

Lab 7 Study Aid – Cardiovascular System + Respiratory System

1. Cardiovascular

1. Be able to differentiate Right / Left sides of heart
 - a. Apex is on LEFT | Pulmonary trunk comes from RIGHT ventricle [also the pulmonary trunk lies ANTERIOR to the aorta]
 - b. Cross section of heart: LEFT ventricle must be stronger so has THICKER myocardial wall
2. Be able to trace a red blood cell through the pulmonary and systemic circuits.
3. **Artery** = carry blood **Away** from heart, veins carry blood to the heart
4. Arteries and veins do not necessarily correlate to oxygenated/deoxygenated (Ex: pulmonary artery = deoxygenated blood)
 - c. NOTE: Manual and models are not consistent in their coloring
 - ii. Manual figures: generally red = artery, blue = vein
 - iii. Lab Models: generally red = oxygenated, blue = deoxygenated
1. Myocardium = muscle layer of heart (both start with M)
2. Endocardium = “in”nermost layer (thin membrane lining chambers of heart)
3. VALVES:
 - a. **Atrioventricular valves** allow blood to flow from atria to ventricles
 - b. **Semilunar valves** allow blood to flow from ventricles to aorta or pulmonary trunk
 - c. Right AV valve = tricuspid, left AV valve = bicuspid (more people are right-handed than left-handed, so the right valve has more cusps than the left)
 - d. LAB RAT (**L**eft **A**trium = **B**icuspid, **R**ight **A**trium = **T**ricuspid)
 - e. You **T**ry before you **B**uy → blood reaches tricuspid before later passing through bicuspid valve
 - f. Know state of valves when ventricles are resting vs. contracting:
 - iv. Resting state: AV valves open, semilunar valves closed
 - v. Contracting state: AV valves closed, semilunar valves open
 - g. Blood can only move in one direction
 - h. Blood moves because of pressure differences
1. Left Ventricle = larger than right ventricle
 - i. Also, Note that the **myocardium of the left ventricle is thicker than the right ventricle**
 - j. Needs more pressure to push blood through whole body (through Aorta) – so associate the aorta (large) with left ventricle (also large)
 - k. Right ventricle only has to push blood through lungs (much smaller circuit)
2. Names of arteries give hints as to where they go (brachiocephalic artery – head and arm; subclavian artery – under clavicle)

2. Respiratory

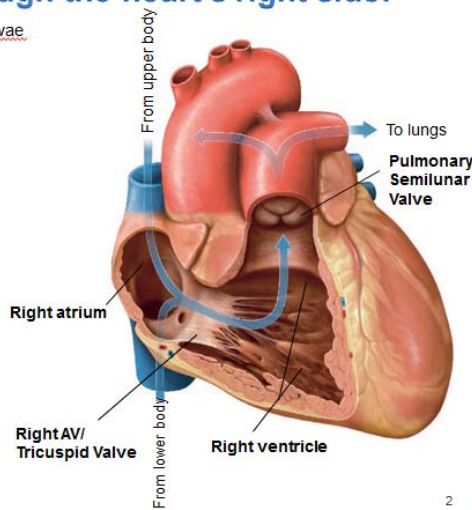
1. **Objectives for this system:**
 - b. Understand the structures involved in the passage of air from the external nares to the lungs
 - c. Identify and distinguish between primary, secondary, and tertiary bronchi
 - d. Know the structure of the larynx and how sound is produced
 - e. Understand the arrangement of pleural membranes and the pleural cavities
1. Think of the respiratory system like a tree. Remember that the “trunk” of the tree is the trachea (NOT the primary bronchus)
2. Right lung has 3 lobes, left lung has 2 lobes (same reasoning as CV mnemonic #6)
3. Visceral pleura vs. parietal pleura: viscera = organ. This lines the lung. Parietal pleura is more superficial than visceral pleura.
4. 3 cartilages:
 - a. Thyroid cartilage – aka Adam’s apple: Anterior portion of larynx only
 - b. **C**ricoid cartilage – **C**ompletely surrounds larynx (both start with C)
 - c. Arytenoid cartilages – position vocal folds

Pics/Vids:

1. Youtube video of vocal cords: <http://www.youtube.com/watch?NR=1&v=-XGds2GAvGQ&feature=endscreen>
 - a. Can you identify the: vocal cords, glottis, epiglottis, trachea while the video plays?
 - b. (Also, just kind of cool to see how they work!)
2. Cardiac Cycle and blood flow through heart:
 - a. https://www.youtube.com/watch?v=Rj_qDOSEGGk
 - b. <https://www.youtube.com/watch?v=yGIFBzaTuol>
 - c. https://www.youtube.com/watch?v=FCimR_P9ID0
3. See below:

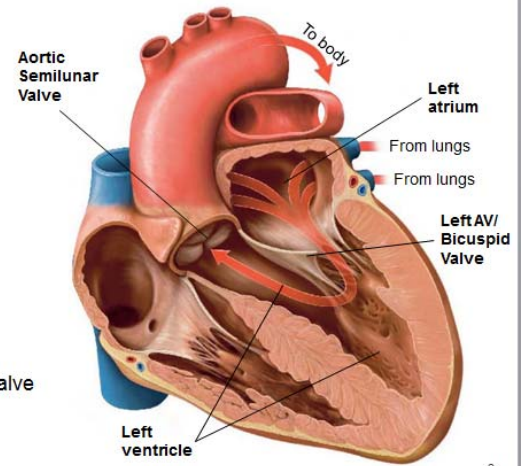
Circulation through the heart's right side:

- Superior and Inferior Vena Cavae
- ↓
- Right Atrium
- ↓
- Tricuspid valve
- ↓
- Right Ventricle
- ↓
- Pulmonary Semilunar Valve
- ↓
- Pulmonary Trunk
- ↓
- Pulmonary Arteries

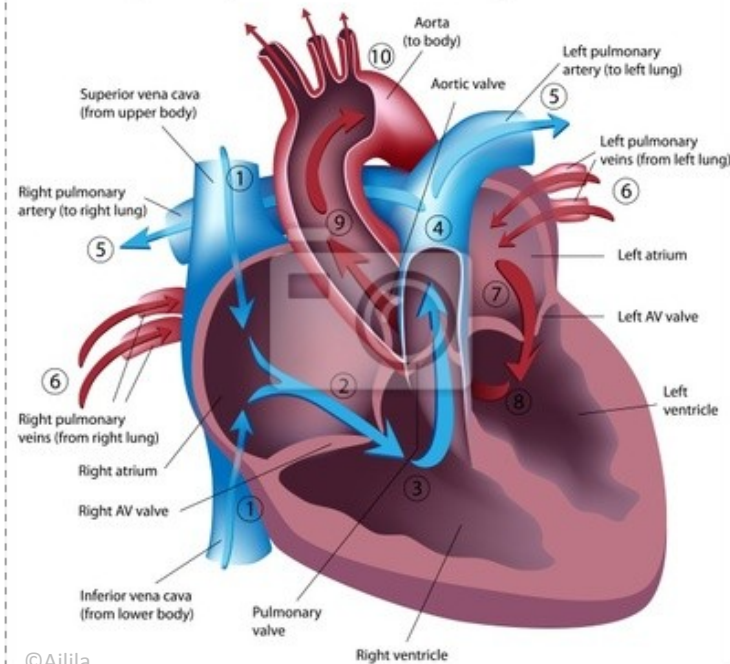


Circulation through the heart's left side:

- Lungs
- ↓
- Pulmonary Veins
- ↓
- Left Atrium
- ↓
- Bicuspid Valve
- ↓
- Left Ventricle
- ↓
- Aortic Semilunar Valve
- ↓
- Aorta

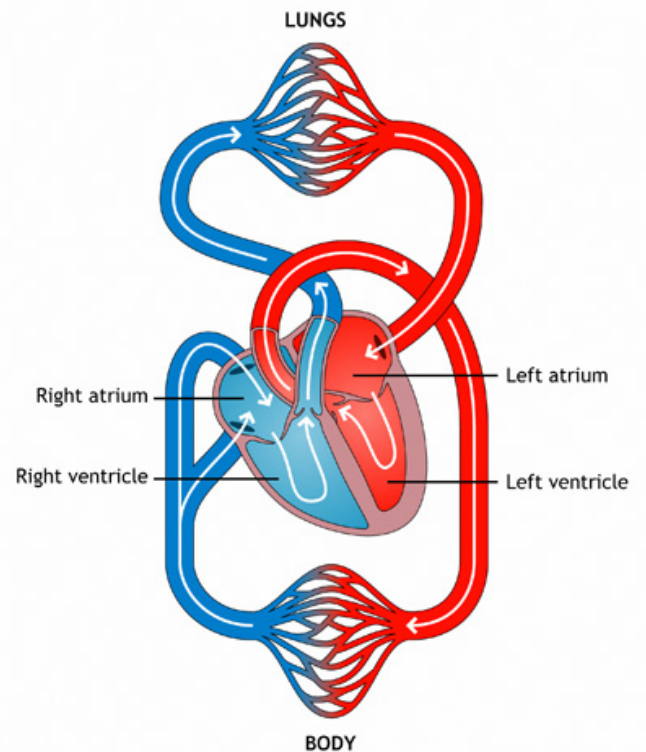
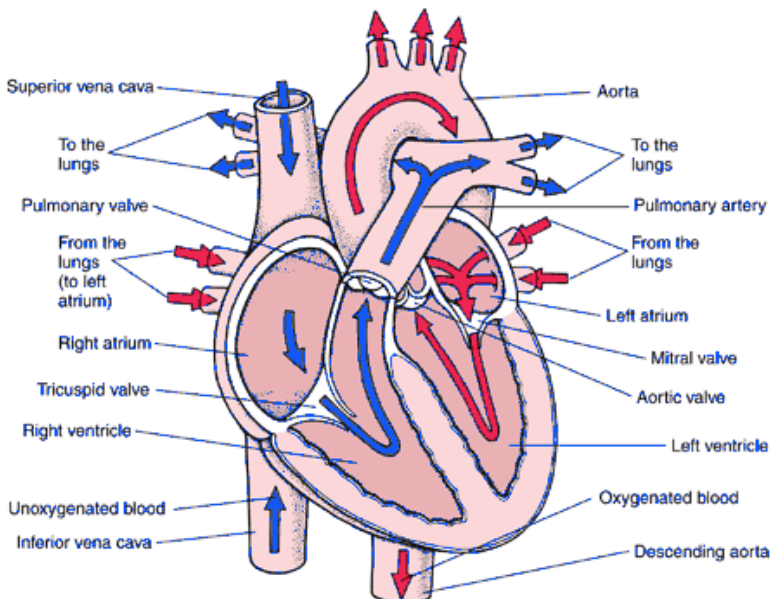
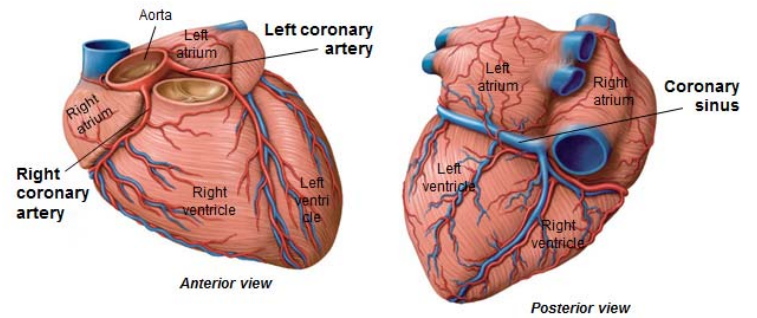


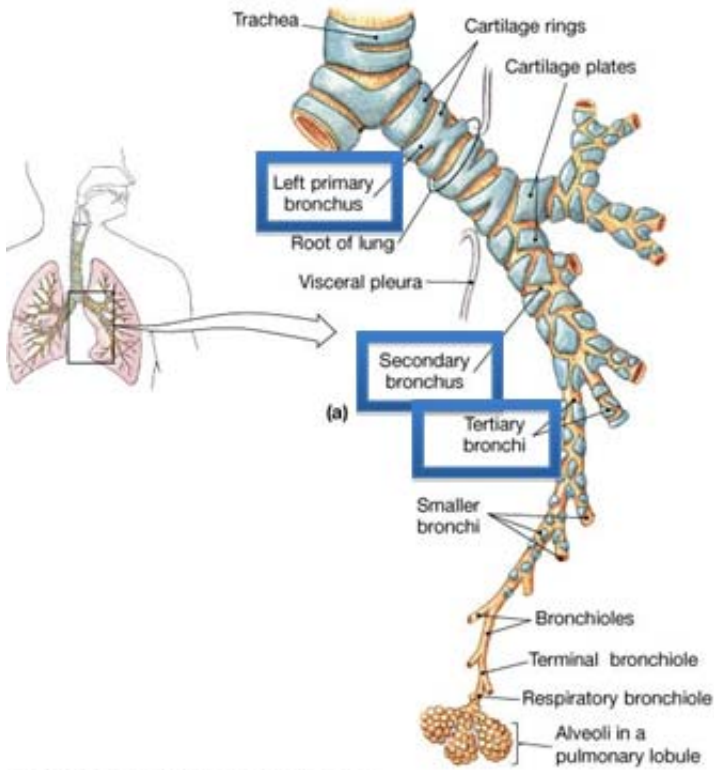
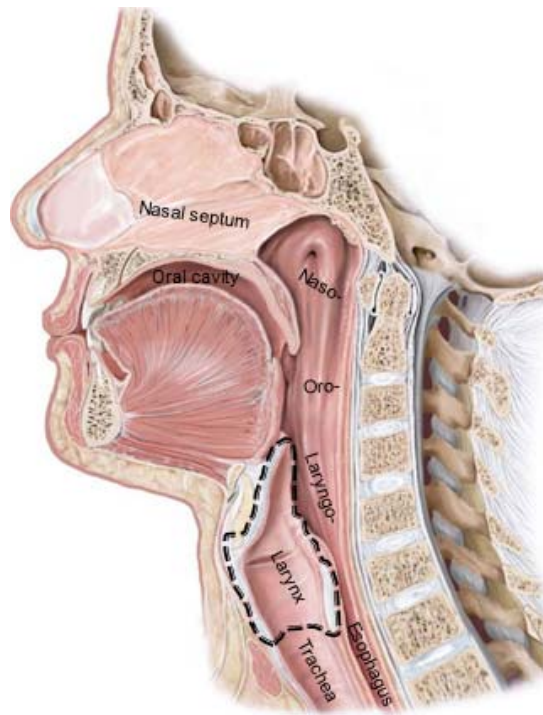
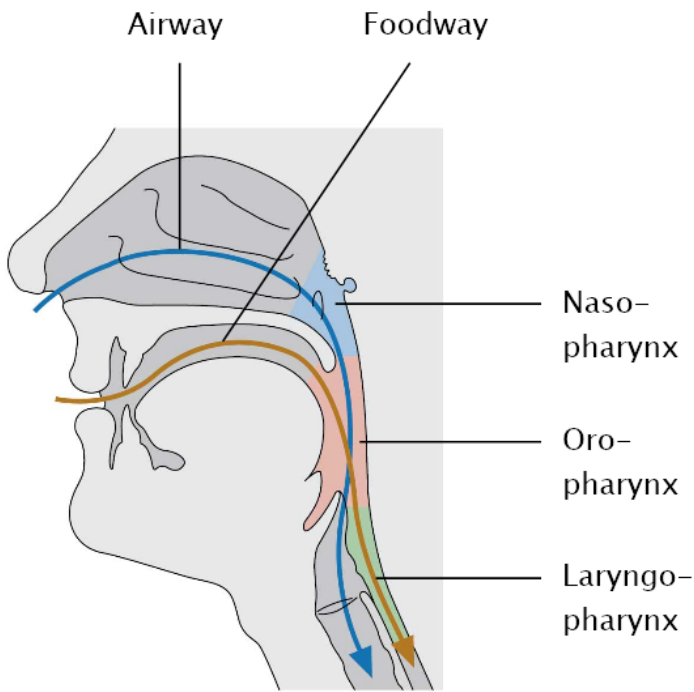
The pathway of blood flow through the heart



Blood Supply to the Heart

Aorta → Coronary arteries → Cardiac veins → Coronary Sinus → Right Atrium





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