ventricle at the left side of the graph and the data for the right atrium at the right side of the graph.
- b. Place the data for the left atrium at the left side of the graph and the data for the right atrium at the right side of the graph.
- c. Place the data for the left ventricle at the left side of the graph and the data for the right ventricle at the right side of the graph.
- d. Place the data for the left ventricle at the right side of the graph and the data for the right atrium at the left side of the graph.