18.2A: Artery Function

Arteries are high-pressure blood vessels that carry oxygenated blood away from the heart to all other tissues and organs.

**Learning Objectives**

- Distinguish the function of the arterial system from that of venous system

**Key Points**

- Arteries are blood vessels that carry blood away from the heart. This blood is normally oxygenated, with the exception of blood in the pulmonary artery.
- Arteries typically have a thicker tunica media than veins, containing more smooth muscle cells and elastic tissue. This allows for modulation of vessel caliber and thus control of blood pressure.
- The arterial system is the higher-pressure portion of the circulatory system, with pressure varying between the peak pressure during heart contraction (systolic pressure) and the minimum (diastolic) pressure between contractions when the heart expands and refills.
- The increase in arterial pressure during systole, or ventricular contraction, results in the pulse pressure, an indicator of cardiac function.

**Key Terms**

- **systolic pressure**: The peak arterial pressure during heart contraction.
- **diastolic pressure**: The minimum arterial pressure between contractions, when the heart expands and refills.
Arteries are blood vessels that carry blood away from the heart under pressure. This blood is usually oxygenated, with the exception of that in the pulmonary artery, which carries deoxygenated blood to the lungs.

As with veins, arteries are comprised of three layers: the tunicae intima, media, and externa. In arteries, the tunica media, which contains smooth muscle cells and elastic tissue, is thicker than that of veins so it can modulate vessel caliber and thus control and maintain blood pressure.

Arterial pressure varies between the peak pressure during heart contraction, called the systolic pressure, and the minimum or diastolic pressure between contractions, when the heart expands and refills. This pressure variation within the artery produces the observable pulse that reflects heart activity. The pressure in the arterial system decreases steadily, highest in the aorta and lowest in the venous system, as blood approaches the heart after delivery of oxygen to tissues in the systemic circulation.

Arteries of the systemic circulation can be subdivided into muscular or elastic types according to the relative compositions of elastic and muscle tissue in their tunica media. Larger arteries are typically elastic and smaller arteries...
are more likely to be muscular. These arteries deliver blood to the arterioles, which in turn deliver blood to the capillary networks associated with the body’s tissues.