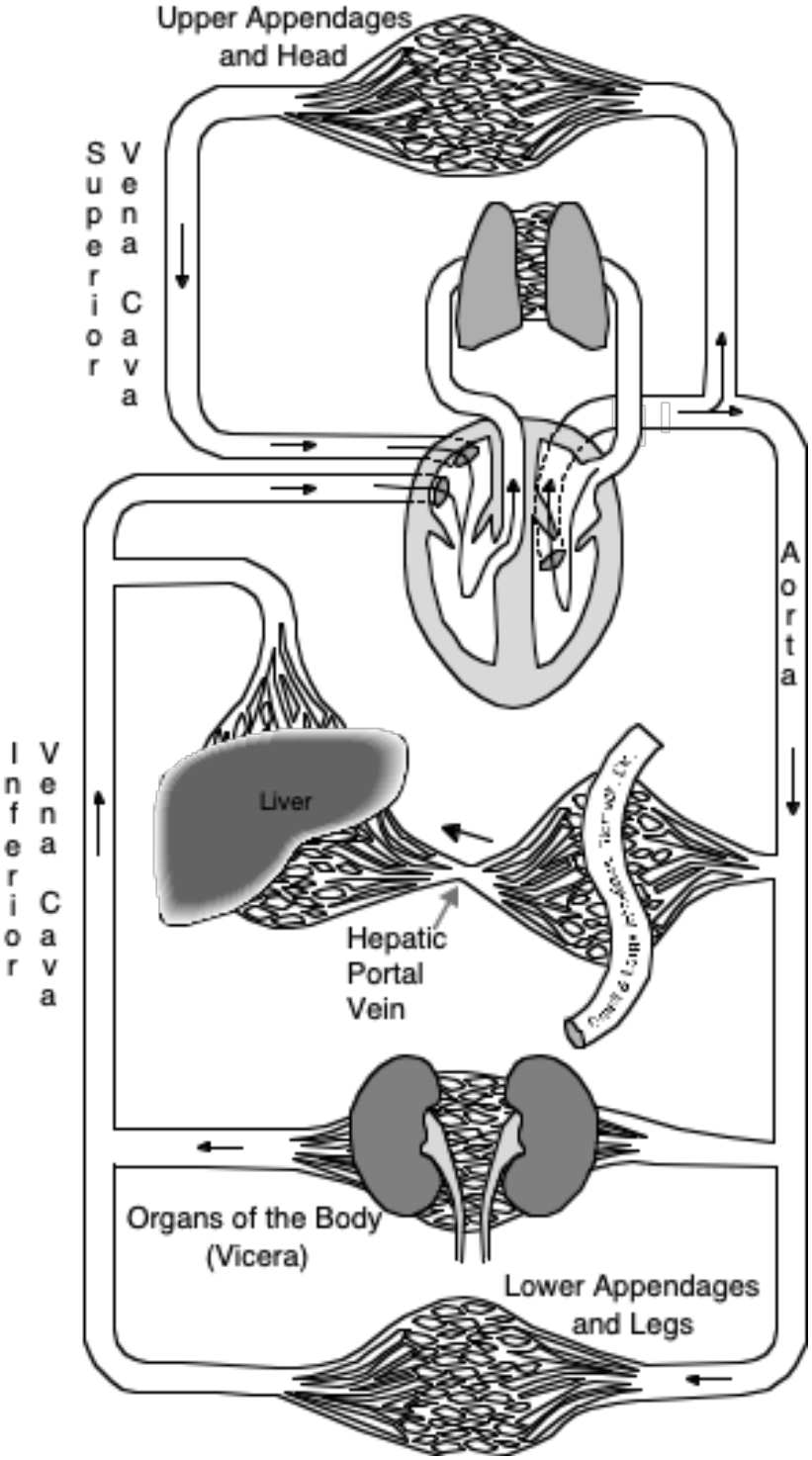
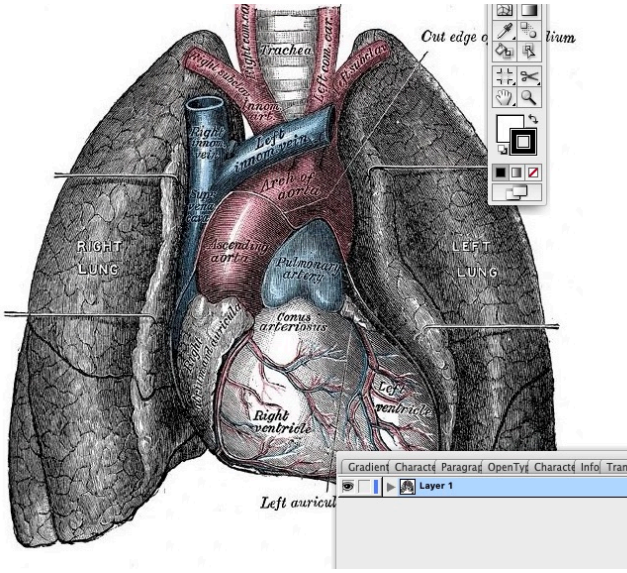
The Cardiovascular System: The Heart

1. Introduction





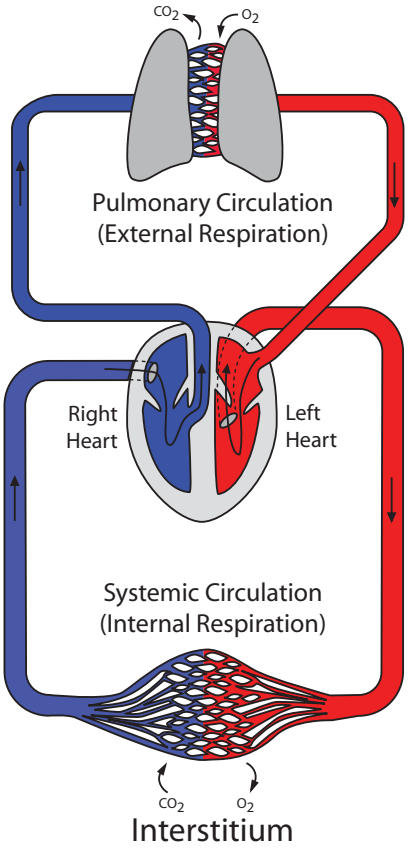
A. Location
   i. Thorax
   ii. Mediastinum

B. Anatomical Landmarks
   i. Apex and Base
   ii. Anterior Interventricular Sulcus
   iii. Posterior Interventricular Sulcus
      a. Interventricular Septum
   iv. Coronary Sulcus

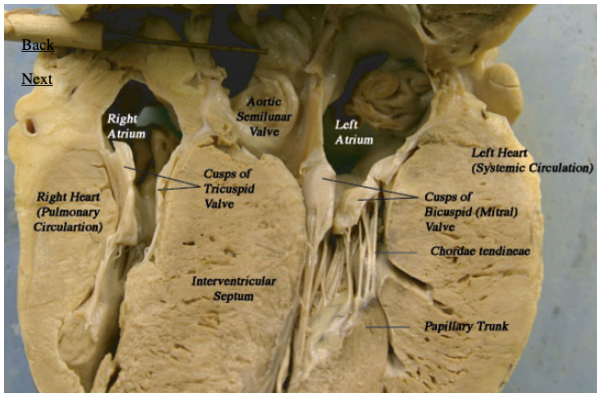
C. Pericardium - *(See "Body Cavities" handout {you may have had it in A&P I})*
   i. Fibrous pericardium
   ii. Serous Pericardium
      a. Pericardial Cavity
         - Parietal Layer
         - Visceral Layer (Epicardium)
         - Pericardial Fluid

D. Wall of the Heart
   i. Epicardium
   ii. Myocardium
   iii. Endocardium
         - Endothelium

E. Cardiac Skeleton (See image on Web Support)



2. Functional Anatomy
   - A. Double Pump
     - i. Right Heart
     - ii. Left Heart
     - iii. Septum
   - B. Atria
     - i. Auricle
     - ii. Atrioventricular Orifices
     - iii. Fossa Ovalis
     - iv. Pectinate Muscles
   - C. Ventricles
     - i. Trabeculae Carneae
     - ii. Chordae Tendineae
   - D. Blood Volume
     - Equal Volume
     - Thick Left Ventricle
   - E. General Heart Valve Anatomy
     - i. Atrioventricular valves
       - a. Tricuspid Valve
       - b. Bicuspid Valve
       - c. Cusps
       - d. Chordae Tendineae
       - e. Papillary Muscles
       - f. Valve Mechanics and Pressure
         - First Heart Sound “Lub”



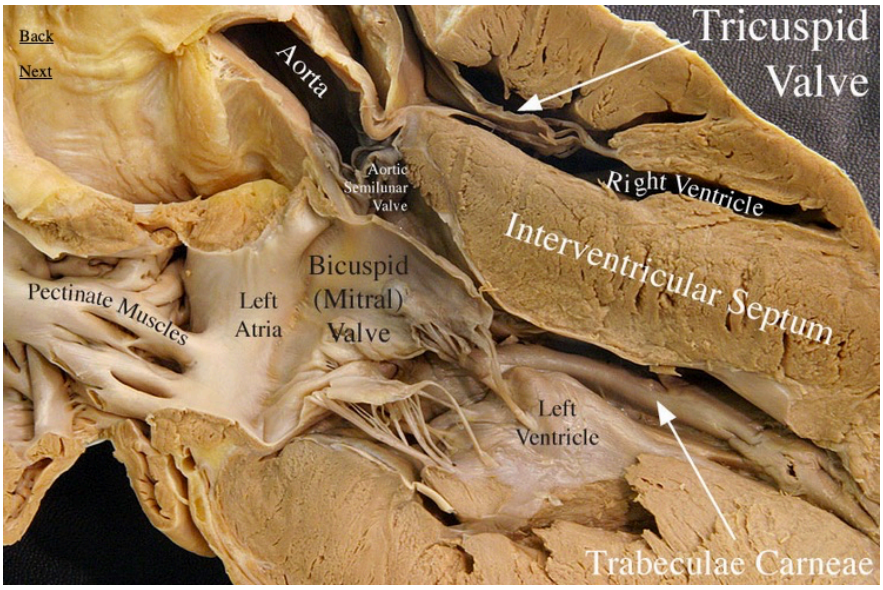
ii. Semilunar valves

a. Aortic Semilunar Valve

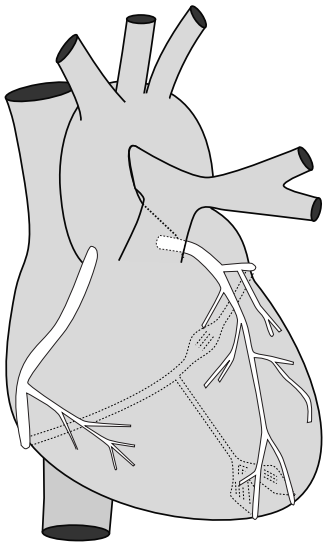
b. Pulmonary Semilunar Valve

c. Valve Mechanics and Pressure

- Second Heart Sound "Dub"



3. Great Vessels of the Heart



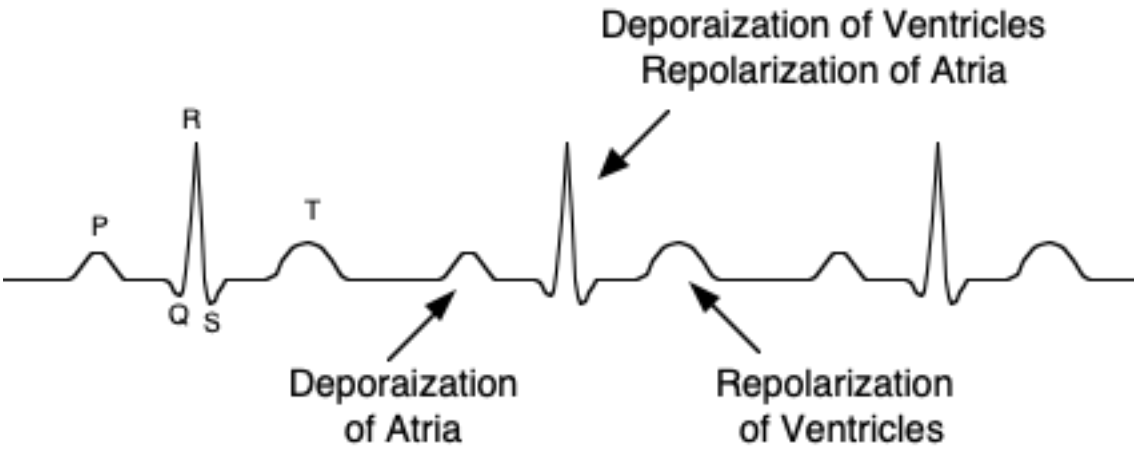
A. Pulmonary Arteries
B. Pulmonary Veins
C. Superior Vena Cava
D. Inferior Vena Cava
E. Aorta
   i. Ascending aorta
   ii. Aortic Arch
   iii. Descending Aorta

4. Blood Supply to the Heart

A. Coronary Arteries (Know the following seven (7), use diagram on web)

i. Right Coronary Artery
ii. Left & Right Marginal Arteries
iii. Posterior Interventricular Art.
iv. Left Coronary Artery
v. Circumflex Artery
vi Ant. Interventricular Artery

5. Histological Considerations
   A. Intercalated Disks
   B. Gap Junctions
   C. Desmosomes
   D. Syncytium
6. Conduction System of the Heart (Note interesting Animation on web)
   A. Sinoatrial Node (SA Node)
   B. Internodal Tracts
   C. Atrioventricular Node (AV Node)
   D. Atrioventricular Bundle
   F. Perkinji Fibers
   G. Electrocardiogram



   i. P Wave
   ii. QRS Complex
   iii. T wave

7. Cardiac Cycle (ESSAY: Use Text as reference as well as lecture. The points listed below should be used more as a "Check List (√)" for essay preparation. It is not be a strict guide to the lecture sequence at this point!)

- Systole
- Diastole

A. Systolic and Diastolic Events

i. Atrial Systole

ii. Ventricular Systole

iii. Atrial Diastole

iv. Ventricular Diastole

B. Path of Blood through the Heart *(Several animations are available)*

i. Blood enters the Atria

a. Superior Vena Cava

b. Inferior Vena Cava

c. Pulmonary Veins

ii. Blood is pumped into the Ventricles

iii. Ventricular Hesitation

iv. Ventricular Contraction

a. Systemic Circulation

b. Pulmonary Circulation.

8. Events of the Cardiac Cycle

A. Contraction

i. Ventricular Diastole (Atrial Systole)

ii. Isovolumetric Ventricular Contraction

iii. Ventricular Ejection

iv. Isovolumetric Ventricular Relaxation

B. Heart Sounds
   i. First Heart Sound
   ii. Second Heart Sound

C. Electrocardiogram

9. Beta Oxidation *(pull out handout **on "Energy and Cardiac Muscle Contraction**")*

10. Automomic NS Control of the Heart *(pull out downloadable handout on **"Cardiac Control")***
    - Baroreceptors
    - Chemoreceptors

A. Cardioregulatory Center
   i. Cardioacceleratory Center (CAC)
      - Sympathetic Fibers
      - Norepinephrine
   ii. Cardioinhibitory Center (CIC)
      - Parasympathetic Fibers
      - Acetylcholine

B. Endocrine Control of the Heart (see "Cardiac Control" handout)
   i. Adrenal Medulla
      - Epinephrine
      - Norepinephrine