



Quick Review: Blood Circulation

1. Once the **deoxygenated red blood cell (RBC)** returns to the heart, it enters either through the **superior vena cava** or the **inferior vena cava**. The superior vena cava returns deoxygenated blood from the **upper** part of the body to the heart, while the inferior vena cava returns deoxygenated blood from the **lower** part of the body to the heart. These large veins lead into the right atrium.
2. The RBC passes through the tricuspid valve into the right ventricle.
3. The RBC is then pumped through the pulmonary valve into the pulmonary artery and on to the lungs. There the RBC gives off carbon dioxide and picks up oxygen.
4. The RBC returns to the heart through a pulmonary vein, enters the left atrium, passes through the mitral (bicuspid) valve, and flows into the left ventricle.
5. The left ventricle pumps the fully oxygenated RBC through the aortic valve, into the **aorta**, the body's main artery, and out to the body by arteries.
6. From the aorta, the RBC flows into one of the many arteries of the body, through the arterioles, and then to the capillaries, where the RBC will deliver oxygen and nutrients to the cells and remove wastes and carbon dioxide. Next it moves through the venules, veins, and on to the vena cava in a deoxygenated state, and returns to the heart, only to begin its repetitious journey all over again. **This whole process has taken approximately 20 seconds!**

The **arteries** are the blood vessels that transport blood out of the heart under high pressure to the tissues. The **arterioles** are the last part of the arterial system where blood is released into the **capillaries**. The capillaries are very small, thin-walled blood vessels where the exchange of gases, nutrients, and waste takes place between the cells and the blood. Blood flows with almost no resistance in the larger blood vessels, but in the arterioles and capillaries, considerable resistance to flow does occur because these vessels are so small in diameter that the blood must squeeze all its contents through them. The **venules** collect blood from the capillaries and gradually feed into progressively larger veins. The **veins** transport the blood from the tissues back to the heart. The walls of the veins are thin and very elastic and can fold or expand to act as a reservoir for extra blood, if required by the needs of the body.

That single RBC will travel about 950 miles (more than 1500 kilometers) in its brief 4-month lifetime!