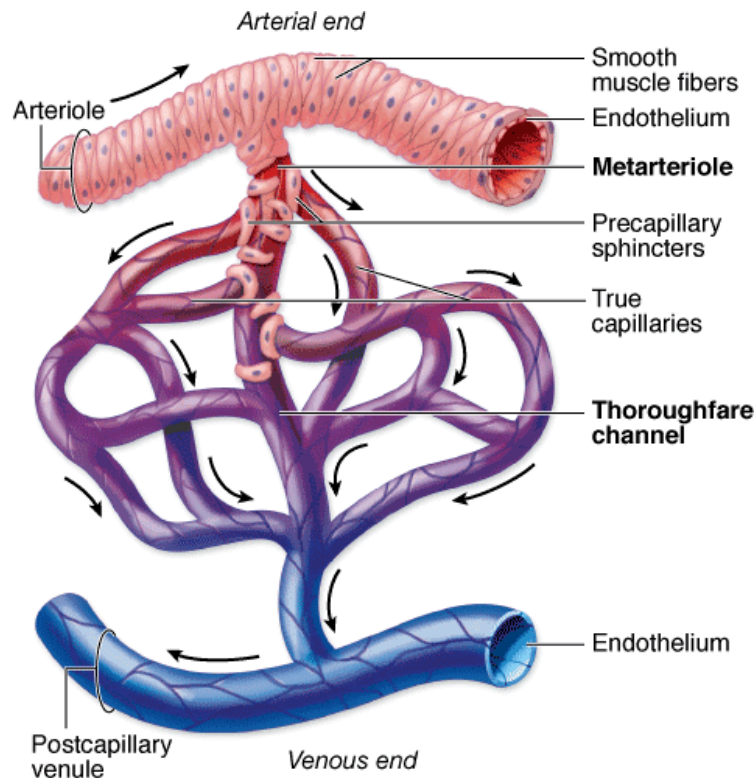


- **Right and left ventricles** pump blood into the lungs or rest of the body respectively
- Atria are separated from the ventricles by **atrio-ventricular valves**
- Histology of the heart
 - **Endocardium**: single layer of **squamous epithelial cells** on a thin layer of **loose connective tissue** (elastic, collagen and smooth muscle)
 - **Subendocardial layer: connective tissue** layer (contains veins, nerves and branches of impulse conducting system) that connects endocardium to myocardium
 - **Myocardium**: thickest tunic, contains layers of **cardiac muscle cells**; thicker in the ventricles vs. the atria (thickest on left ventricle)
 - **Epicardium: External covering** of the heart, thin layer of **connective tissue** covered by **simple squamous epithelium** (mesothelium)
 - **Subepicardial layer: loose connective tissue** (contains veins, nerves, adipocytes)
 - **Pericardium: serous membrane** in which the heart lies; the endocardium is the **visceral layer**, and outer layer is the **parietal layer**
 - In between is the **pericardial cavity**, containing lubricant fluid facilitating the heart's movements
 - **Valves** made of **dense fibrous connective tissue** (collagen and elastic) lined by **endothelium**
 - Base of valves attached to **strong fibrous rings** that form part of the **fibrous skeleton**
- The heart tissue has specialised system to generate rhythmical stimulus for contraction, that spreads to the entire myocardium
- Consists of two nodes in the right atrium
 - Sino-atrial (SA) node
 - Small mass of modified myocardium; fusiform, smaller and fewer myofibrils
 - Atrio-ventricular (AV) node
 - Cells similar to SA but have branching cytoplasmic projections
- Atrioventricular bundle conducts the action potential along the AV septum and into right and left bundle branches to the Purkinje fibres



Taken from Junqueira's Basic Histology: text and Atlas, Twelfth Edition

Lymphatic vascular system

- In addition to blood vasculature the body has a system which gathers interstitial fluid and is a major distributor of lymphocytes, antibodies and other immune components
- This system is made up of lymph and lymph vessels
- **Lymph**
 - Excess interstitial fluid collected from tissue spaces and returned to the blood
 - Does not contain red blood cells (although lymphocytes may be present) and is rich in proteins
- **Lymphatic vessels** (lymphatics)
 - Lymph fluid is carried in the lymph vessels
 - Lymph capillaries are closed ended vessels consisting of a single layer of very thin endothelial cells on an incomplete basal lamina
 - The opening between cells allow for drainage of interstitial fluid, and the folds in the cells prevent backflow
 - These openings are held open by anchoring filaments that bind the vessels to the surrounding connective tissue