

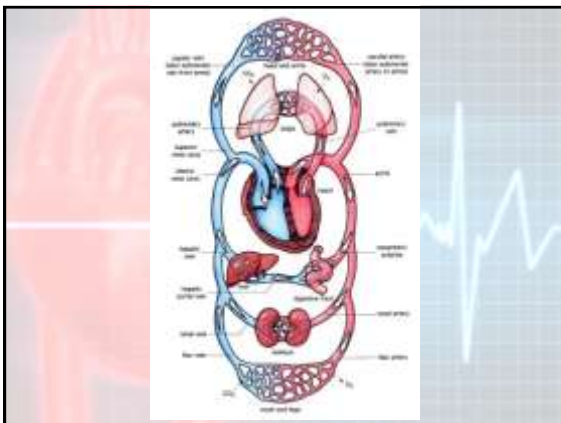


Fun ♥ Facts

- Beats approx. 100,000x /day
- Pumps roughly 8,000 liters of blood/day

Circulation Basics

- Pulmonary Circuit:
 - Carries blood to and from the lungs
- Systemic Circuit:
 - Carries blood to and from the rest of the body
- Each begins/ends at heart, and blood travels thru in sequence



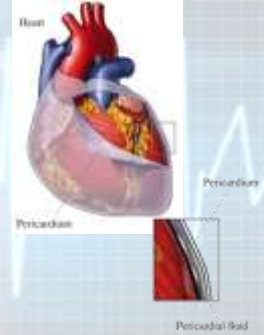
Heart Location

- Located in the mediastinum
 - space between lungs, backbone, sternum
- between the 2nd rib and the 5th intercostal space.



Heart Anatomy

- Fibrous Pericardium:
 - encloses the heart (like a bag) and has 2 layers
 - visceral pericardium (inner)
 - parietal pericardium (outer)
- Pericardial cavity:
 - contains fluid for the heart to float in, reducing friction



- Wall of the Heart
 - Epicardium – outer layer, reduces friction
 - Myocardium – middle layer, mostly cardiac muscle
 - Endocardium – thin inner lining, within chambers of the heart



Four-Chambered Heart

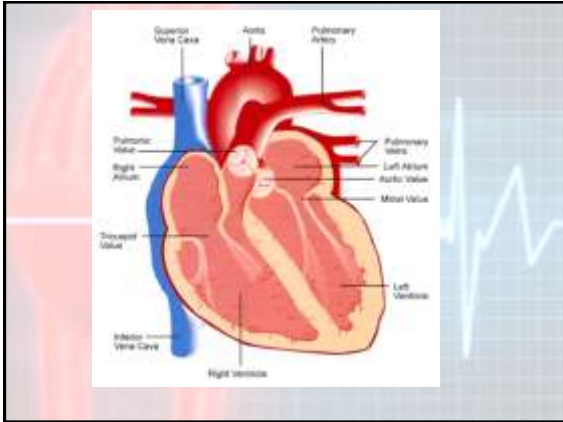
- Rt atrium
 - receives blood from systemic circ.
 - Inferior and superior vena cava
- Lt atrium
 - receives blood from pulmonary circ.
 - Lt and Rt pulmonary veins

Four-Chambered Heart

- Rt ventricle
 - discharges into pulmonary circ.
 - Pulmonary trunk → lt and rt pulmonary arteries
- Lt ventricle
 - discharges into systemic circ.
 - Ascending aorta
- Septum: separates lt from rt

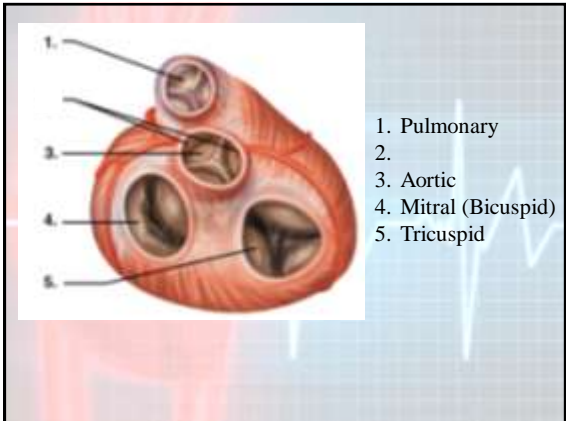
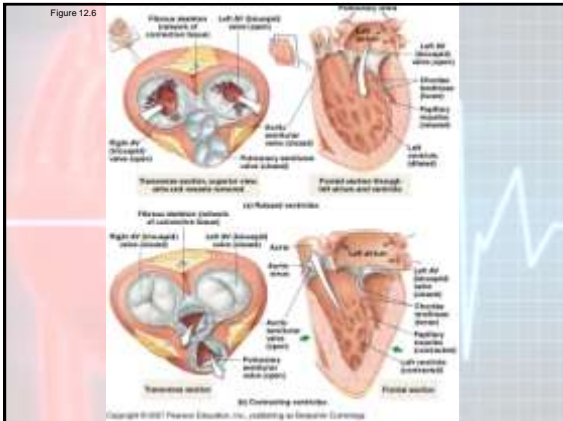
Structural difference btn Chambers

- Based on demand
 - Job of atria?
 - Job of ventricle?
 - Job of left side?
 - Job of right side?

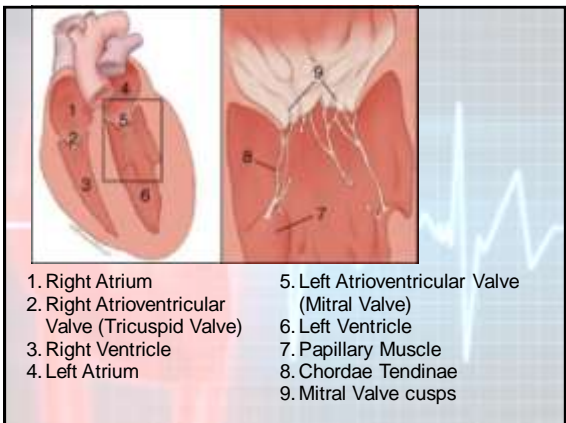


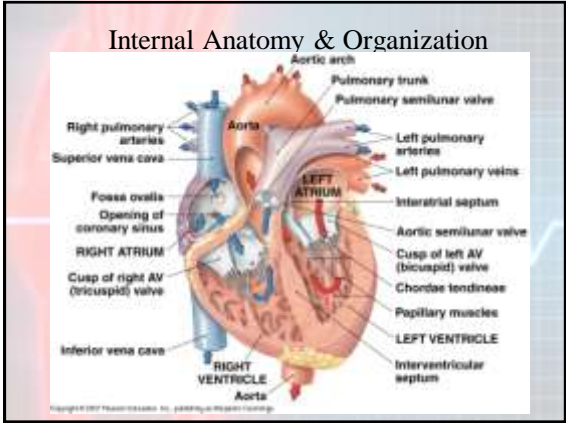
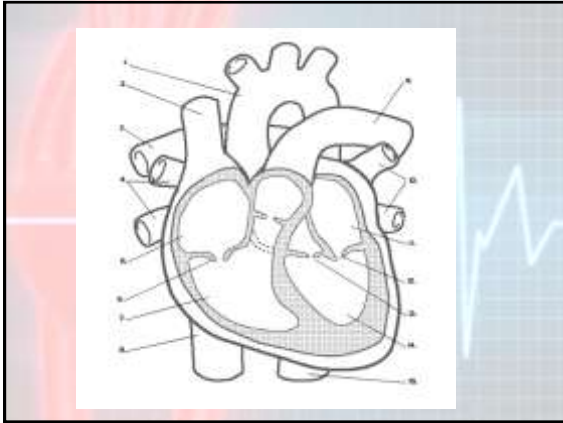
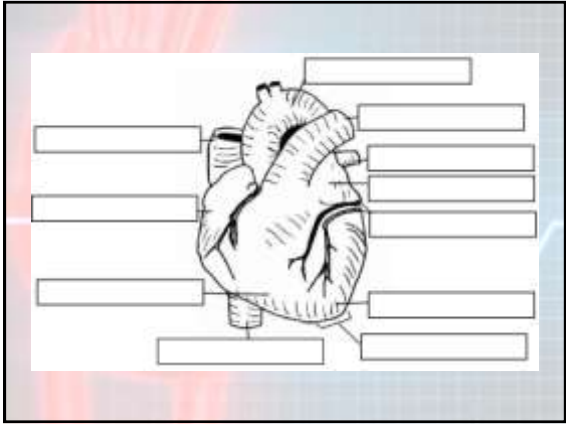
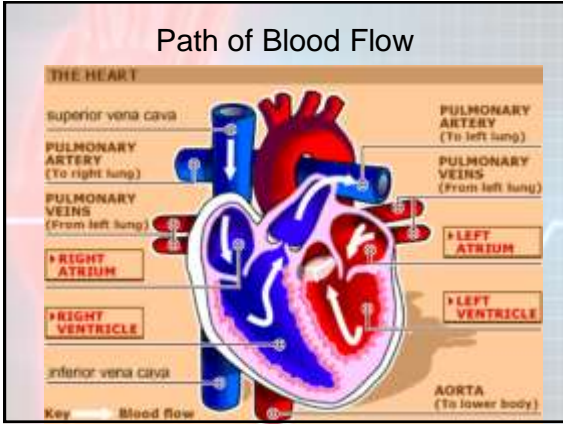
Valves

- Allow one-way flow only
- Lt atrioventricular (AV) valve
 - Bicuspid valve/Mitral valve
- Rt atrioventricular (AV) valve
 - Tricuspid valve
- Aortic Valve
 - Semilunar valve
- Pulmonary Valve
 - Semilunar valve



- Chordae Tendineae:
 - Fibrous cords that “anchor” AV valves
- Papillary muscles
 - Attach chordae tendineae to heart wall



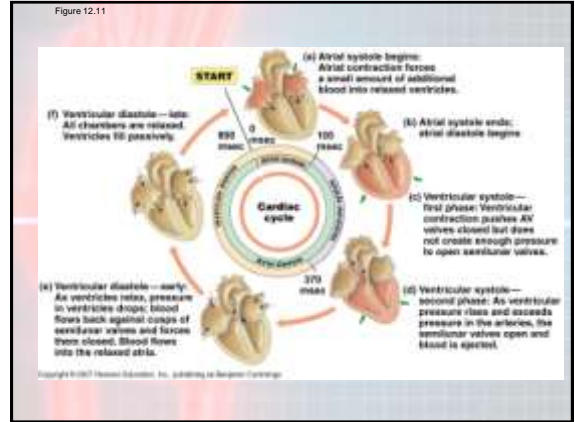


- Name the valves (#5 is not a valve)

- Pulmonary
- Tricuspid
- Mitral/bicuspid
- Aortic
- Apex

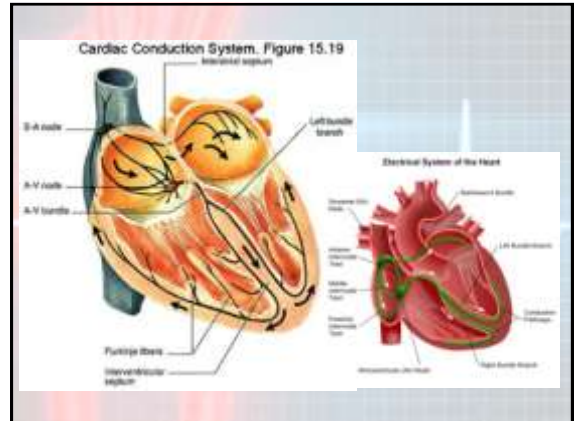
Cardiac Cycle

- One complete heartbeat.
- Systole:
 - contraction of chamber
- Diastole:
 - Relaxation of chamber



Cardiac Conduction

1. S-A Node (Pacemaker)
2. Junctional Fibers
3. A-V Node
4. A-V Bundle
5. Perkinje Fibers



Heart Sounds - Opening and Closing of Valves, "Lub Dub"

Stethoscope - instrument to listen and measure heart sounds

Can you identify?

1. Sinoatrial node (Pacemaker)
2. Atrioventricular node
3. Atrioventricular Bundle (Bundle of His)
4. Left & Right Bundle branches
5. Bundle Branches (Purkinje Fibers)

ECG (electrocardiogram)

- P Wave
 - depolarization of the atria (atrial systole)
- QRS Complex
 - depolarization of the ventricles (ventricular systole)
- T Wave
 - Repolarization of the ventricles

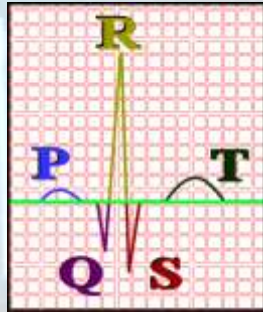
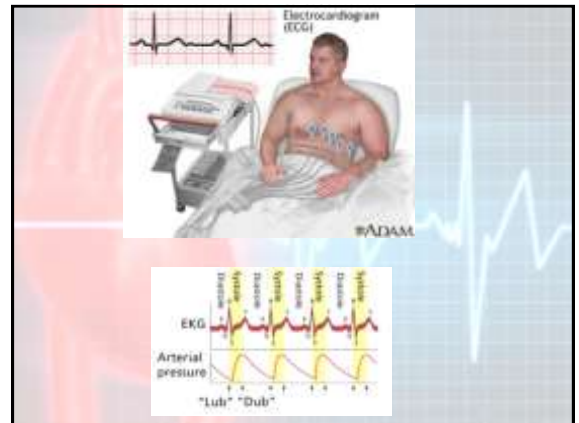
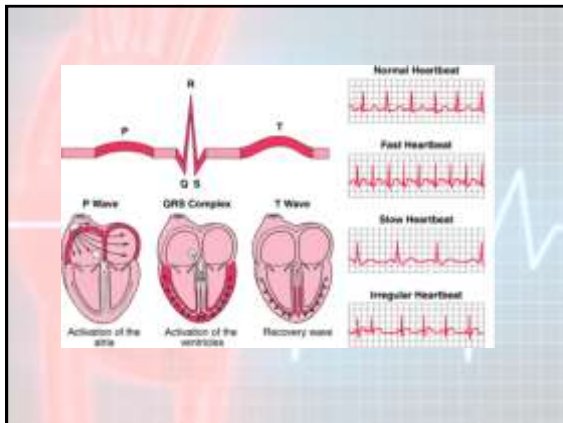
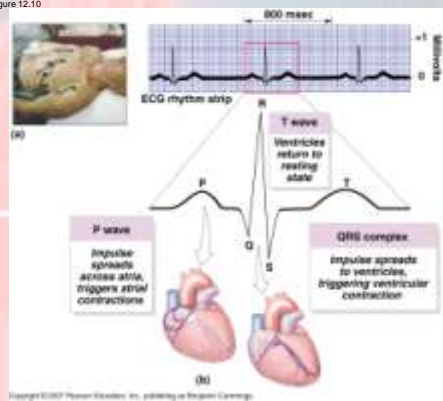
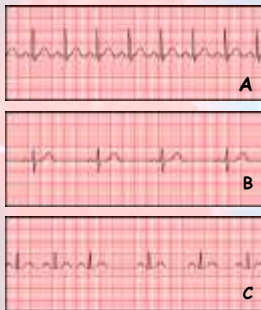


Figure 12.10



Analyze an ECG



- Each one of the figures represents an ECG pattern displaying three types of abnormal rhythms:
 - Tachycardia
 - Bradycardia
 - Arrhythmia.
- Identify each.

Defibrillator

- Common treatment for life-threatening cardiac arrhythmia

