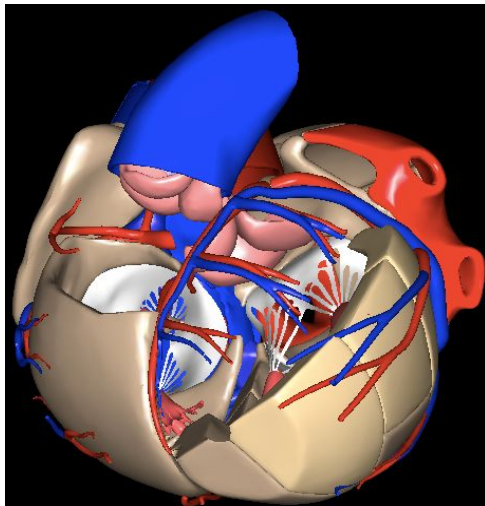
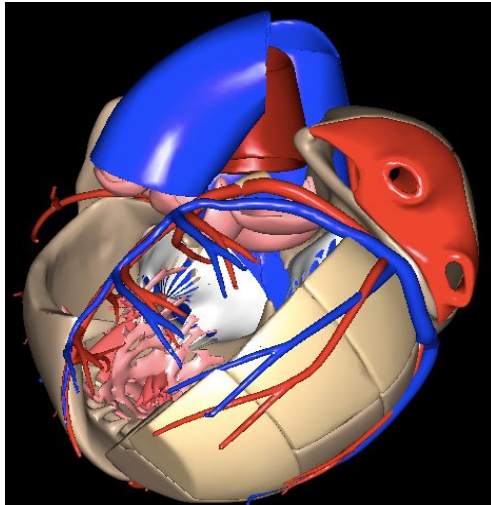


THE CARDIOVASCULAR SYSTEM



RED: arteries
BLUE: veins
DARK PINK: papillary muscles
WHITE: atrioventricular valves
TAN: walls of the atria and ventricles
LIGHT PINK: semilunar valves

STRUCTURE

Arteries are muscular tubes that are lined by smooth tissue. They are blood vessels that deliver oxygen-rich blood from the heart to the tissues. The largest artery is the aorta. Veins carry deoxygenated blood from the organs to the heart. The papillary muscles are located in the ventricles of the heart. They are attached to the cusps of the AV valves, and they contract to prevent inversion or prolapse of these valves. AV valves are the tricuspid valve and the bicuspid valve/mitral valve. They are the valves between the atria and the ventricles, and are composed of endocardium and connective tissue. The semilunar valves are flaps of endocardium and connective tissue and are shaped like half moons. The aortic valve is located between the aorta and left ventricle. The pulmonary valve is located between the pulmonary artery and the right ventricle. The walls of the atria and the ventricles differ. The ventricle walls are thicker than the atrium walls. This is due to the blood being pumped out of the heart at a greater pressure from the ventricles compared to the atria.

BLOOD FLOW

Oxygen-poor blood enters the right atrium of the heart through the inferior and superior vena cava. From the right atrium, blood flows into the right ventricle through the tricuspid valve. Blood leaves the heart on the right side through the pulmonic valve into the pulmonic artery and to the lungs. Oxygen-rich blood from the lungs is emptied into the left atrium of the heart. From the left atrium, blood flows into the left ventricle through the mitral valve. Blood leaves the heart on the left side through the aortic valve into the aorta and then into the body.

PURPOSE

The cardiovascular system is vital to the human body for many reasons. It is unique in that it both carries materials to the heart, but also from the heart, and throughout the body. The cardiovascular system includes the heart (pictured in the images on the left), blood (of which its flow is explained above), and vessels, which are explored in the images to the left and in the "structure" section above. These three sectors work together to carry vital materials and unneeded waste to the correct locations.