

Circulatory System

Part 2 Notes: Vessels, Heart,

Outcomes

B11-3-06: Compare the structure and function of blood vessels. (GLOs: D1, E1) Examples: diameter, elasticity, muscle layers, valves, what they transport...

B11-3-07: Identify the materials transported between cells and capillaries. (GLO: D1) Include: carbon dioxide, oxygen, hormones, nutrients, and nitrogenous wastes

Blood Vessels - Arteries

Structure

- Thick muscle layer for expansion and contraction
- Endothelial cells allow movement of substances into and out of blood vessel

→ skin cell

Function

- Carry blood away from heart
- Carry oxygenated blood *
- Small arteries are called arterioles

*exception:
pulmonary
artery

Blood Vessels - Veins

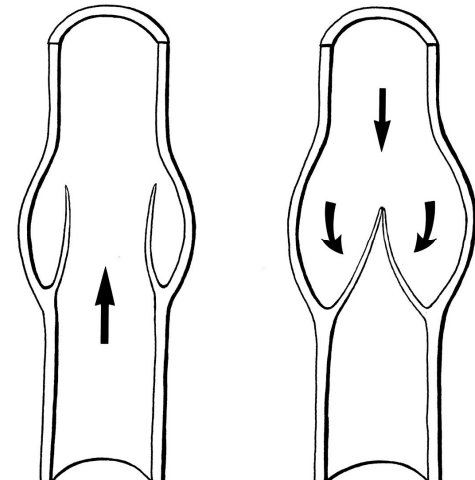
Structure

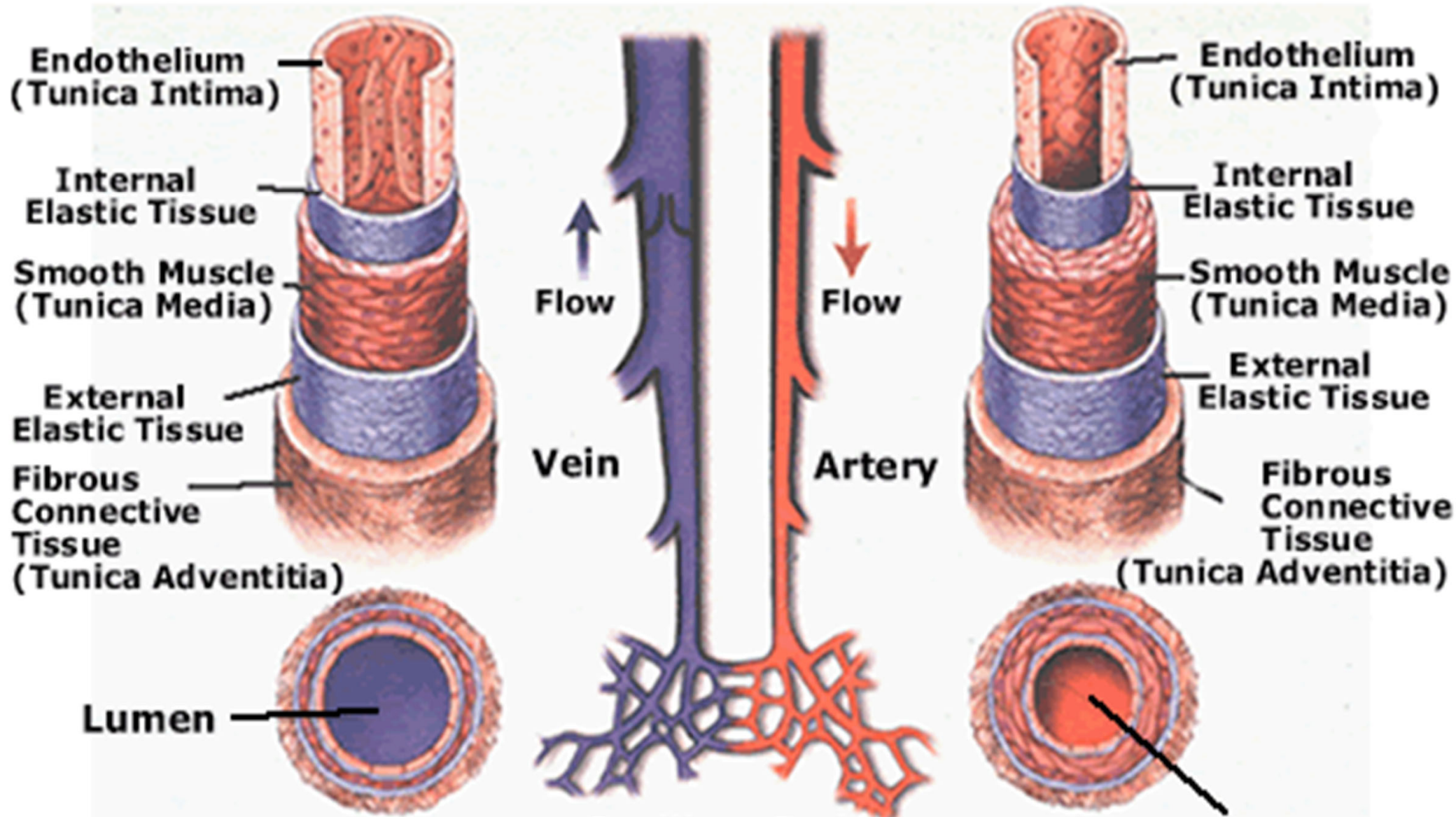
- Thick layer of fibrous connective tissue that helps to hold veins open
- Endothelial cells allow movement of substances into and out of blood vessel
- Valves keep blood flowing in one direction

Function

- Carry blood towards heart
- Carry deoxygenated blood*
- Small veins are called venules

*pulmonary vein
is exception*





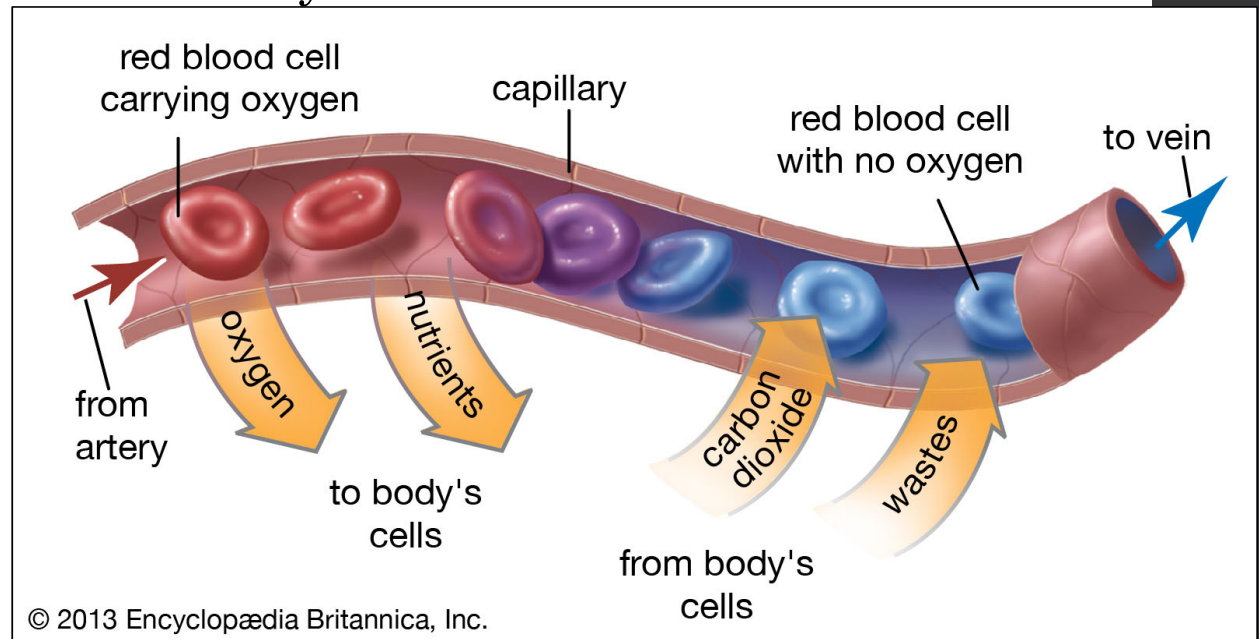
Blood Vessels - Capillaries

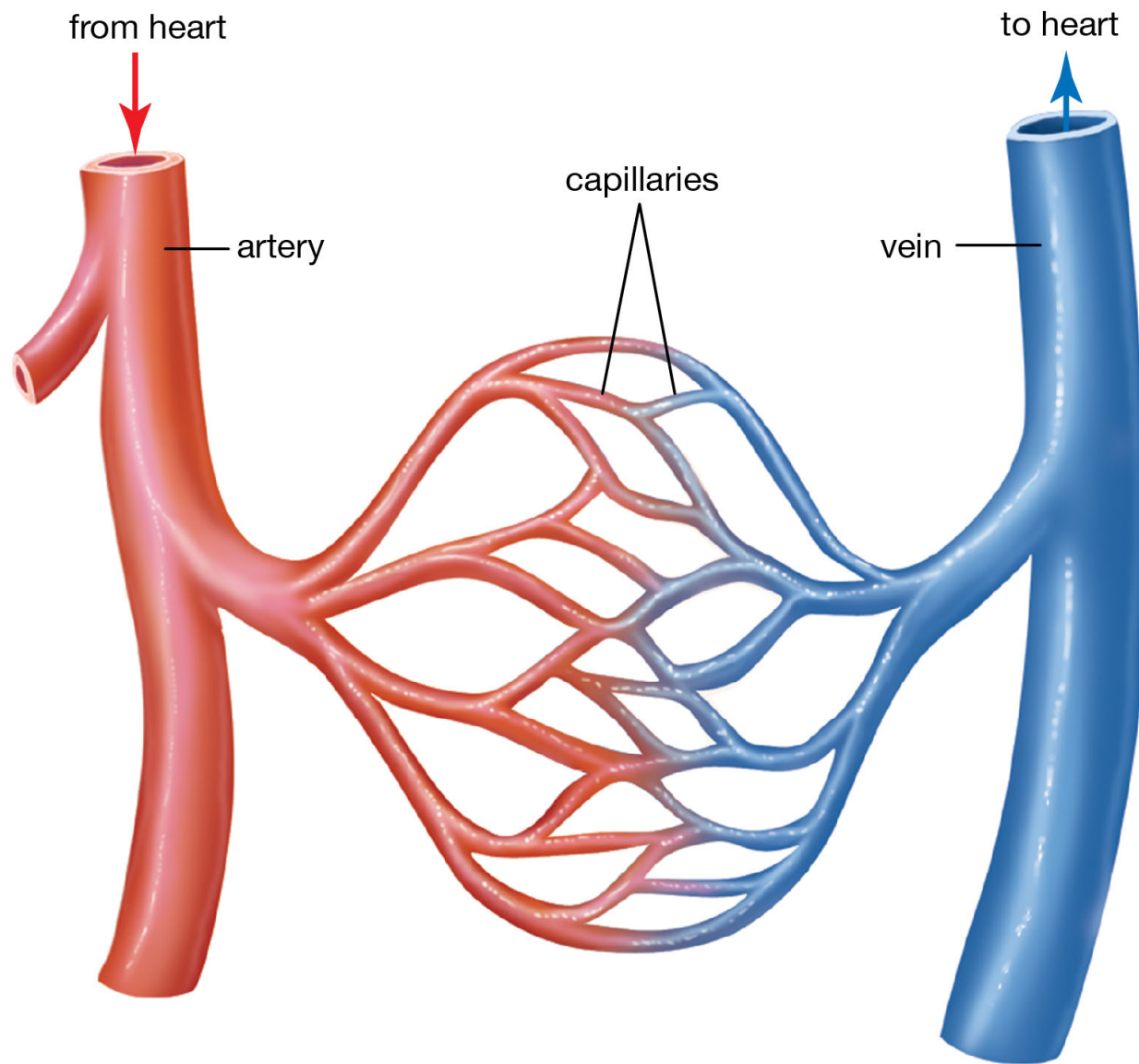
Structure

- Inner lining made up of **endothelial** cells.
- So thin RBCs move through single file

Function

- Bring nutrients and oxygen to body tissues.





venules

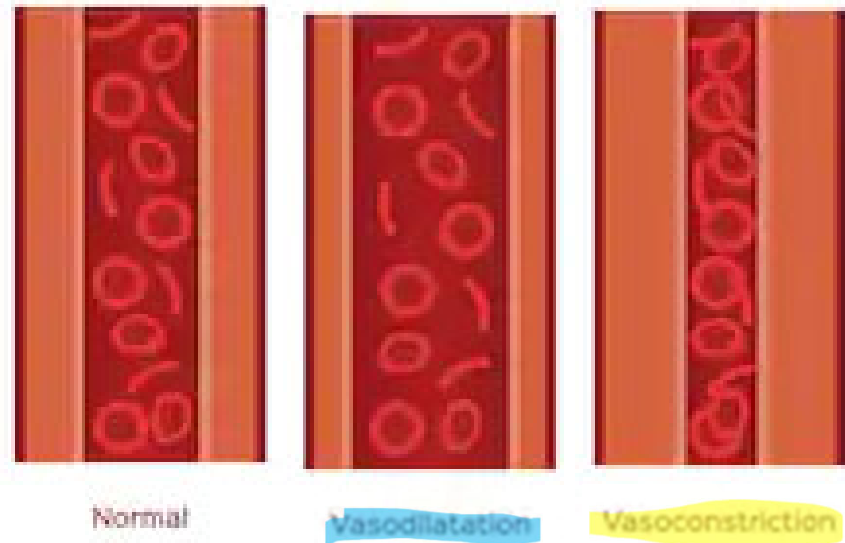
Blood Flow Control

- Vasoconstriction

- Decreased blood flow to tissues
- Contraction of smooth muscle in blood vessels

- Vasodilation

- Increased blood flow to tissues
- Relaxation of smooth muscles



Outcomes

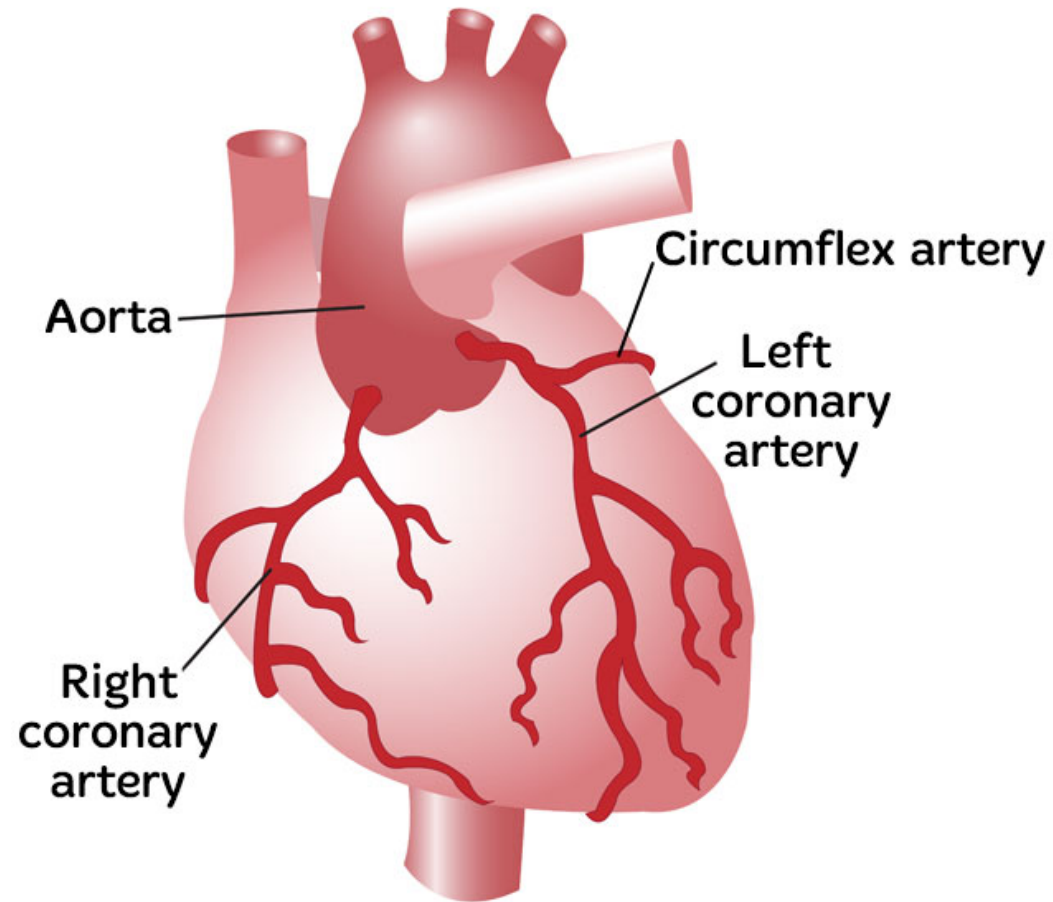
B11-3-08: Describe the cardiac cycle. (GLO: D1) Include: systole and diastole

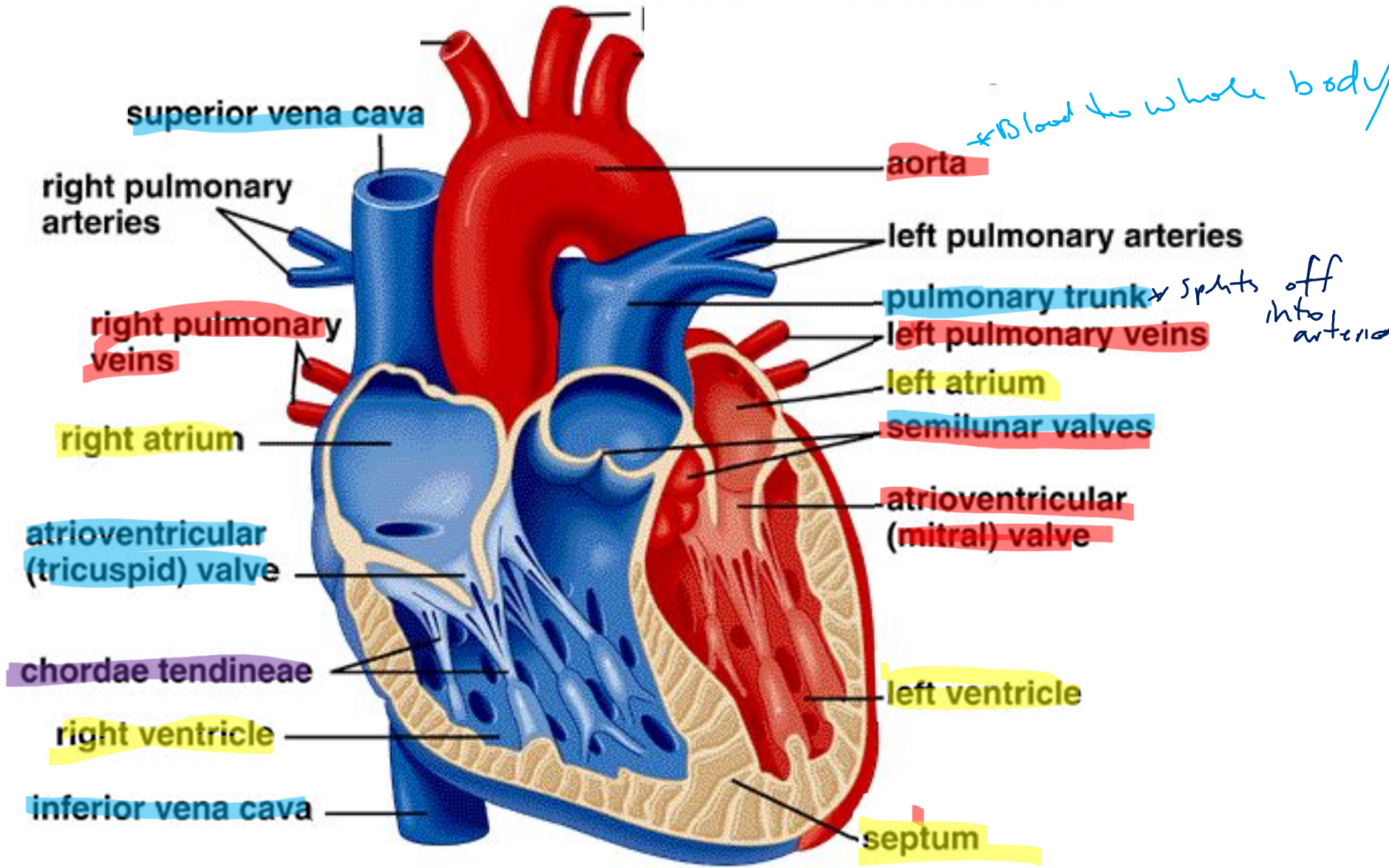
B11-3-09: Describe, in general terms, the nervous and chemical control of heartbeat. (GLOs: D1, E2)

B11-3-10: Explain the meaning of blood pressure readings and identify the normal range. (GLOs: B3, D1) Include: given as a ratio of systolic over diastolic

The Heart

- Muscular organ
- Surrounded by **pericardium** (cardiac sac)
- Divided into four chambers
- **Valves** prevent backward flow of blood

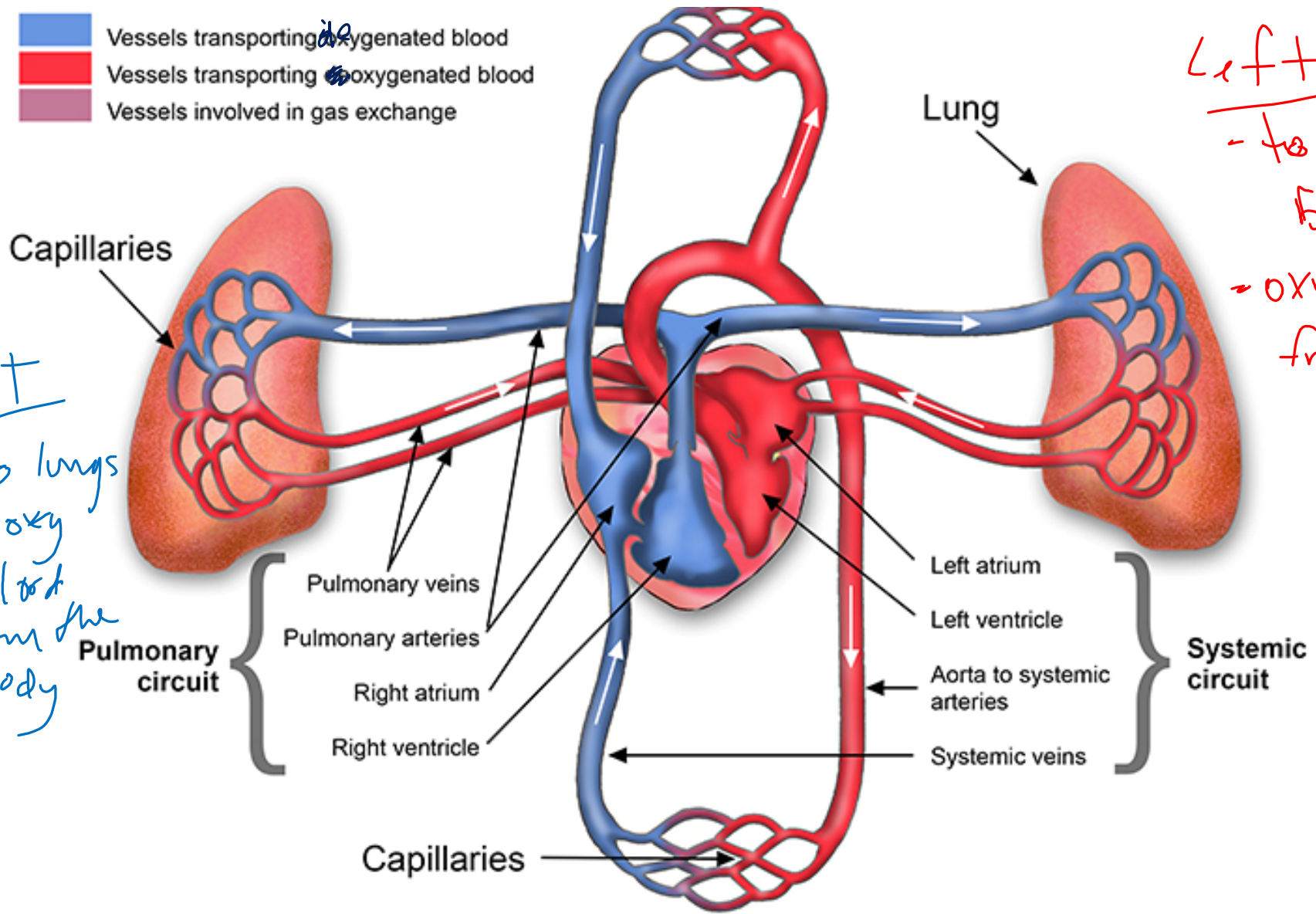




-  Vessels transporting ^{de}oxygenated blood
-  Vessels transporting ~~de~~oxygenated blood
-  Vessels involved in gas exchange

Right
 - to lungs
 - deoxy
 blood
 from the
 body

Left
 - to the
 body
 - oxy blood
 from the
 lungs



Pulmonary circuit

Systemic circuit

- Pulmonary veins
- Pulmonary arteries
- Right atrium
- Right ventricle
- Left atrium
- Left ventricle
- Aorta to systemic arteries
- Systemic veins