Arteries: blood vessels responsible for carrying blood away from the heart toward various tissues and organs. Besides the pulmonary arteries, arteries carry oxygenated blood. Their thick muscular walls allow them to withstand the high pressure of heart contractions. An artery narrows when the heart relaxes, pushing the blood onward. This is able to occur because of the elasticity of arteries; the walls of large arteries have a protein called elastin. Pressure from blood is converted to elastic energy as arteries branch off and get smaller, arterioles are formed. Small arteries and arterioles are muscular to allow vasoconstriction. Most arteries have a diameter of \( \frac{1}{6} - \frac{1}{4} \) inch and \( \frac{1}{25} \) inch thick walls. Arteries are typically located deep within the body. Unlike veins, arteries have no valves.

**Arteries of the Heart**

The Aorta: largest artery in the body with a diameter of 1 inch. It forces blood from the heart at 16 inches per second. Blood from the left ventricle is pumped through the aortic semilunar valve, into the aortic arch, and into subsequent arteries.

The Pulmonary Arteries: carry blood toward lungs to be oxygenated. Blood from the right ventricle is pumped past the pulmonary semilunar valve and into the pulmonary trunk, which bifurcates into the left and right pulmonary arteries. These are the only arteries that carry deoxygenated blood.

**Anatomy of Arteries**

1. Tunica intima: lines lumen (interior of vessels) - consists of squamous epithelial cells - cells fit closely together and form a slick surface.
2. Tunica media: bulky middle coat - mostly smooth muscle (involuntary/unstriated)
3. Tunica externa: outermost tunic - composed of fibrous connective tissue - supports and protects vessels.