



What are blood vessels?

Objective ► Name and describe the three kinds of blood vessels.

Terms

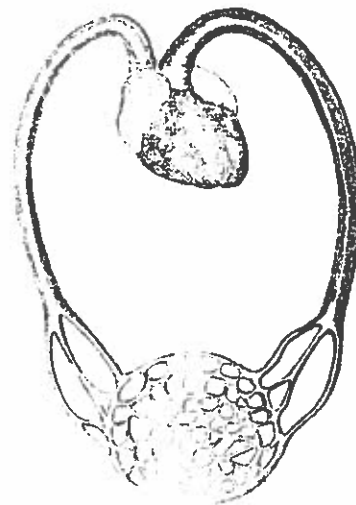
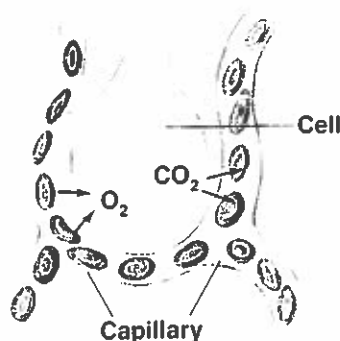
- **aorta** (ay-OWR-tuh): largest artery in the body
- **arteries** (ART-ur-ees): blood vessels that carry blood away from the heart
- **capillaries** (KAP-uh-ler-ees): tiny blood vessels that connect arteries to veins
- **veins** (VANES): blood vessels that carry blood to the heart

Blood Vessels Blood moves in the body through a closed system of tubes. These tubes are called blood vessels. The human body has three kinds of blood vessels. The **arteries** (ART-ur-ees) are blood vessels that carry blood away from the heart. Blood vessels that carry blood back to the heart are **veins** (VANES). Veins and arteries are connected by **capillaries** (KAP-uh-ler-ees). Capillaries are tiny blood vessels.

► **Name:** What are the three kinds of blood vessels?

Arteries Arteries have thick muscular walls. As the heart beats, it pumps blood through the arteries at high pressure. The arteries must be strong to be able to handle this pressure. The strong walls prevent the arteries from bursting. The largest artery in the body is the **aorta** (ay-OWR-tuh).

Blood to heart Blood from heart



► **List:** What are some characteristics of arteries?

Pulse As your heart beats, it pushes blood through the arteries in spurts. With each spurt of blood, a beat can be felt. The beat you feel is your pulse. You can feel a pulse wherever an artery is close to the skin's surface. Your pulse rate and heartbeat rate are the same.

► **Identify:** Can you feel your pulse in a vein, artery, or capillary?

Veins Veins have thinner walls than do arteries. Blood pumps through the veins at less pressure than it does in arteries. Blood does not flow as easily through veins as it does through arteries. The contraction of muscles keeps the blood flowing. Some veins also have valves that keep the blood from flowing backwards.

► **Explain:** Why are the walls of veins thinner than the walls of arteries?

Capillaries Capillaries have walls that are only one cell thick. Blood cells travel through capillaries in a single file. The capillaries are where blood and body cells exchange nutrients and waste. For example, carbon dioxide and waste products move from body cells into the blood through capillaries. Food and oxygen in the blood move through the capillaries into the body cells.

► **Describe:** What happens in capillaries?

LESSON SUMMARY

- ▶ The three kinds of blood vessels are arteries, veins, and capillaries.
- ▶ Arteries have thick muscular walls and are strong and elastic.
- ▶ A pulse is felt in an artery each time the heart beats.
- ▶ Veins have thin walls and have valves to keep blood flowing towards the heart.
- ▶ Capillaries are where the exchange of oxygen, carbon dioxide, food, and wastes take place between the blood and body cells.

CHECK Write true if the statement is true. If the statement is false, change the underlined term to make the statement true.

1. Arteries, veins, and valves are the three kinds of blood vessels.
2. Blood is pumped through the arteries at a low pressure.
3. You can feel your pulse only in an artery.
4. Blood is prevented from flowing backward in veins by capillaries.
5. Because blood is pumped through them at low pressure arteries have thin walls.

6. The aorta is the largest vein in the body.

APPLY Answer the following.

7. **Compare:** What are the differences between arteries and veins?
8. **Infer:** Why do you think you cannot feel a pulse in a vein?

InfoSearch

Read the passage. Ask two questions that you cannot answer from the information in the passage.

High Blood Pressure Blood pressure is a measure of the force of blood on the arteries. An average blood pressure is 120/80. The top number, 120, is the pressure on the arteries when the ventricles are contracting. The bottom number, 80, is the pressure on the arteries when the ventricles are at rest. High blood pressure causes the heart to overwork. Some people inherit high blood pressure. Other people get it from stress. Still other people get high blood pressure from their diets. Over time, high blood pressure causes the arteries to weaken.

SEARCH: Use library references to find answers to your questions.

ACTIVITY

MEASURING PULSE RATE

You will need a clock or watch with a second hand.

1. Sit quietly for two minutes. Place your middle and index finger over the inside of your wrist. Find your pulse.
2. **Measure:** Take your pulse for 30 seconds. Multiply this number by 2. Record your answer.
3. Stand up for two minutes. Take your pulse for 30 seconds. Multiply this number by 2. Record your answer.
4. Jog in place for two minutes. Take your pulse for 30 seconds. Multiply this number by 2. Record your answer.
5. Rest for two minutes. Take your pulse for 30 seconds. Multiply this number by 2. Record your answer.

Questions

1. **Analyze:** How did your pulse change when you stood up?
2. **Analyze:** How did your pulse change when you stopped jogging?
3. **Analyze:** What affect did exercise have on your heart rate?

