

CARDIOVASCULAR AND LYMPHATIC SYSTEMS

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Reading: Gartner and Hiatt Chapter 8, p147; Klein and McKenzie p155-179

Objectives: -After this lecture and lab you should be able to distinguish and know

- the layers and cell types of the heart and vasculature
- The differences between large arteries and large veins
- The differences between arterioles and small veins
- Know the different types of capillaries
- Know the origination, termination and architecture of lymphatics

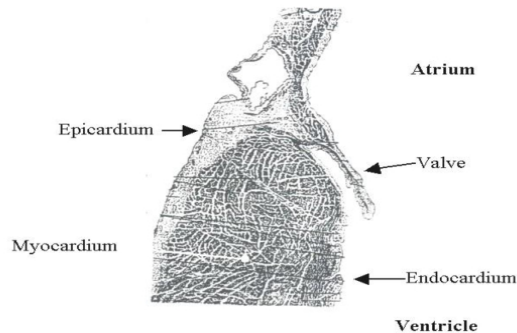
Key Words: Tunica Intima, media, adventitia; elastic artery, muscular artery, arteriole, capillary, metarteriole, venule, muscular vein; valve; smooth muscle, lymphatics

Cardiovascular system is comprised of **3 layers** throughout.

The heart has **3 layers** - **endocardium** (inside - a thin layer of endothelium), **myocardium** (middle - a thick layer of striated muscle), and **epicardium** (outer - a thin layer of flat, squamous endothelium), attached to each other by connective tissue.

The vessels (veins, arteries and capillaries) have 3 layers:- a tunica intima (inner, akin to the endocardium: tunica [L] means coat), **a tunica media** (middle, akin to the myocardium) and **tunica adventitia** (outer, akin to the epicardium).

The heart: A pump for blood; Bulk of the tissue is striated, involuntary cardiac muscle, which pumps rhythmically (hopefully); can undergo hypertrophy (thickening), atrophy (thinning), necrosis (damage-induced cell death) and apoptosis (programmed cell death). In the lab you will have a section of heart that will look something like this:-



There are 4 valves in the heart, tricuspid (right AV), mitral (left AV), and semilunar (pulmonary artery and aorta) - folds of endocardium covered by endothelium; Tricuspid and mitral valves thicker than semilunar; all contain smooth muscle, lymphatics, blood vessels and a central connective tissue core.