Arteries Encyclopedia Article

Arteries

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Arteries

Arteries are elastic tubes which carry oxygen-rich (oxygenated) blood from the heart to all the other organs and tissues of the body. The body's largest artery is called the aorta. The aorta picks up blood from the heart which has already traveled through the lungs to become oxygenated. The aorta branches into many major arteries, which themselves branch into arterioles and then capillaries. The only artery in the body which carries unoxygenated blood is the pulmonary artery. This artery carries blood from the heart to the lungs to receive oxygen and to unload the waste product, carbon dioxide. All other arteries of the body carry blood which has already been to the lungs, to receive oxygen.

Arteries have a type of muscular layer within their walls which allows them to tighten up and grow smaller (constrict), or relax and grow larger (dilate). This allows the body to direct blood to tissues which have a greater need for oxygen at a particular time. This muscular layer also accounts for the fact that arteries play a major role in maintaining the blood pressure.

Complex interactions between the nervous system and chemicals produced in various organs throughout the body can affect blood pressure by causing the arteries to constrict or dilate. Constricted arteries result in a higher blood pressure; dilated arteries result in a lower blood pressure (think of a garden hose which spurts more strongly when slightly pinched, and flows more slowly when totally open).

Diseases of the arteries include high blood pressure, arteriosclerosis (in which plaques of fatty material clog the arteries), arterial thrombosis (in which blood clots block off normal blood flow through an artery), and arteritis (in which swelling and inflammation of the artery wall decreases blood flow). All of these diseases cause tissue damage by decreasing the appropriate amount of blood flow through a diseased artery. This results in too little oxygen being delivered to the tissues usually served by that artery.