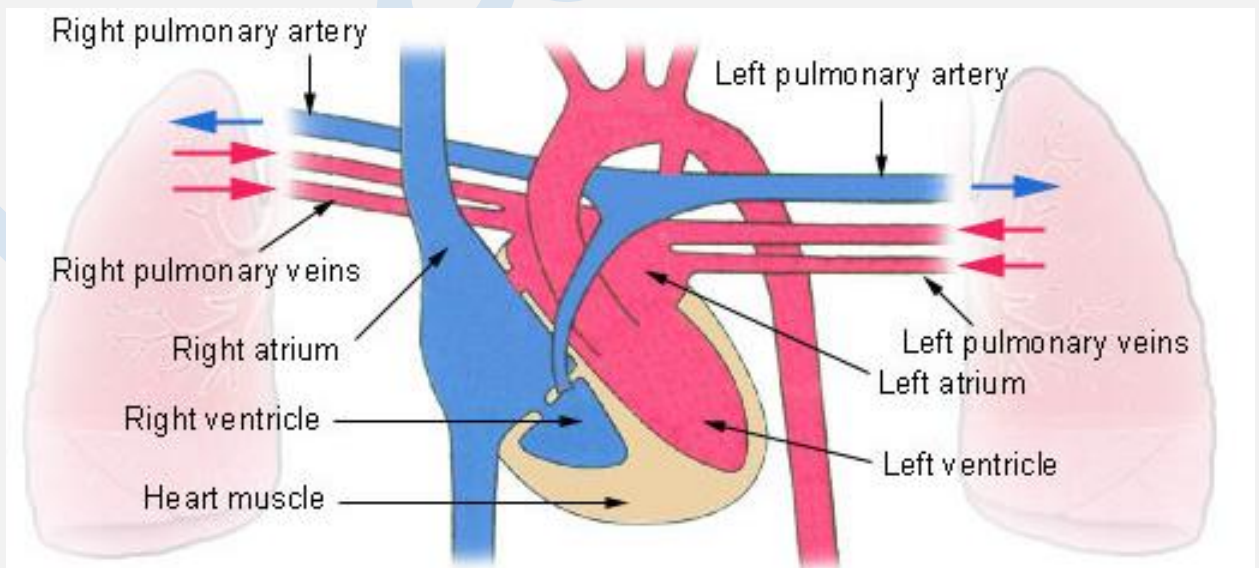


Human circulatory systems

The human circulatory system involves the pulmonary and systemic circulatory systems. The pulmonary circulatory system consists of blood vessels that transport deoxygenated blood from the heart to the lungs and return oxygenated blood from the lungs to the heart. In the systemic circulatory system, blood vessels transport oxygenated blood from the heart to various organs in the body and return deoxygenated blood to the heart.

Pulmonary circulation system

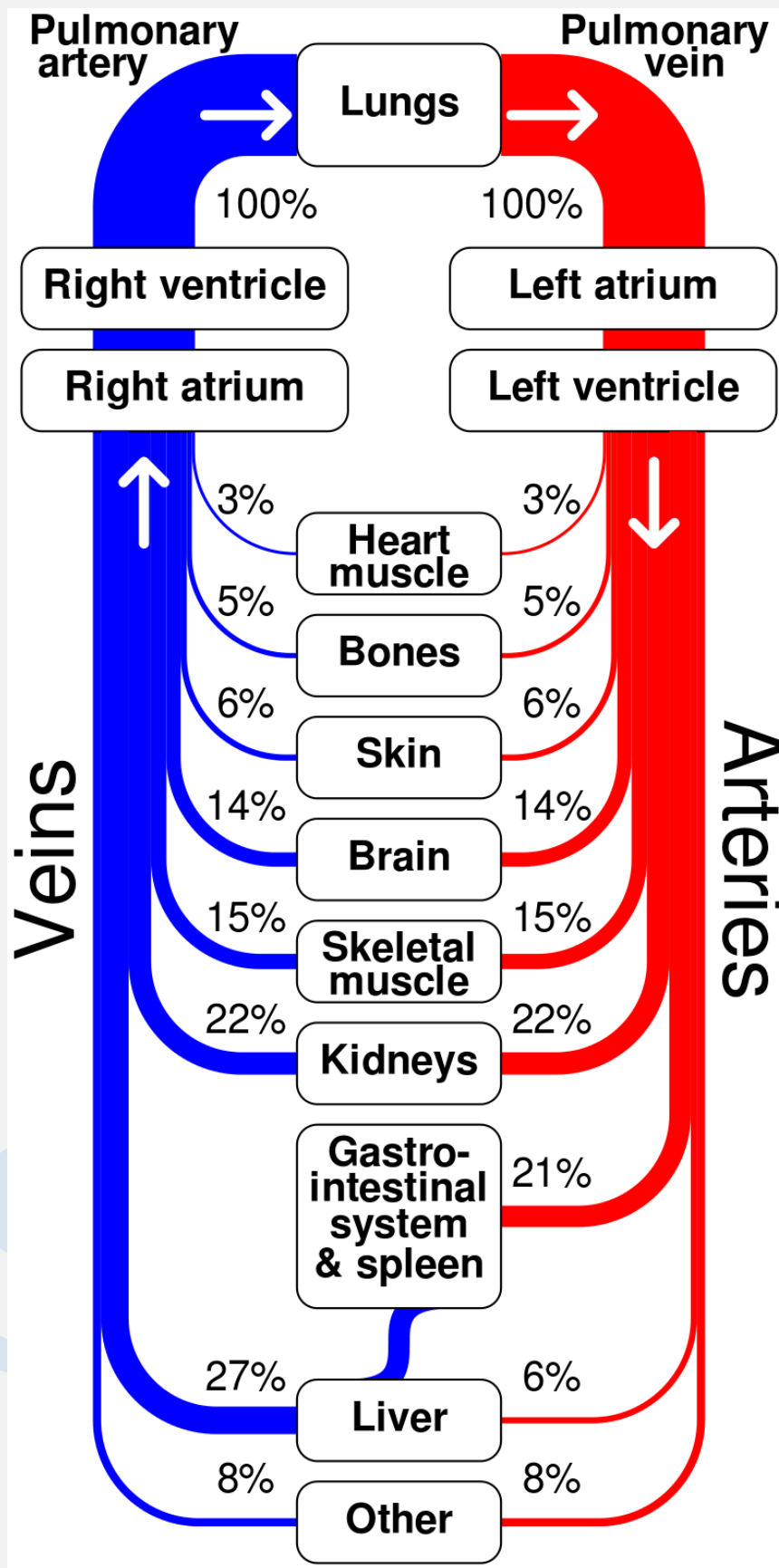
In the pulmonary circulation system, deoxygenated blood leaves the heart through the right ventricle and is transported to the lungs via the pulmonary artery. The pulmonary artery is the only artery that carries deoxygenated blood. It carries blood to the capillaries where carbon dioxide diffuses out of the blood into the alveoli (lung cells) and then into the lungs, where it is exhaled. At the same time, oxygen diffuses into the alveoli, and then enters the blood and is returned to the left atrium of the heart via the pulmonary vein.



Pulmonary circulation system. Oxygen rich blood is shown in red; oxygen-depleted blood is shown in blue.

Systemic circulation

Systemic circulation refers to the part of the circulation system that leaves the heart, carrying oxygenated blood to the body's cells, and returning deoxygenated blood to the heart. Blood leaves through the left ventricle into the aorta, the body's largest artery. The aorta leads to smaller arteries that supply all organs of the body. These arteries finally branch into capillaries. In the capillaries, oxygen diffuses from the blood into the cells, and waste and carbon dioxide diffuse out of cells and into blood. Deoxygenated blood in capillaries then moves into venules that merge into veins, and the blood is transported back to the heart. These veins merge into two major veins, namely the superior vena cava and the inferior vena cava (figure: double circulation). The movement of blood is indicated by arrows on the diagram. The deoxygenated blood enters the right atrium via the the superior vena cava. Major arteries supply blood to the brain, small intestine, liver and kidneys. However, systemic circulation also reaches the other organs, including the muscles and skin. The following diagram shows the circulatory system in humans.



The systemic circulatory system supplies blood to the entire body.