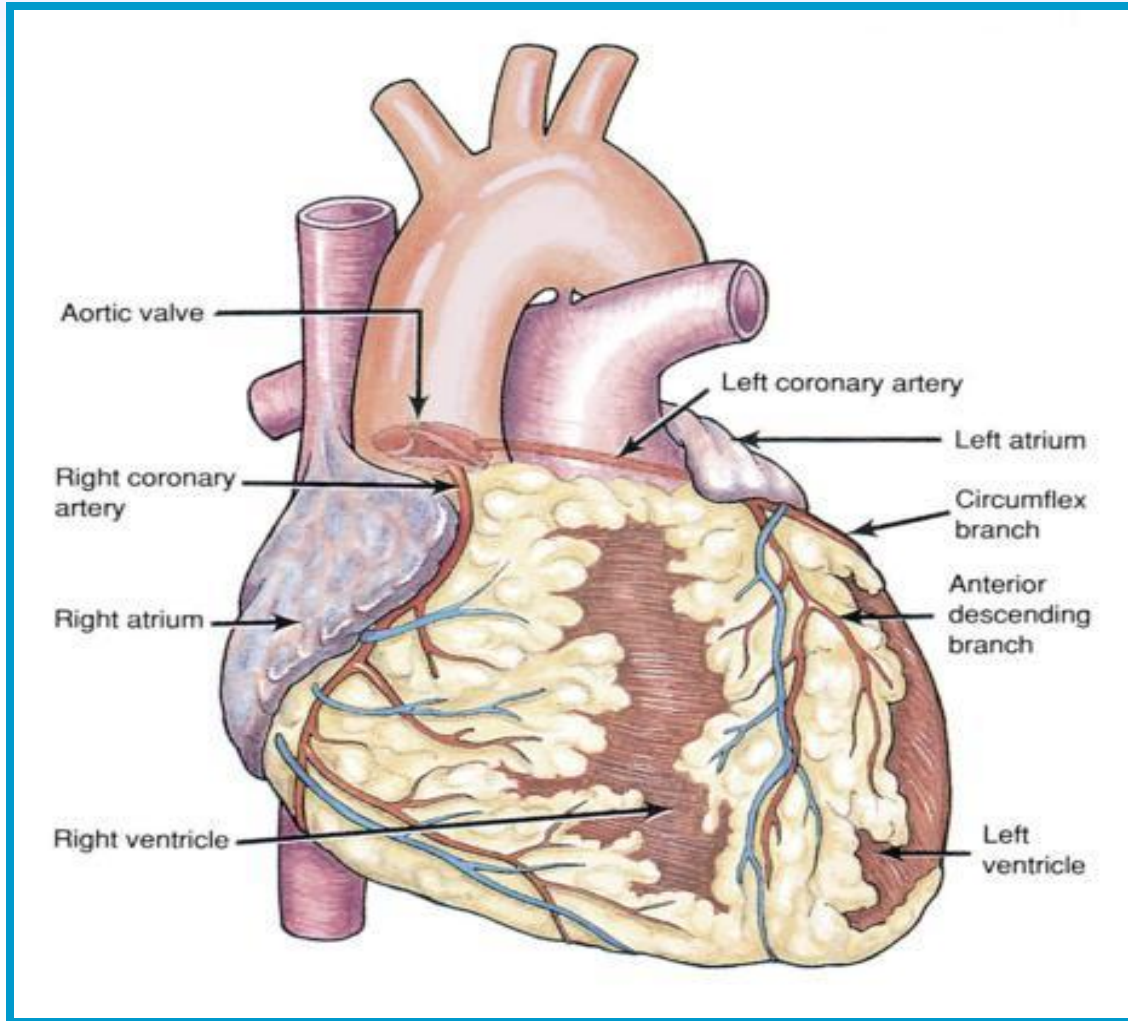
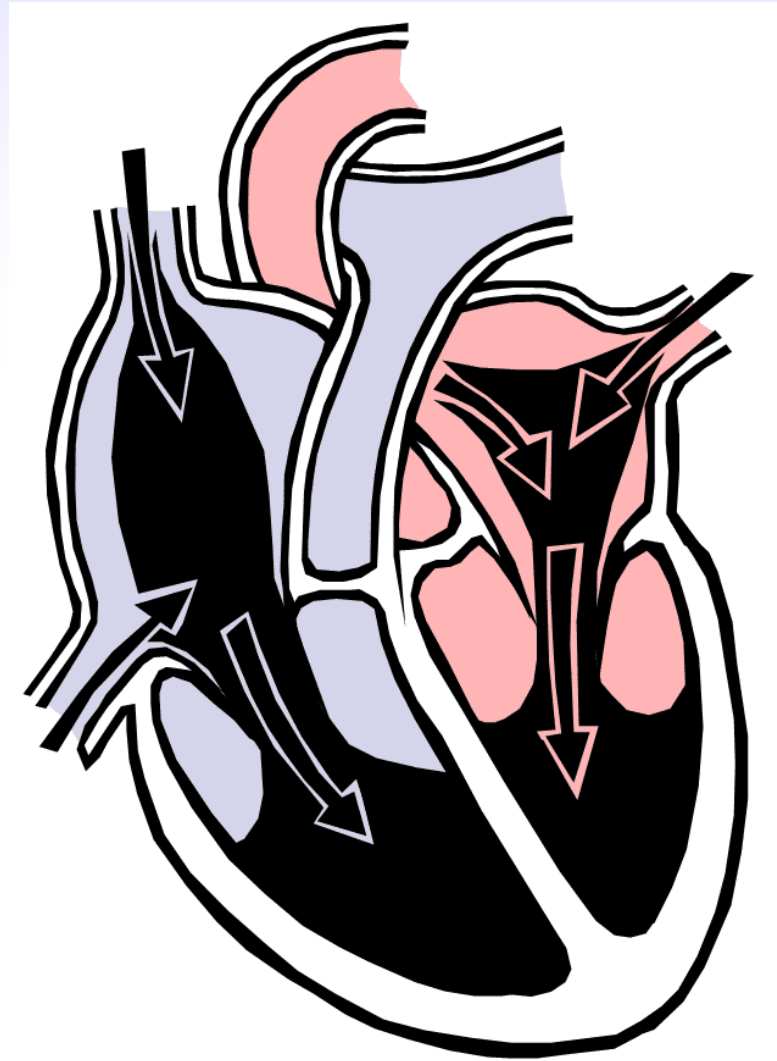


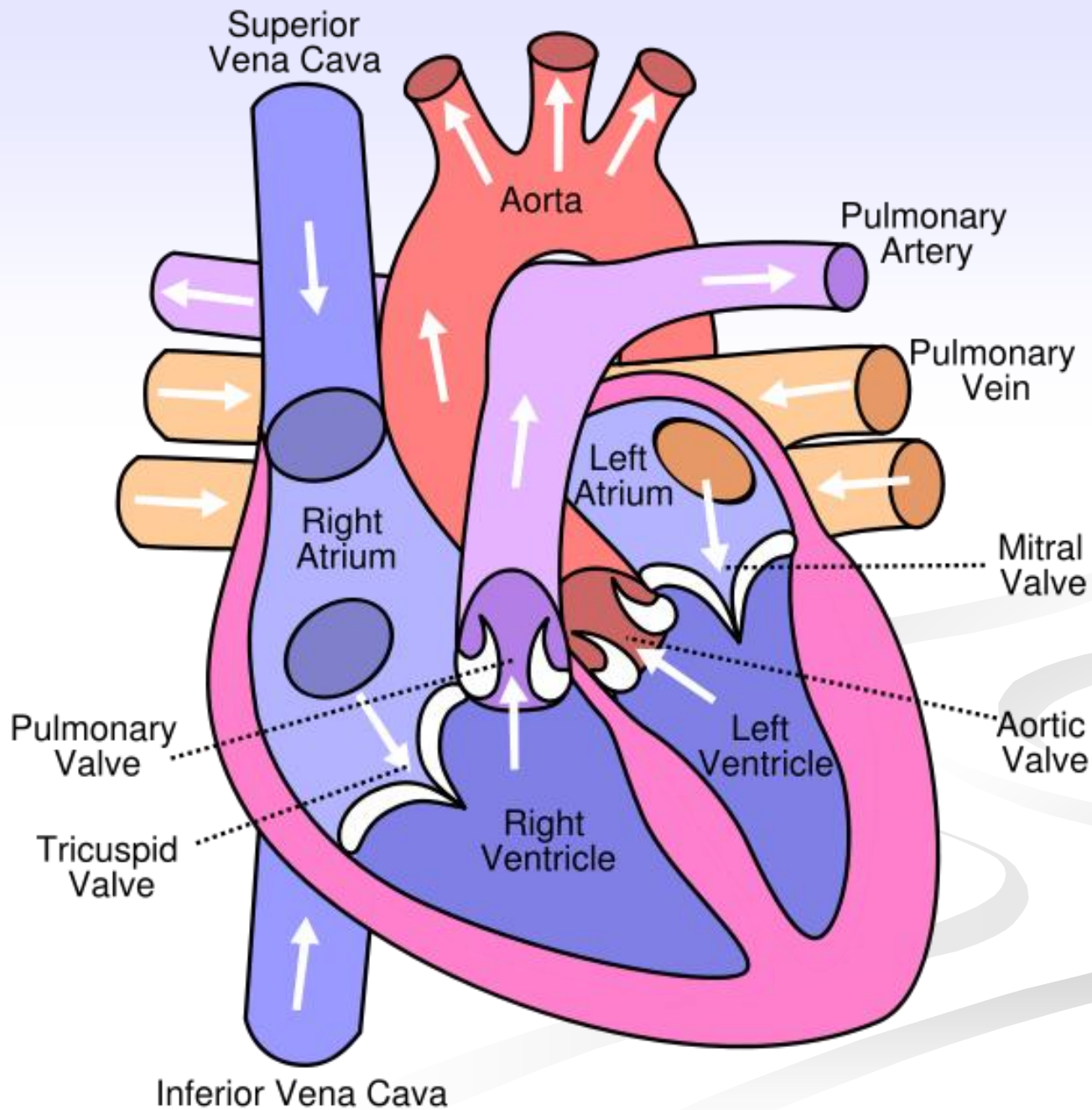
Circulatory System



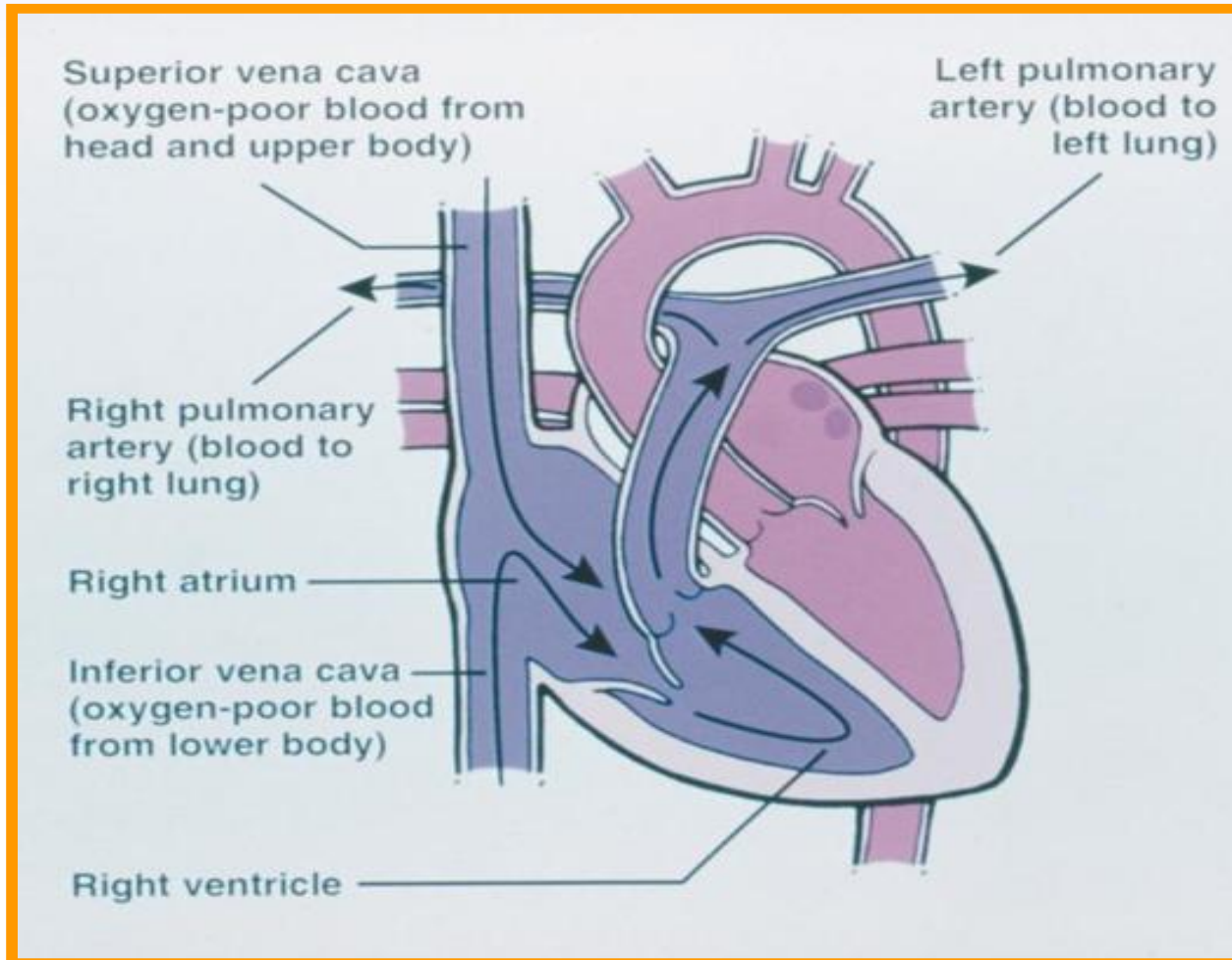
The Heart's Exterior



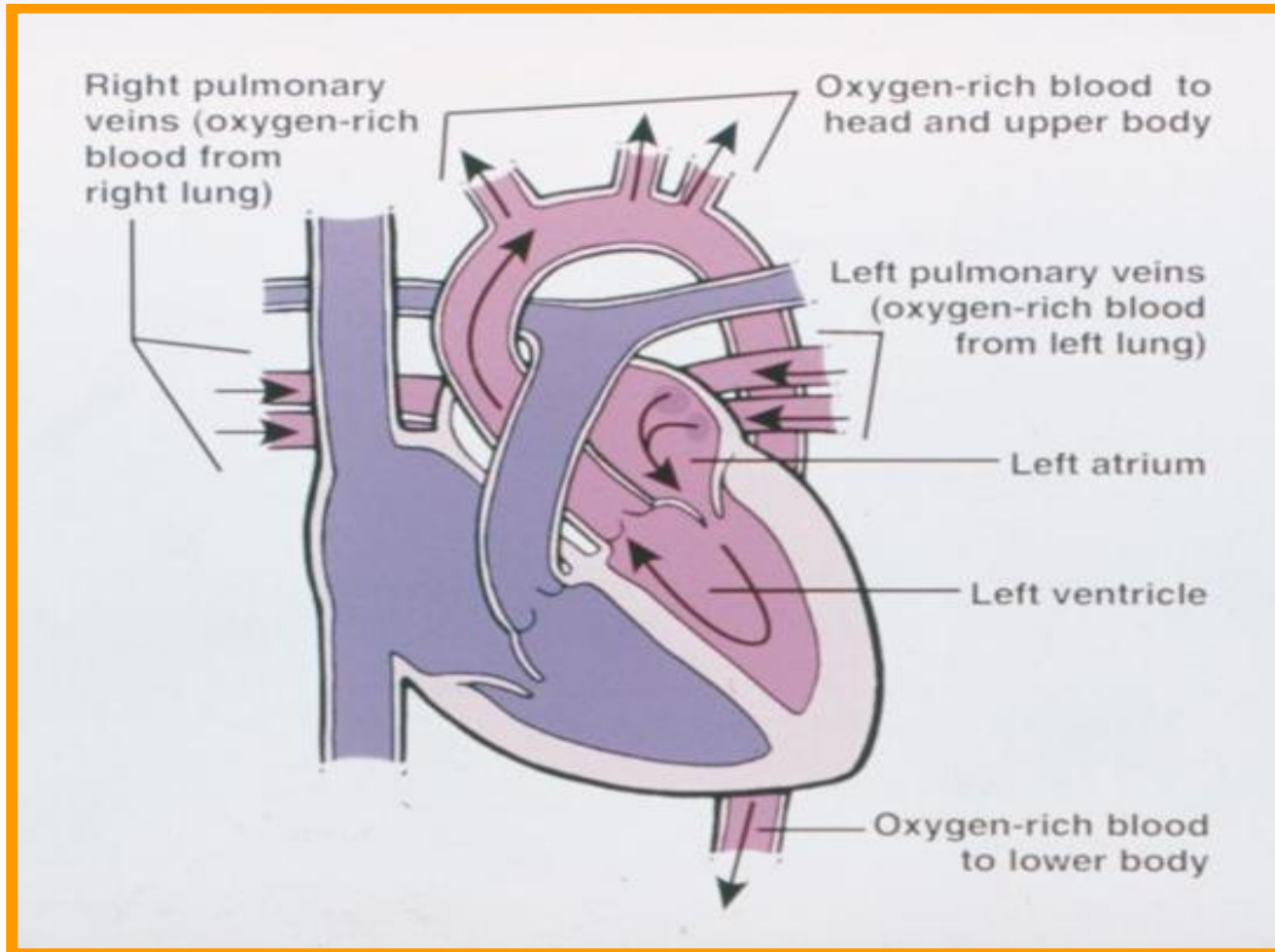


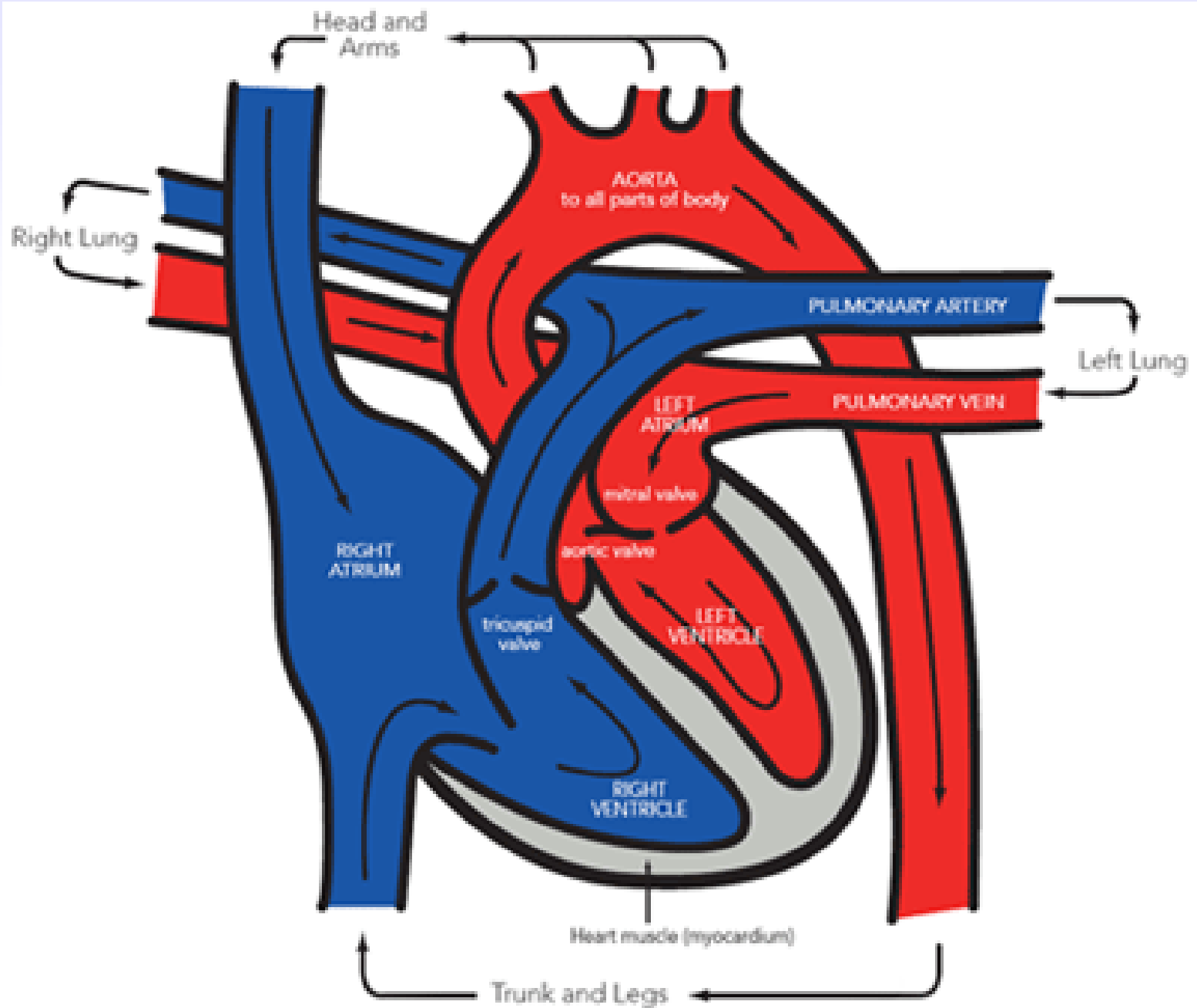


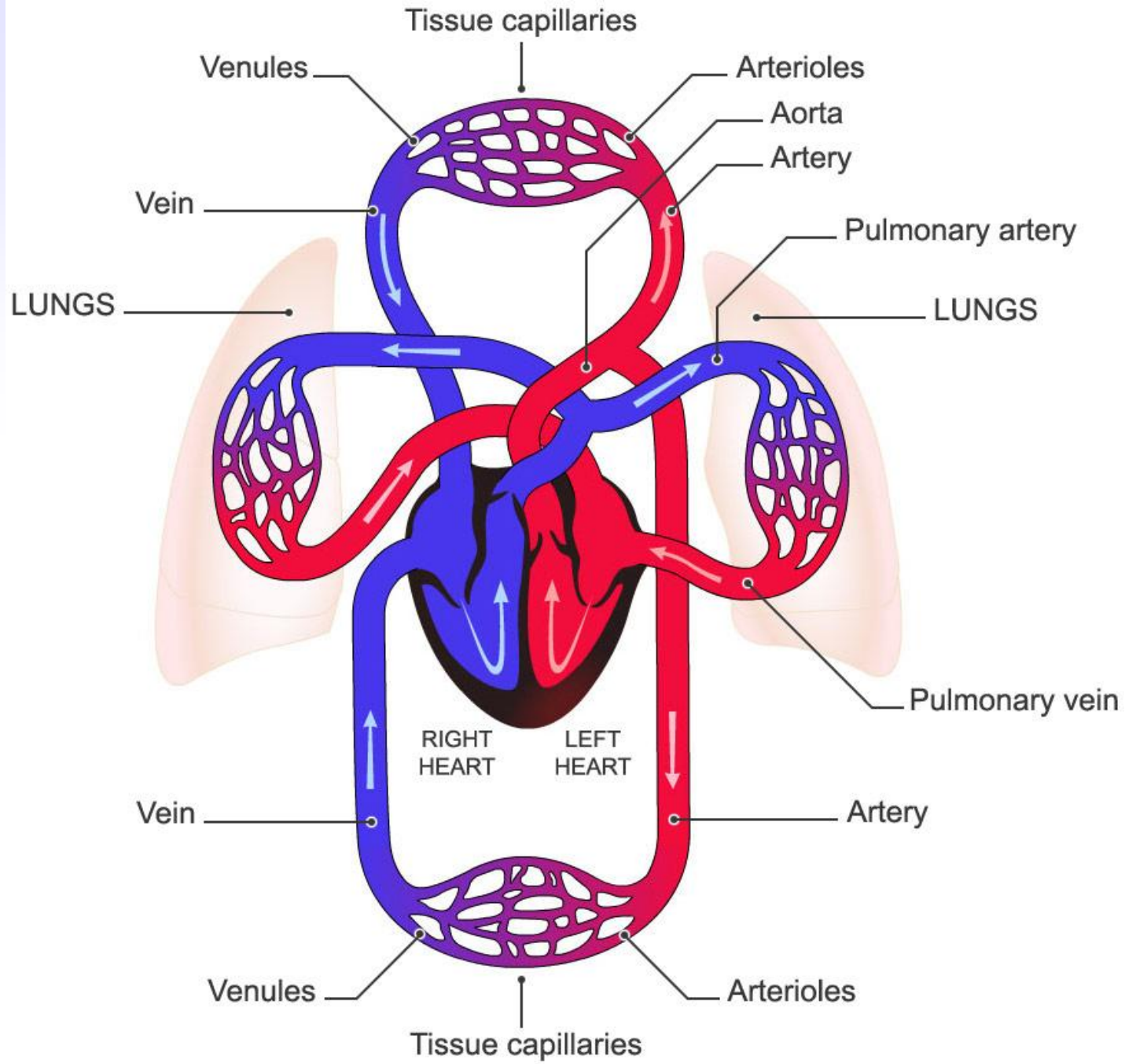
Circulation of the Heart



Circulation of the Heart







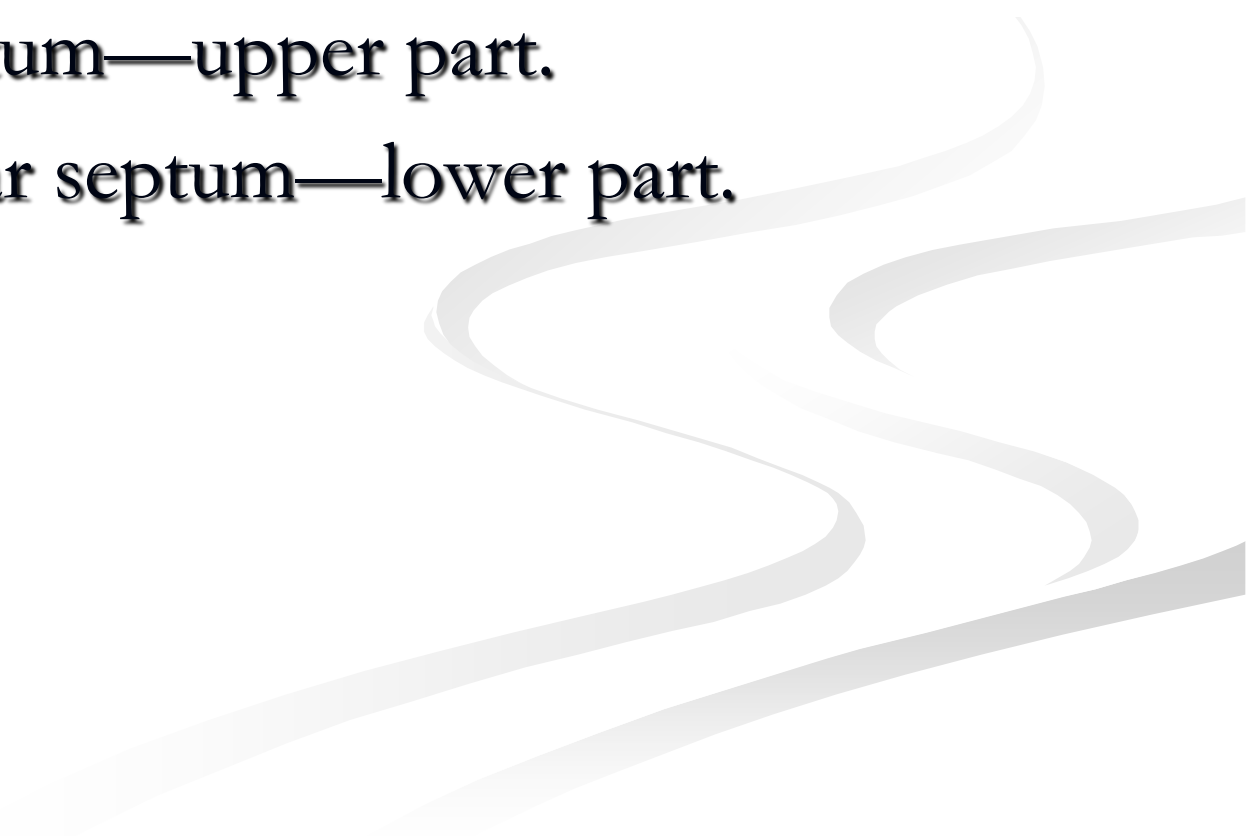
Flow of blood through the body

- Starts in the right atrium
- Through the tricuspid valve
- Right ventricle
- Through the pulmonary valve
- Pulmonary artery
- Lungs
- Pulmonary veins
- Left atrium
- Mitral valve
- Left ventricle
- Aortic valve
- Aorta
- Body
- Arteries
- Arterioles
- Capillaries
- Venules
- Veins
- Superior or inferior vena cava
- Right atrium

Three layers of Tissue

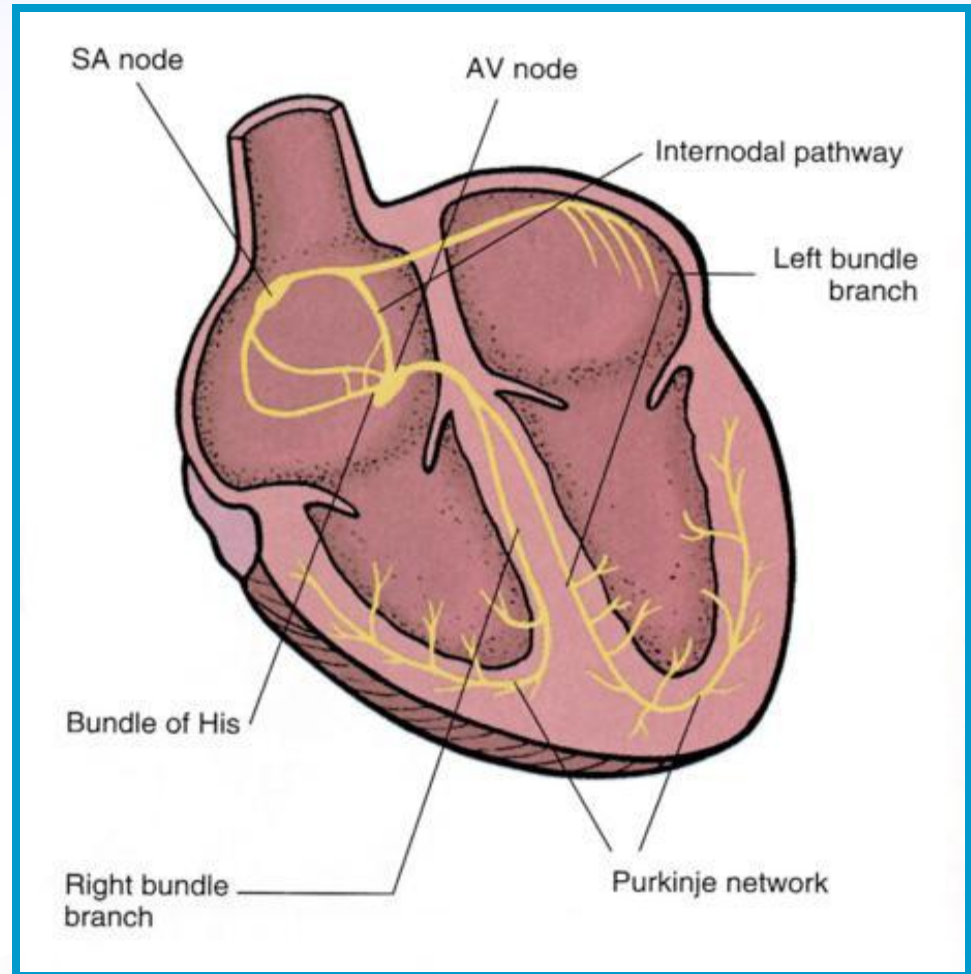
- Endocardium—smooth layer, lines the inside of the heart.
- Myocardium—muscular middle layer.
- Pericardium—double-layered membrane or sac that covers the outside of the heart.
- Pericardial fluid fills the space between the two layers to prevent friction or damage to the membranes.

Septum

- Muscular wall that separates heart into right and left side.
 - Interatrial septum—upper part.
 - Interventricular septum—lower part.
- 
- A decorative graphic consisting of several thick, light gray, wavy lines that curve and flow across the bottom right portion of the slide.

Electrical Conduction System

- SA node.
- AV node.
- Bundle of His.
- Bundle branches.
- Purkinje network.



Normal Heart Rates

Adult **60-80 beats/min**

Children **80-100 beats/min**

Infants **100-120 beats/min**

Physiology of the Circulatory System


■ Pulse:

- Forceful pumping of blood out of the heart.

■ Blood pressure:

- Amount of force exerted against walls of arteries:
 - Systole: muscles contracts.
 - Diastole: muscles relax.

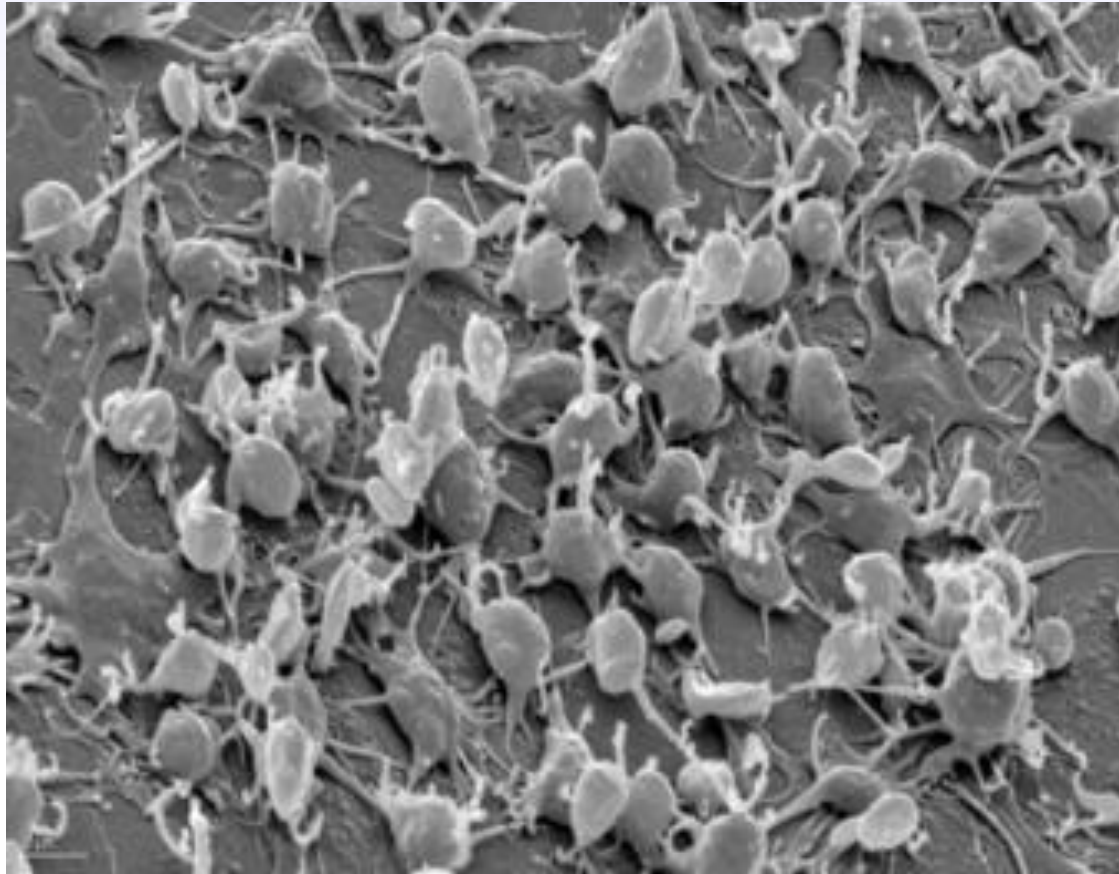
Terms to Know!

- Hypotension: low blood pressure.
 - Hypertension: high blood pressure.
- 
- The bottom half of the slide features several thick, light gray wavy lines that flow from the right side towards the left, creating a sense of movement and depth.

Blood Cells

- Thrombocytes—platelets for clotting.
- Leukocytes--white blood cells that provide our body with defenses against foreign invaders.
- Erythrocytes--red blood cells that transport oxygen and carbon dioxide between the lungs and all the tissues of the body.

Thrombocytes



Leukocytes



Encarta Encyclopedia, Photo Researchers, Inc./Andrew Syred/Science Photo Library

Erythrocytes



Hemoglobin

- A circulating erythrocyte is little more than a container for hemoglobin.
- Hemoglobin is a protein that is carried by red cells. It picks up oxygen in the lungs and delivers it to the peripheral tissues to maintain the viability of cells.

Interesting Info!

- Blood cells are made up of two components. The hemoglobin is in solution inside the cell. The cell is surrounded by a membrane that holds in the hemoglobin.
- A rough analogy would be a rubber water balloon. The rubber would be the membrane, and the water would be the hemoglobin.
- The blood types that most of us know, A, B, O, and Rh, are properties of the membrane.

Interesting Info!

- The hemoglobin inside the red cells of a person with type O blood and that inside the red cells of a person with type A blood are identical.
- The analogy would be of water balloons made from blue and red balloons. The color of the balloon would differ, but the material inside would be the same.

**Now it's time to
complete the
Coloring/ Labeling
handout!!!**



Temporal artery

Facial artery

Carotid artery

Brachial artery

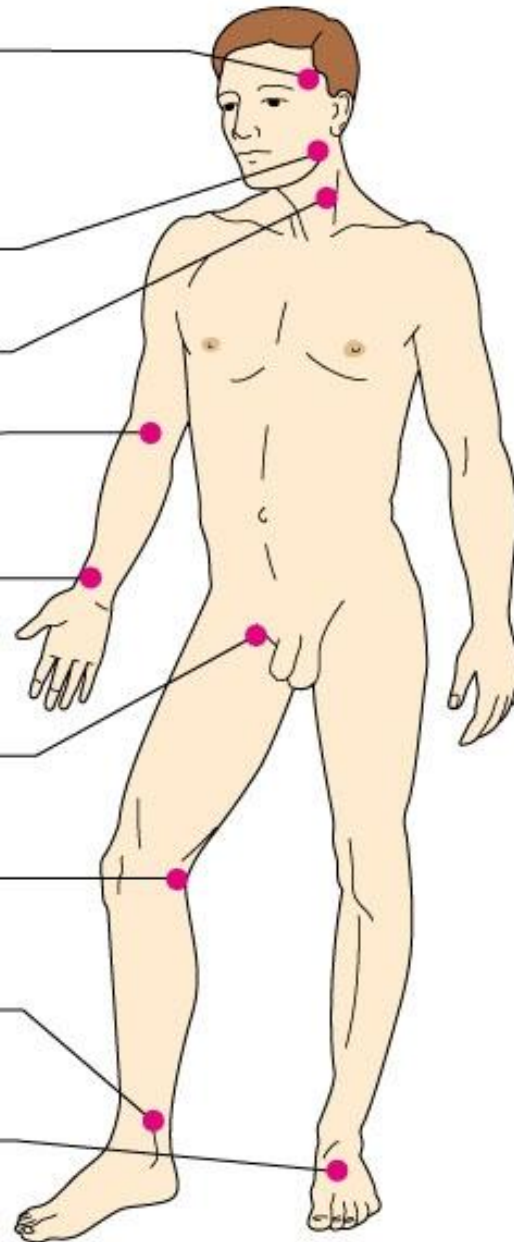
Radial artery

Femoral artery

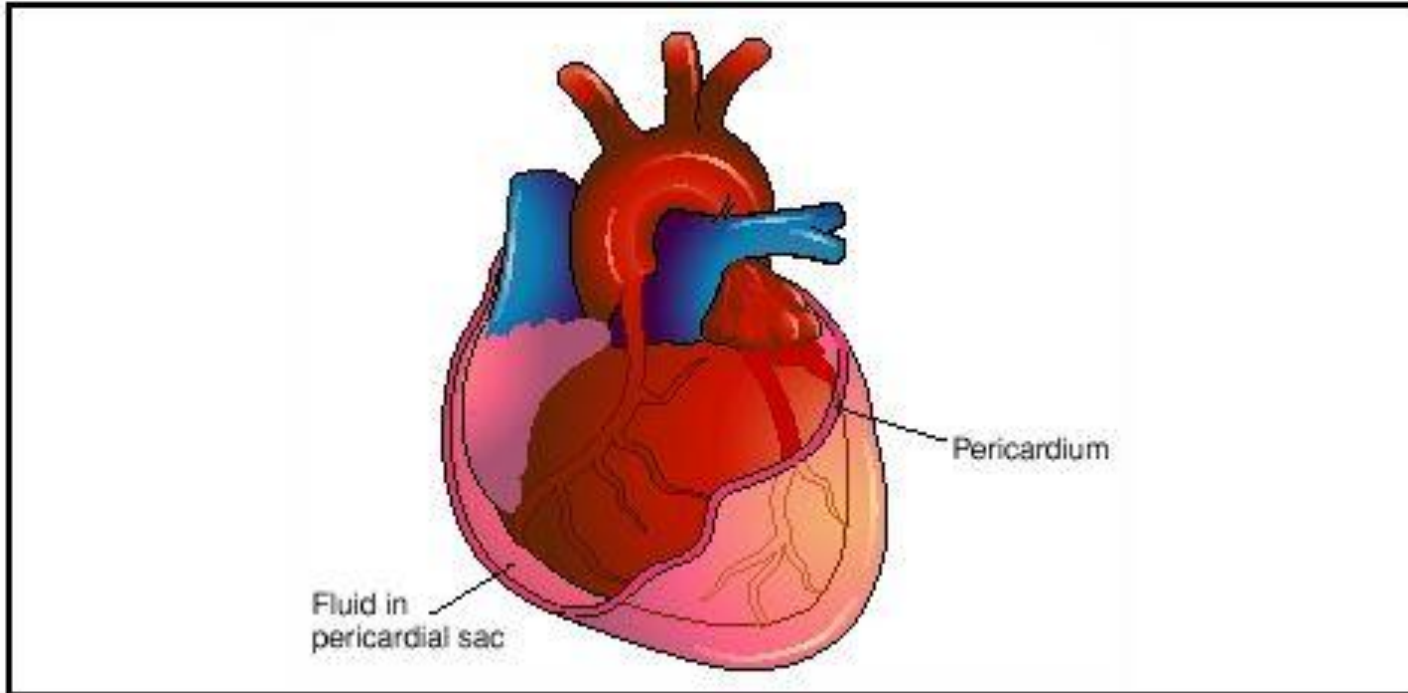
Popliteal artery

Posterior tibial artery

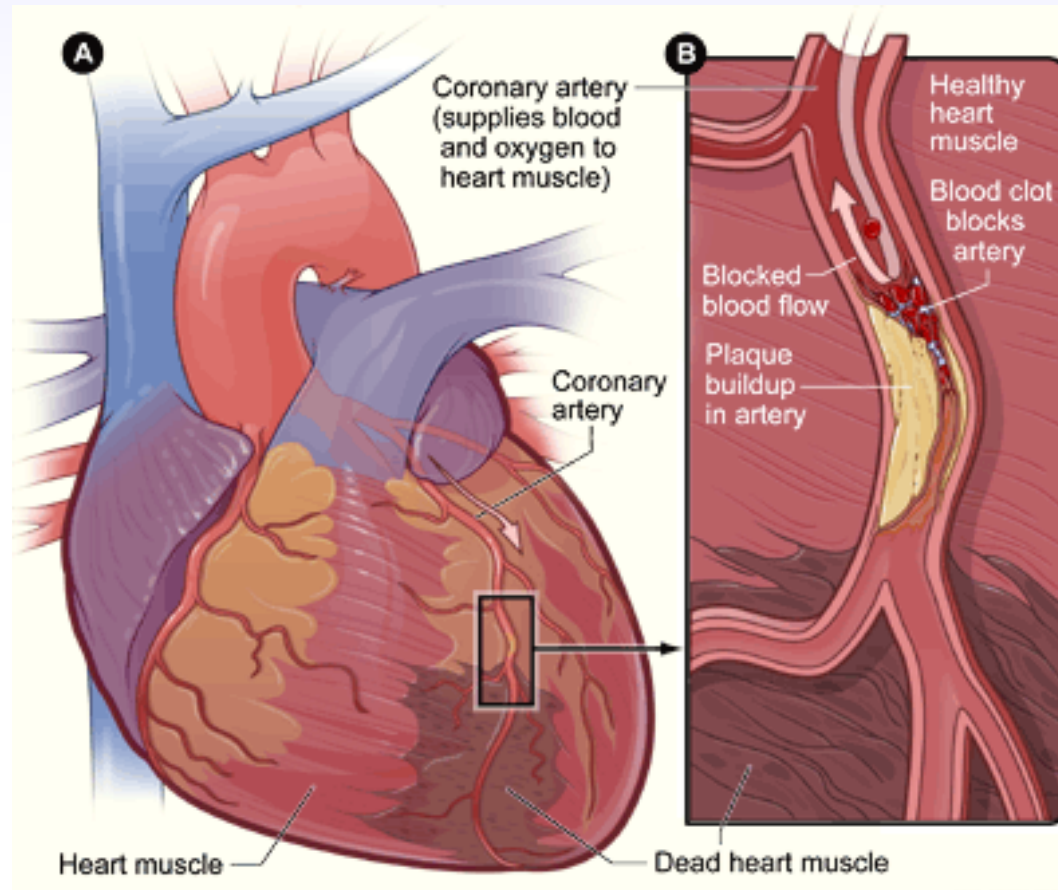
Dorsalis pedis artery



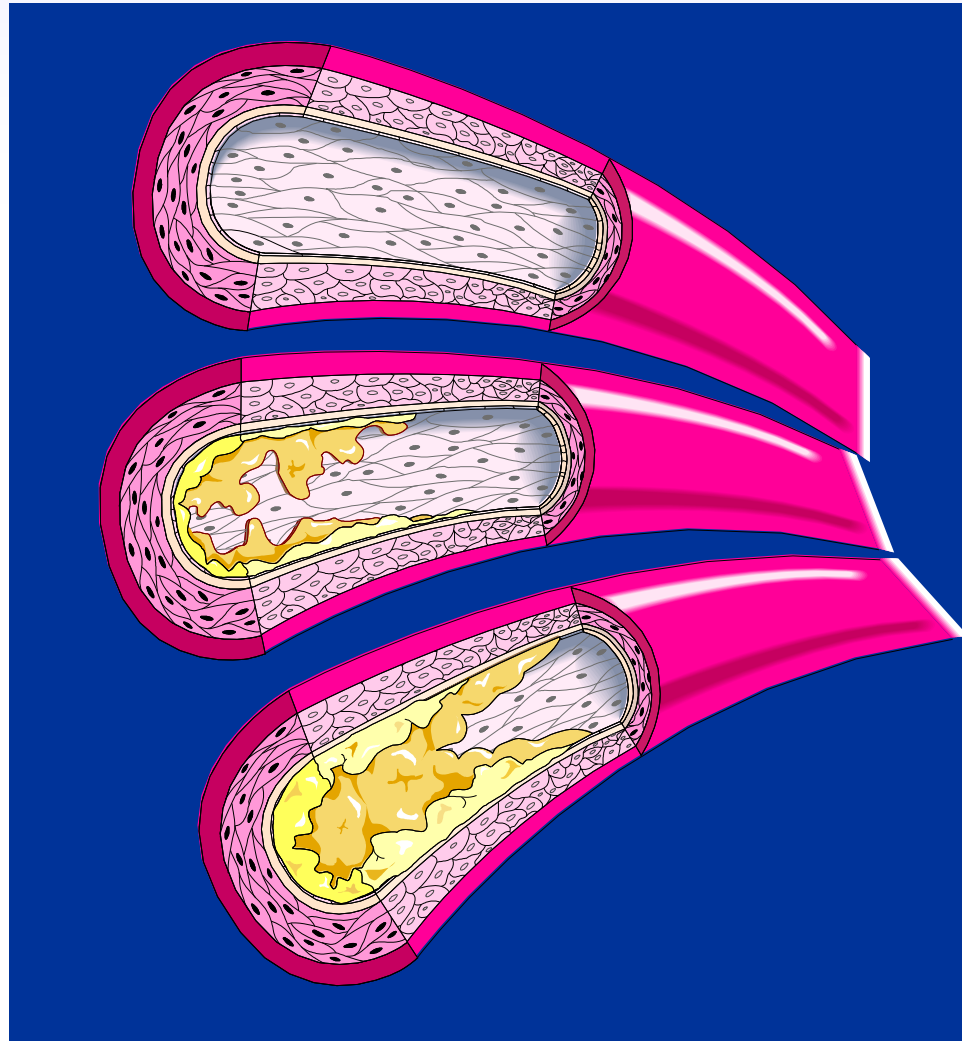
Pericarditis



Myocardial Infarction (heart attack)



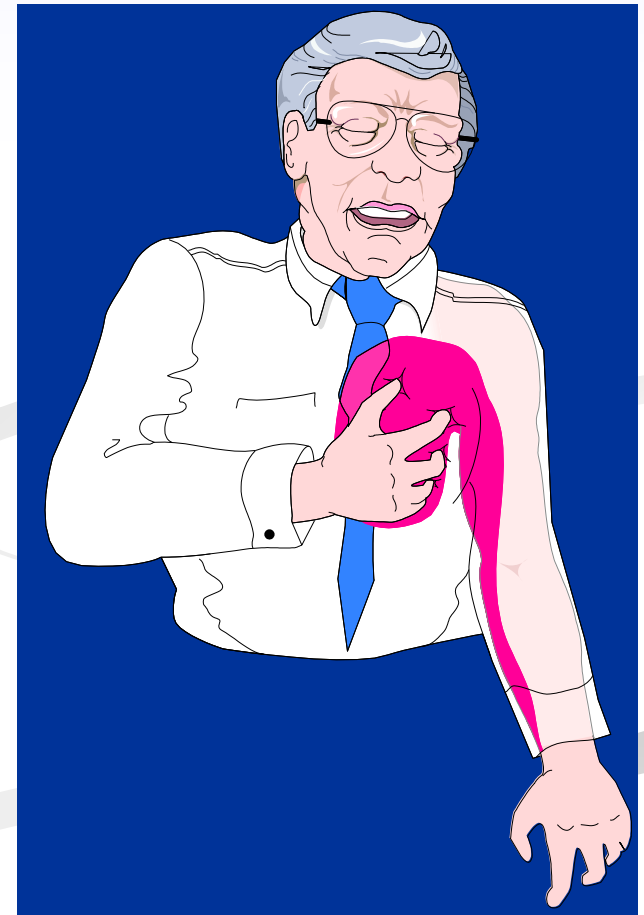
Atherosclerotic Plaque Formation



Angina Pectoris

“A choking in the chest”

- *Angere* - to choke.
- Myocardial oxygen demand exceeds supply during periods of increased activity, exercise, or stressful event.




Symptoms of Angina Pectoris

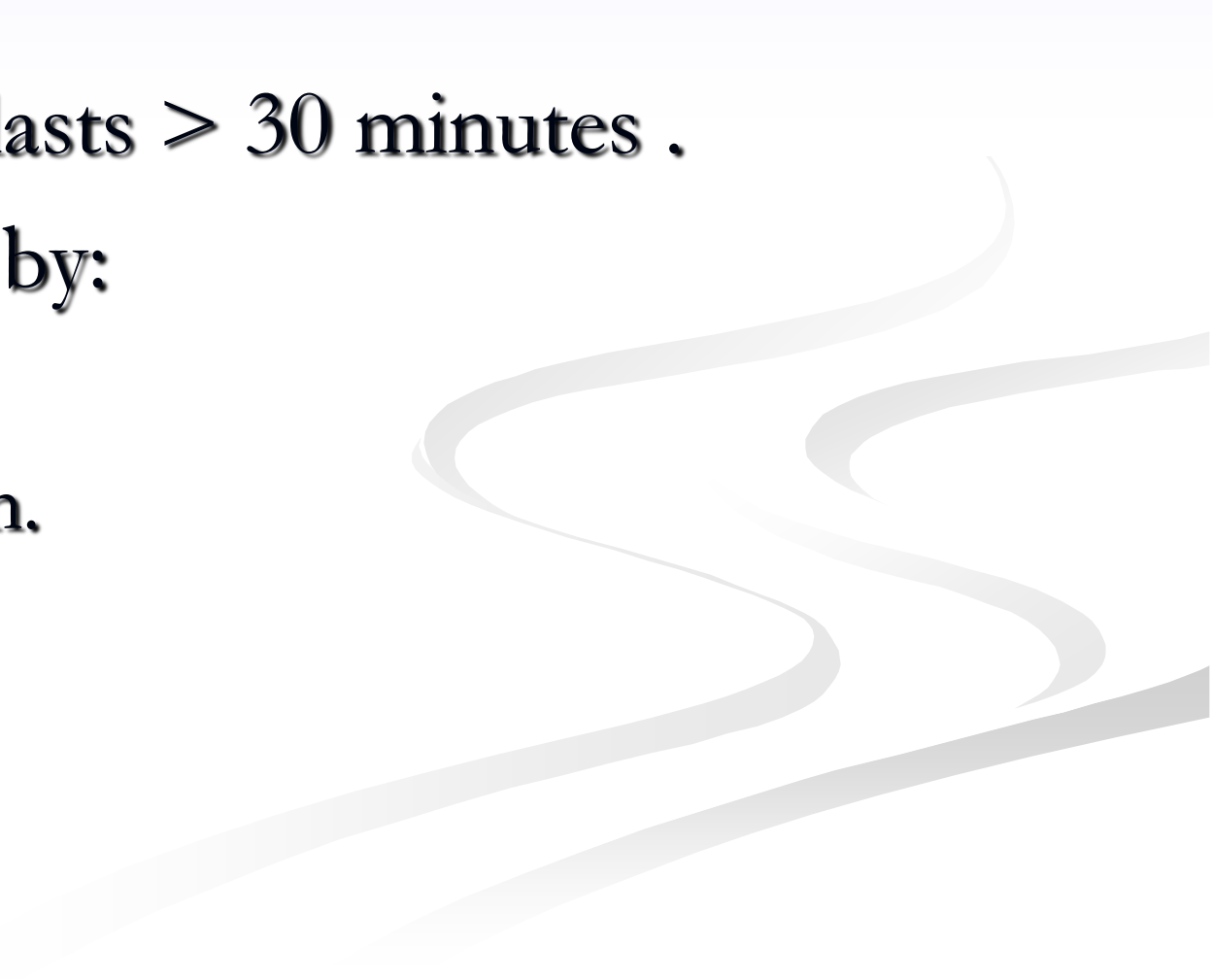
■ Pain

- Substernal.
- Squeezing/Crushing/Heaviness.
- May radiate to arms, shoulders, jaw, upper back, upper abdomen back.
- May be associated with shortness of breath, nausea, sweating.

Symptoms of Angina Pectoris

- Pain usually associated with 3E's:
 - Exercise.
 - Eating.
 - Emotion.
- 
- The slide features decorative wavy lines in the bottom right corner, consisting of several overlapping, light gray, curved bands that create a sense of movement and depth.

Symptoms of Angina Pectoris

- Pain seldom lasts > 30 minutes .
 - Pain relieved by:
 - Rest.
 - Nitroglycerin.
- 
- The background of the slide features several thick, light gray, wavy lines that curve across the lower right portion of the page, creating a decorative, fluid effect.

Symptoms of Angina Pectoris

- Great anxiety/Fear.
- Fixation of the body.
- Pale, ashen, or livid face.
- Dyspnea (SOB) may be associated.

Symptoms of Angina Pectoris

- Nausea.
- Blood pressure usually high during attack.
- Dysrhythmia may be present.

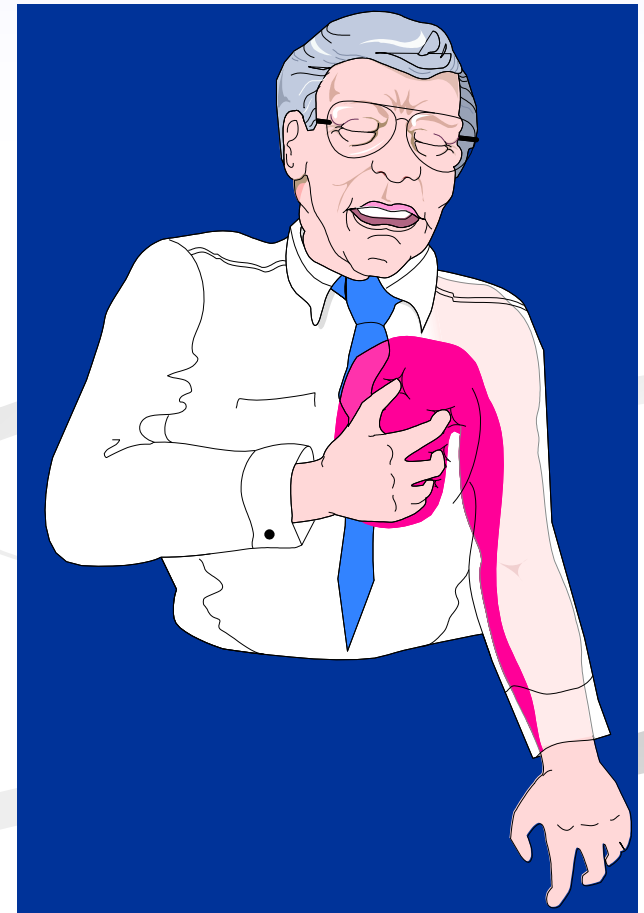
Angina Pectoris

- Following an angina attack there is *no residual damage* to the myocardium.

Acute Myocardial Infarction

“Heart Attack”

- Inadequate perfusion of myocardium.
 - *Damage to myocardium:*
 - **Ischemia.**
 - *Death of myocardium:*
 - **Infarct.**



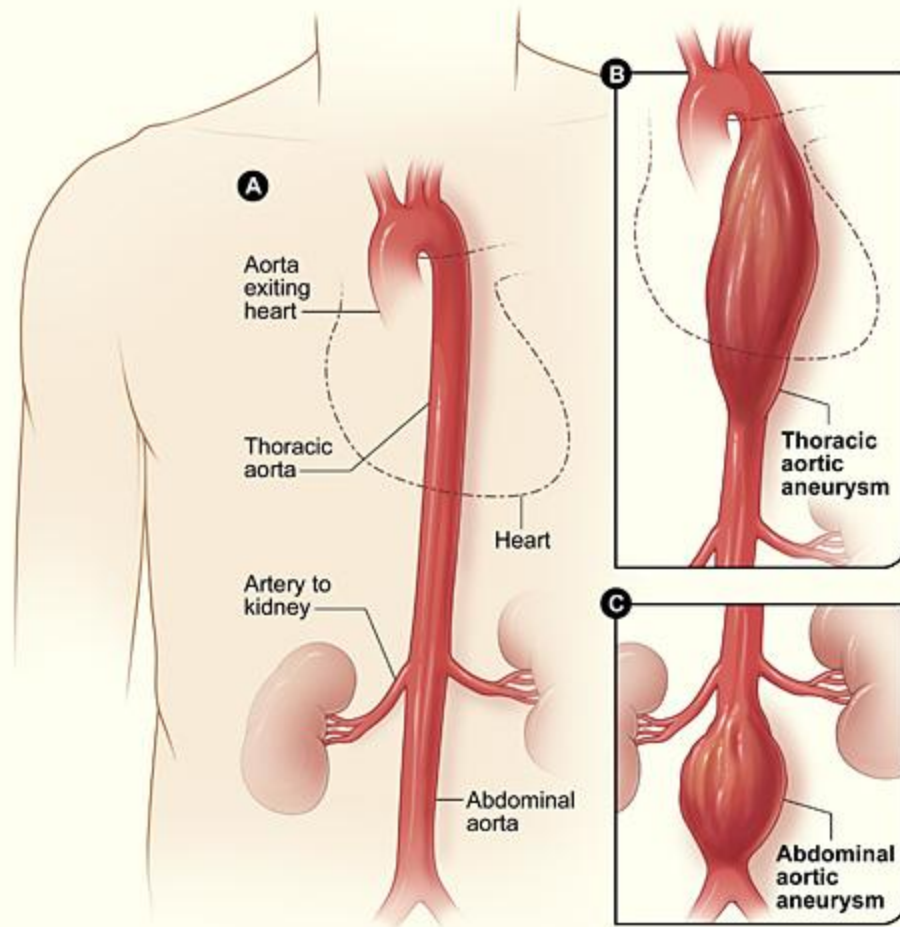
signs and symptoms of myocardial infarction.

- Crushing chest pain that may radiate to left arm, neck, or stomach
- C/o severe heart burn or a gallbladder attack
- Ashen in color and clammy skin
- SHORTNESS OF BREATH (SOB 😊)
- Feel faint and anxious
- May fear they are going to die

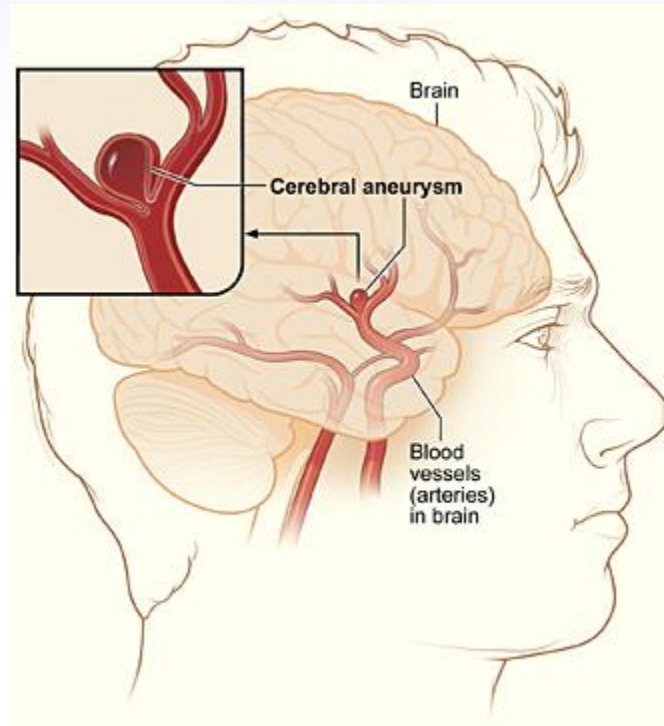
Symptoms - AMI

- Sense of impending doom.
- Denial:
 - 50% of deaths occur in first two hours.
 - Average patient waits three hours before seeking help.

Aneurysms



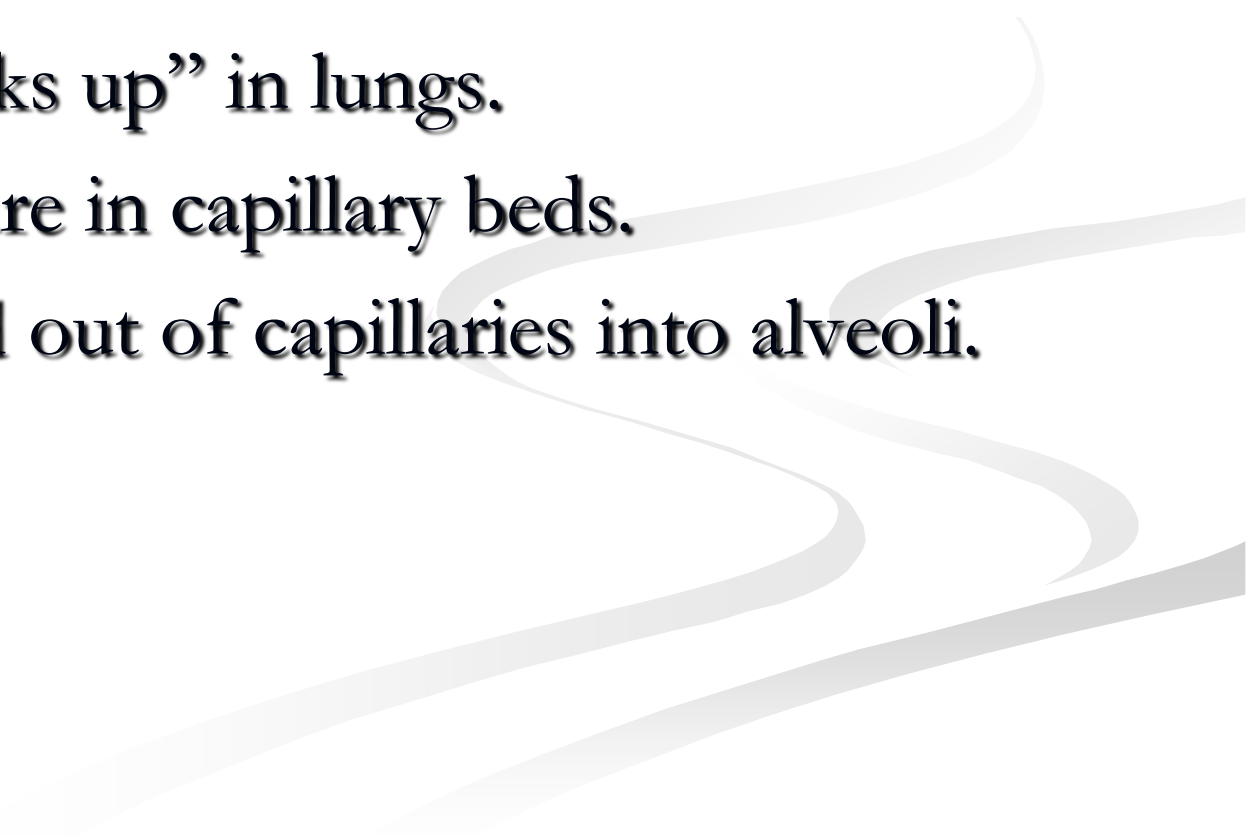
Cerebral Aneurysm



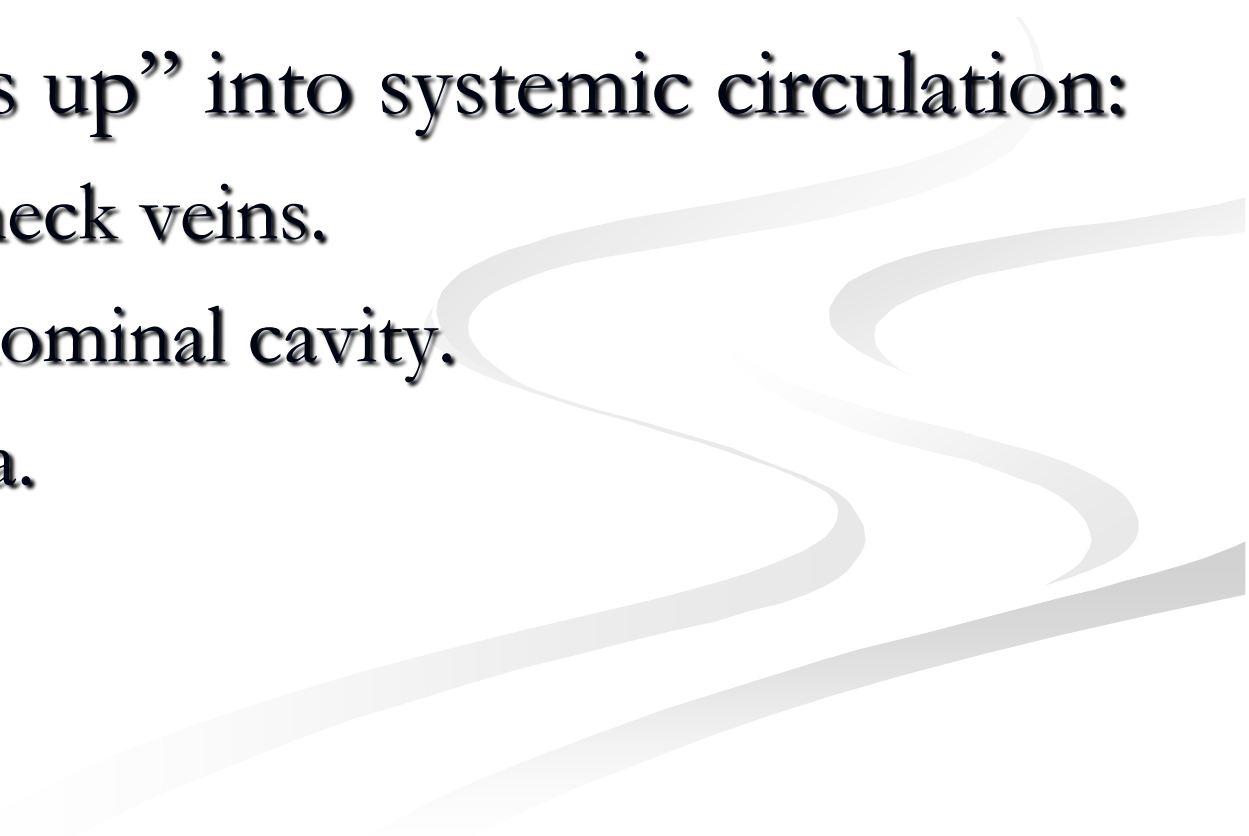
Congestive Heart Failure

- CHF = Inability of heart to pump blood out as fast as it enters.
- May be left-sided, right-sided, or both.

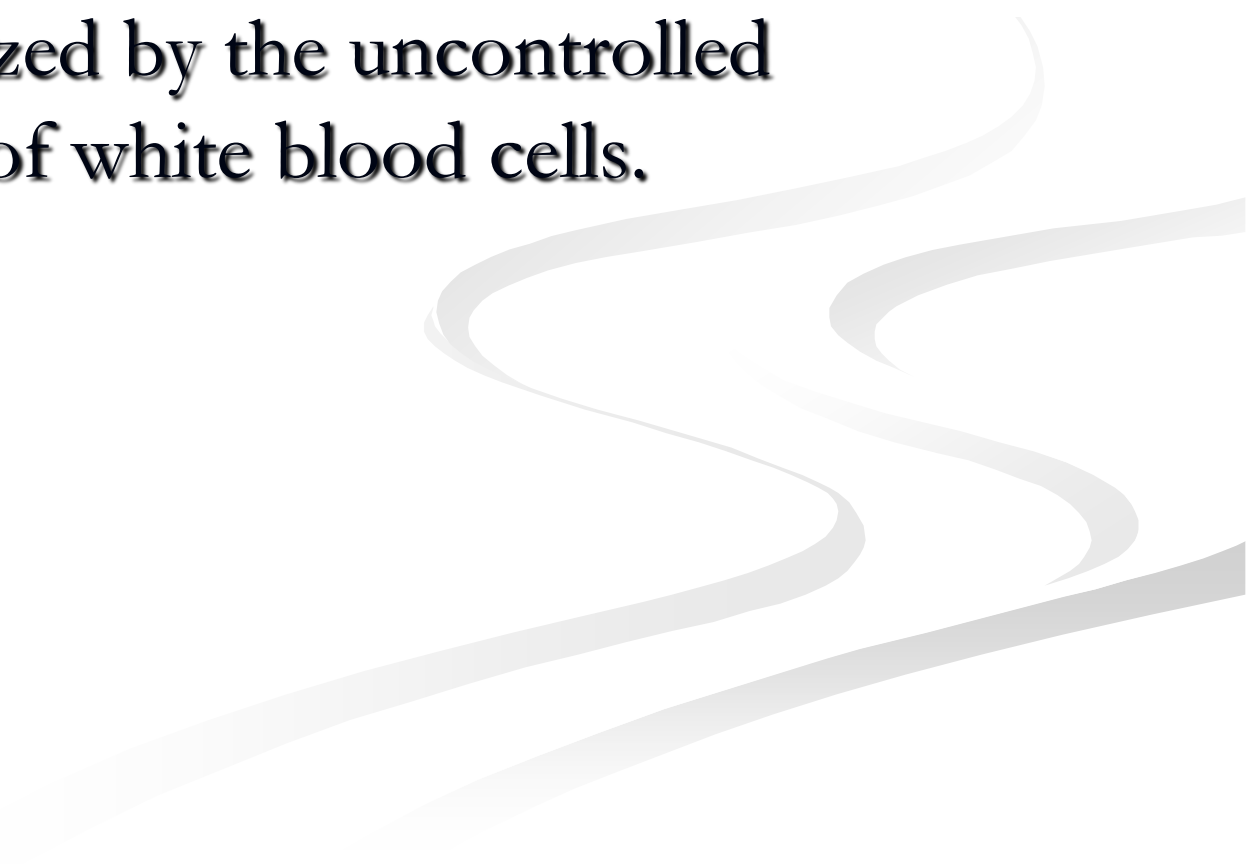
Congestive Heart Failure

- Usually begins with left-sided failure.
 - Left ventricle fails.
 - Blood “stacks up” in lungs.
 - High pressure in capillary beds.
 - Fluid forced out of capillaries into alveoli.
- 

Congestive Heart Failure

- Right-sided failure most commonly caused by left-sided failure.
 - Blood “backs up” into systemic circulation:
 - Distended neck veins.
 - Fluid in abdominal cavity.
 - Pedal edema.
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- A decorative graphic consisting of several thick, light gray, wavy lines that flow from the bottom left towards the top right, creating a sense of movement and depth in the lower half of the slide.

Leukemia

- Leukemia is a malignant disease (cancer) of the bone marrow and blood.
 - It is characterized by the uncontrolled accumulation of white blood cells.
- 
- The bottom right portion of the slide features several thick, light gray, wavy lines that curve and flow across the page, serving as a decorative background element.

- Every ten minutes, another child or adult is expected to die from leukemia, lymphoma or myeloma. This statistic represents nearly 145 people each day, or six people every hour.
- Leukemia causes more deaths than any other cancer among children and young adults under the age of 20.