

Kazakh-Russian Medical University

Independent Work

Theme: The Circulatory System

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# PLAN

- The circulatory system
- At the heart of the circulatory system
- Disorders of the Circulatory System

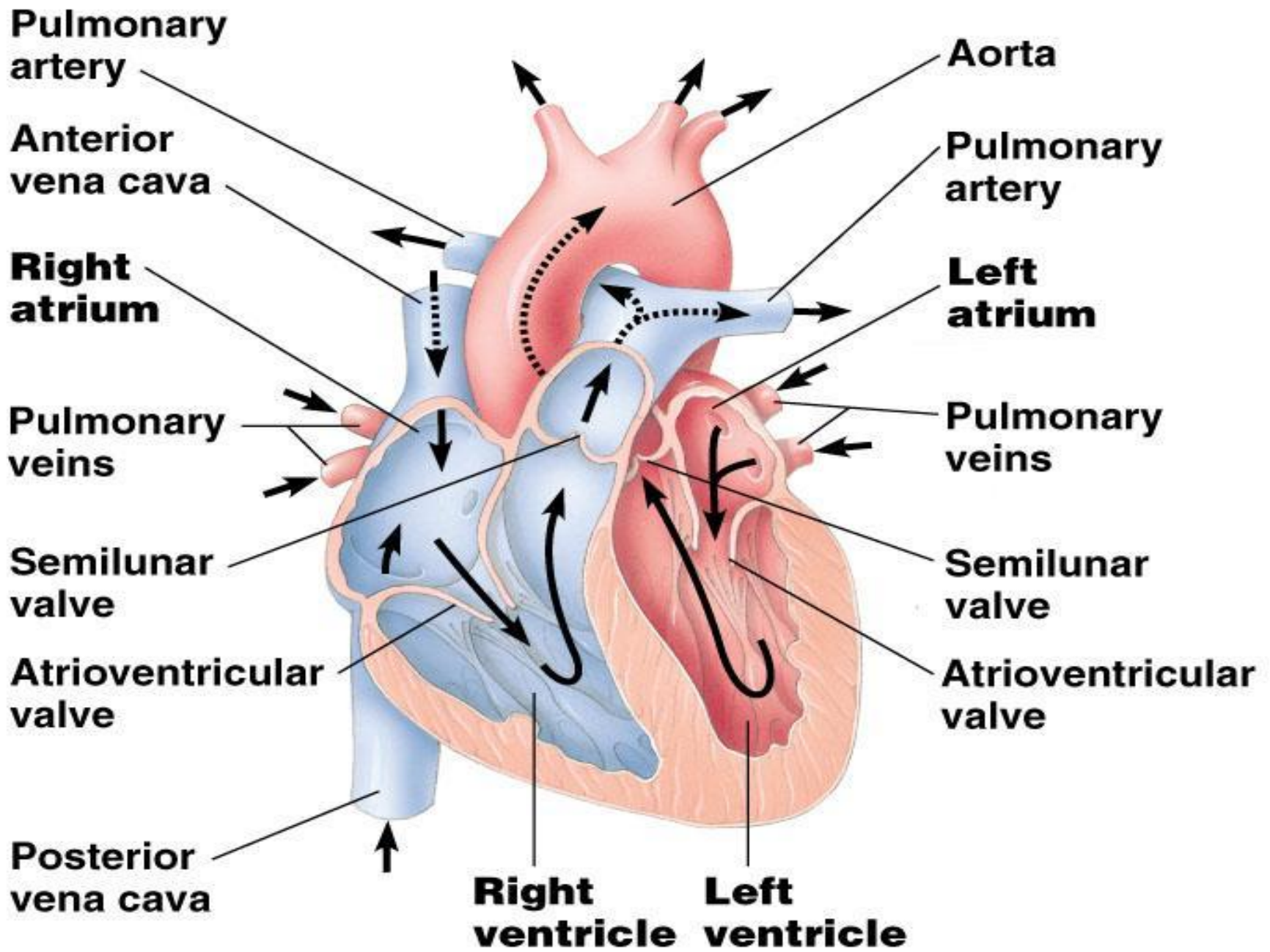
# The Closed Circulatory System

- **All of the body's organs require blood in order to function properly. Blood is composed of a liquid portion known as plasma and several cell components. The cell components are known as red blood cells, white blood cells and platelets. The red blood cells are the cells that carry oxygen to the body's organs**

The circulatory system is an organ system that passes nutrients (such as amino acids, electrolytes and lymph), gases, hormones, blood cells, etc. to and from cells in the body to help fight diseases, stabilize body temperature and p. H, and to maintain homeostasis.

The blood vessels that carry the oxygen-rich blood to the organs are known as arteries. During the process of metabolism the organs develop carbon dioxide. As the oxygen-rich blood passes through the organ, the oxygen in the red blood cells is exchanged for the carbon dioxide.

Blood rich in oxygen is a bright red, whereas blood that has had the oxygen extracted is a dark red to purple color. The blood that has had its oxygen extracted is known as de-saturated blood. The blood vessels that carry the de-saturated blood away from the organ are known as veins.

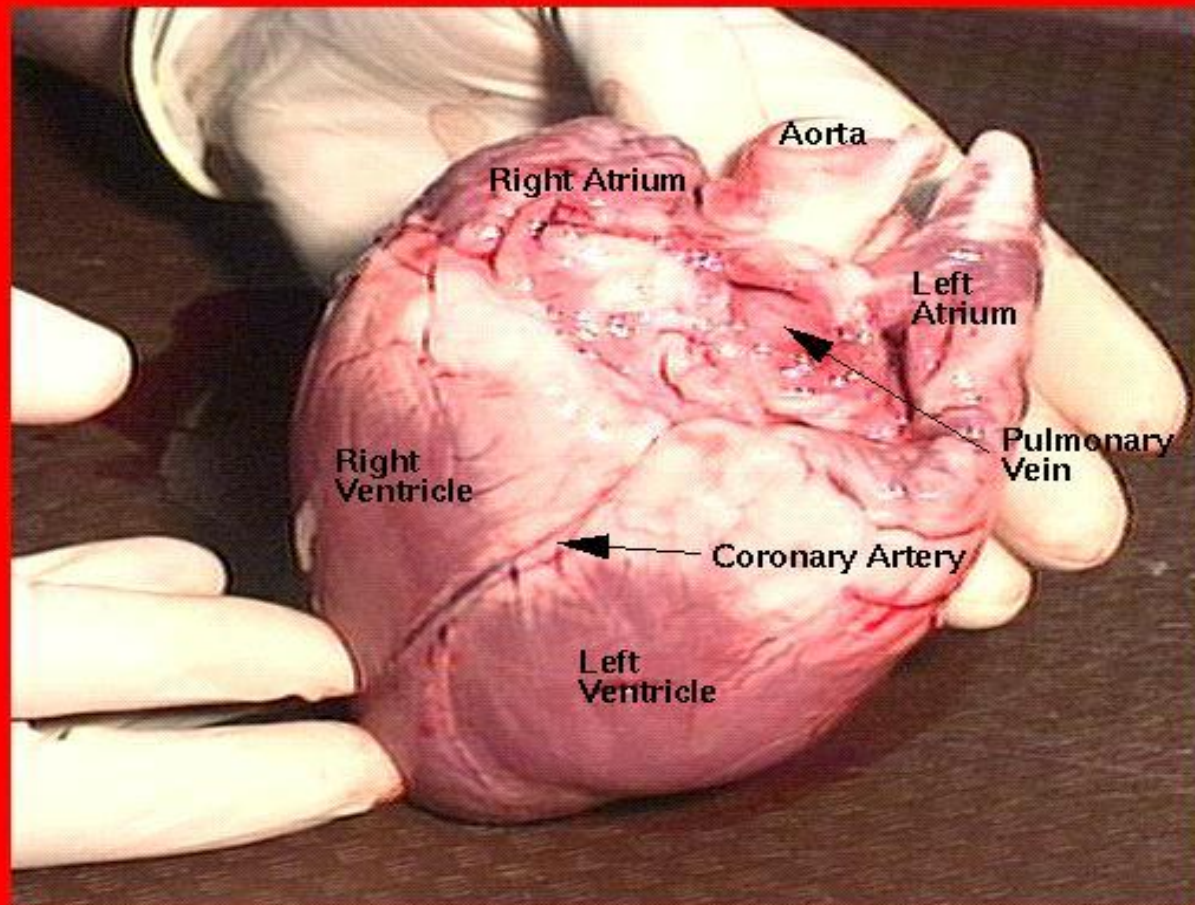


This system may be seen strictly as a blood distribution network, but some consider the circulatory system as composed of the cardiovascular system, which distributes blood, and the lymphatic system, which returns excess filtered blood plasma from the interstitial fluid (between cells) as lymph. While humans, as well as other vertebrates, have a closed cardiovascular system (meaning that the blood never leaves the network of arteries, veins and capillaries), some invertebrate groups have an open cardiovascular system. The most primitive animal phyla[clarify] lack circulatory systems. The lymphatic system, on the other hand, is an open system providing an accessory route for excess interstitial fluid to get returned to the blood.

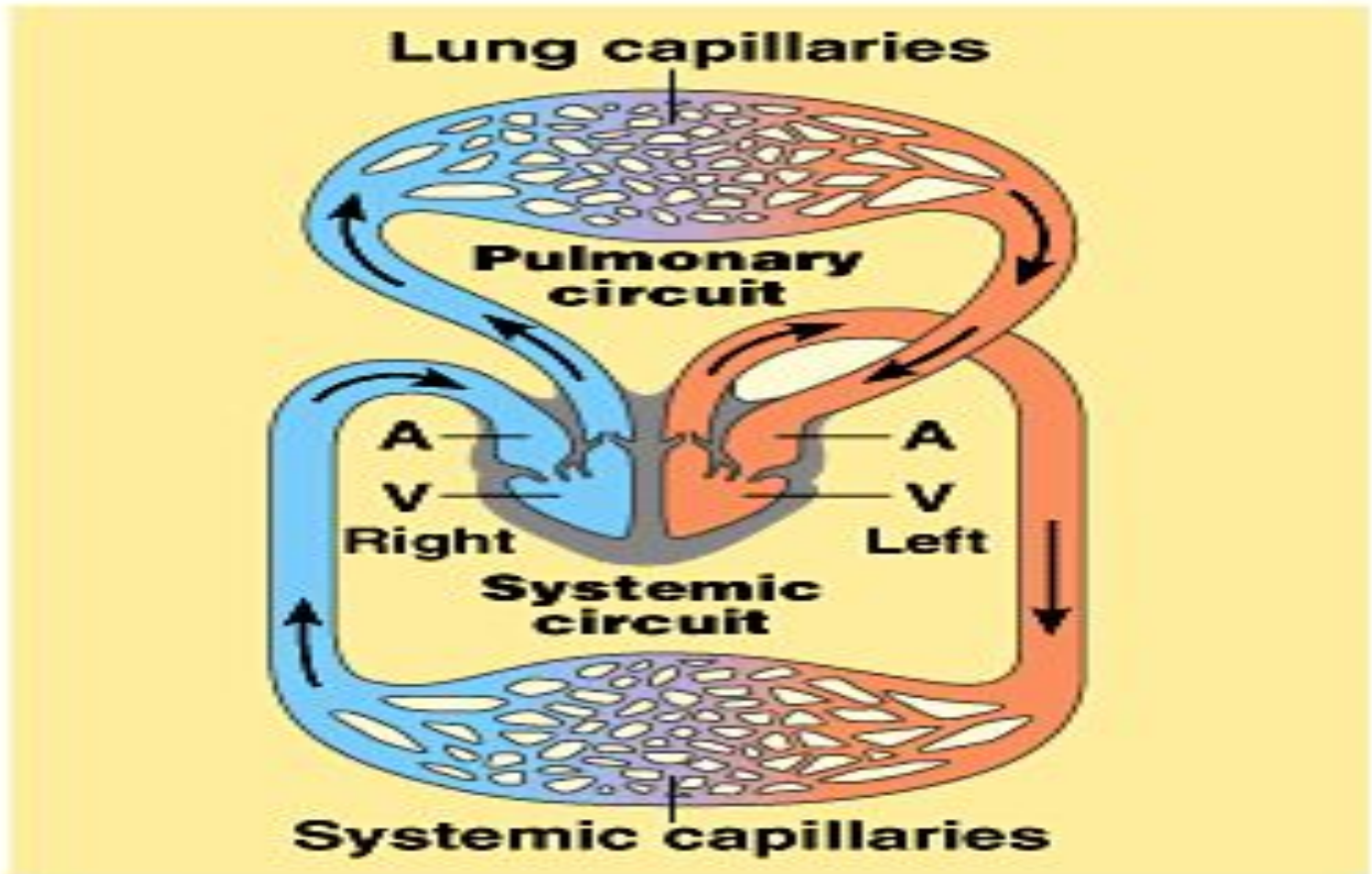
Two types of fluids move through the circulatory system: blood and lymph. Lymph is essentially recycled blood plasma after it has been filtered from the blood cells and returned to the lymphatic system. The blood, heart, and blood vessels form the cardiovascular (from Latin words meaning 'heart'-'vessel') system. The lymph, lymph nodes, and lymph vessels form the lymphatic system. The cardiovascular system and the lymphatic system collectively make up the circulatory system.

The pulmonary circulatory system is the portion of the cardiovascular system in which oxygen-depleted blood is pumped away from the heart, via the pulmonary artery, to the lungs and returned, oxygenated, to the heart via the pulmonary vein.





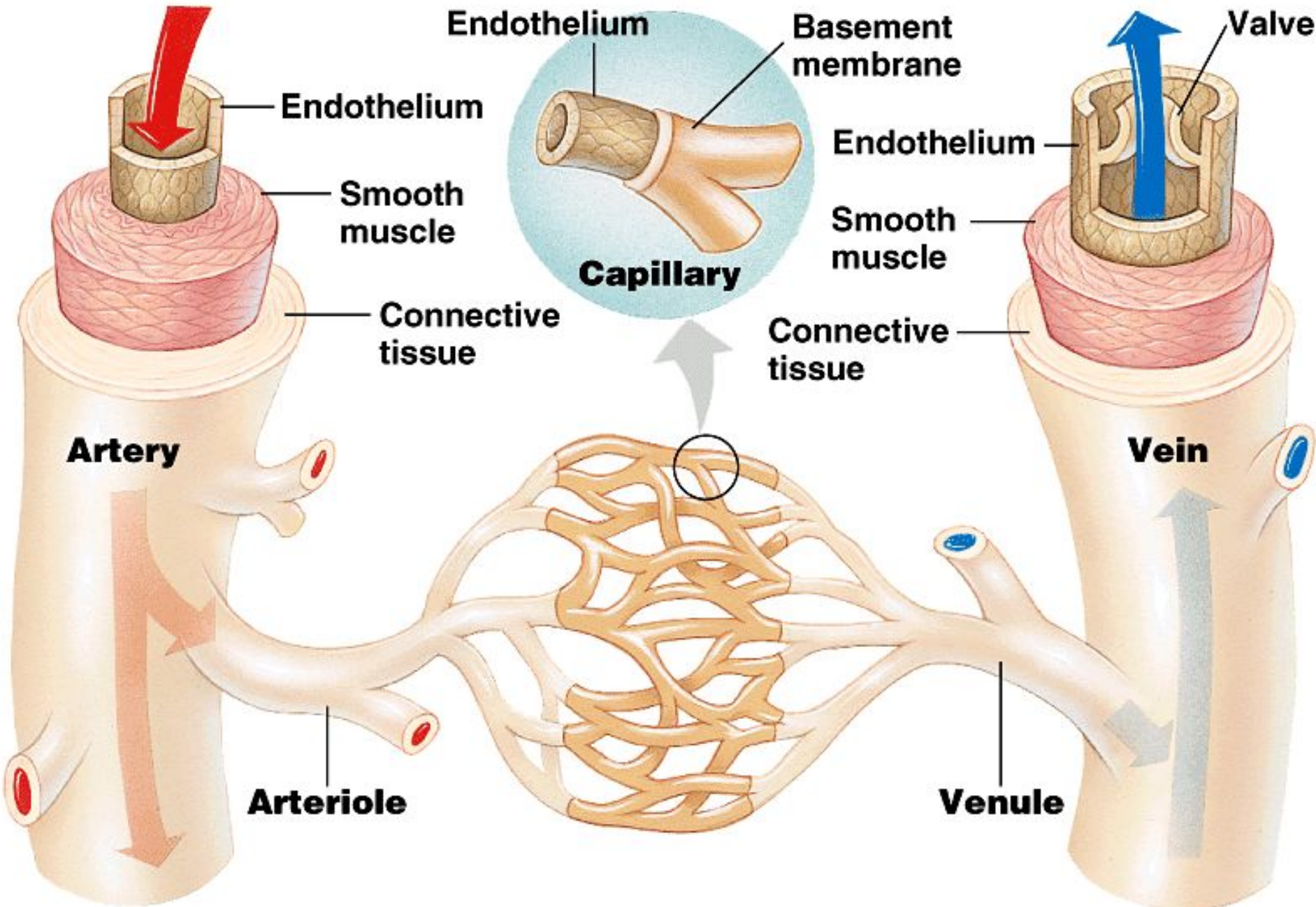
# Circuits



**(c) Mammal**

# Disorders of the Circulatory System

- **Anemia** - lack of iron in the blood, low RBC count
- **Leukemia** - white blood cells proliferate wildly, causing anemia
- **Hemophilia** - bleeder's disease, due to lack of fibrinogen in thrombocytes
- **Heart Murmur** - abnormal heart beat, caused by valve problems
- **Heart attack** - blood vessels around the heart become blocked with plaque, also called *myocardial infarction*



Systemic circulation is the circulation of the blood to all parts of the body except the lungs. Systemic circulation is the portion of the cardiovascular system which transports oxygenated blood away from the heart through the Aorta from the left atrium where the blood has been previously deposited from pulmonary circulation, to the rest of the body, and returns oxygen-depleted blood back to the heart. Systemic circulation is, distance-wise, much longer than pulmonary circulation, transporting blood to every part of the body. ■

# Questions

1. What are the elements is part of the blood?
2. What features are red blood cells?
3. What are the functions of the circulatory system?
4. As known to the circulatory system?
5. What formed during metabolic organs?
6. What color is the blood rich in oxygen?
7. How many types of fluid move through the circulatory system?
8. What is an open system?
9. What are the system appear circulatory system?
10. What part have the cardiovascular system?