

Circulatory System

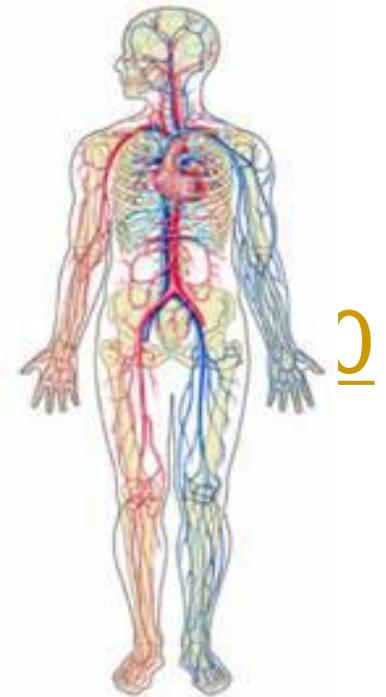
Heart Anatomy

DHO Ch 7.8, pg 183

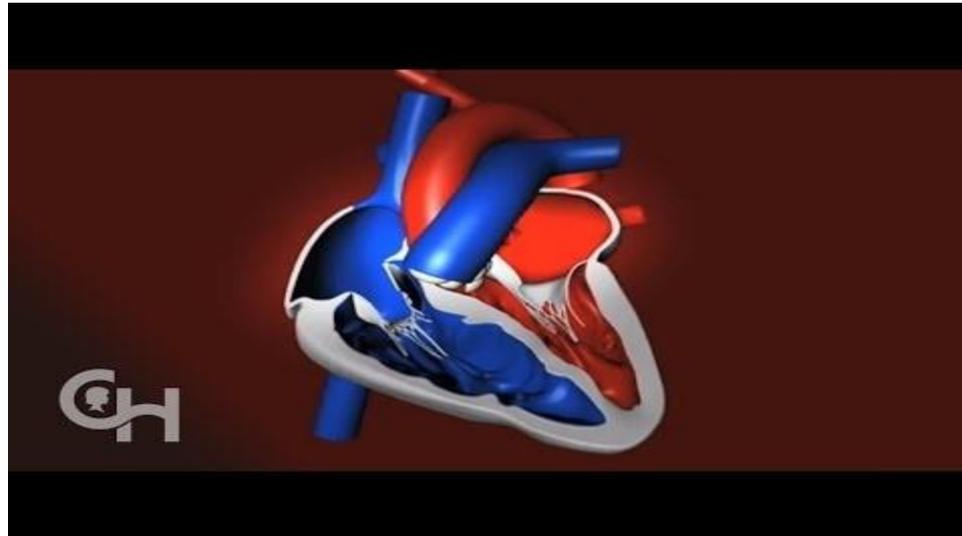
HS1/2016-2017

Circulatory System Facts:

- ❑ AKA CV or cardiovascular system
- ❑ Transportation system of the body
- ❑ Transports O₂ and nutrients to cells; CO₂ & metabolic materials away from cells
- ❑ Structures include the heart, blood vessels, and blood
- ❑ <https://www.youtube.com/watch?v=Wb3gc4mE>

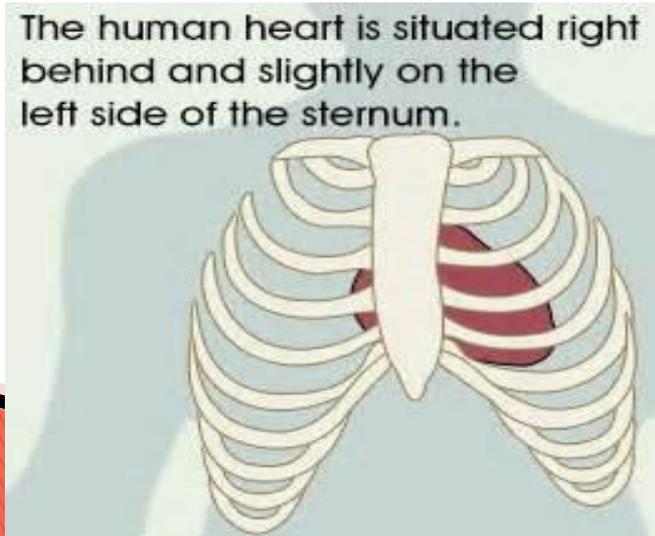


The Heart



Heart:

- ❑ Muscular, hollow organ
- ❑ “Pump” of the body
- ❑ Weighs <1 pound, size of a closed fist
- ❑ Located in the mediastinal cavity
(between the lungs, behind sternum, & above diaphragm)



Test Your Knowledge

- ▶ The heart is best described as a :
 - a) Muscular pump
 - b) Storage chamber
 - c) Message center
 - d) Filtration unit

Correct Answer: A



Test Your Knowledge

- ▶ The heart is about the size of a/an:
 - a) Egg
 - b) Apple
 - c) Peanut
 - d) Pumpkin

Correct Answer: B



Test Your Knowledge

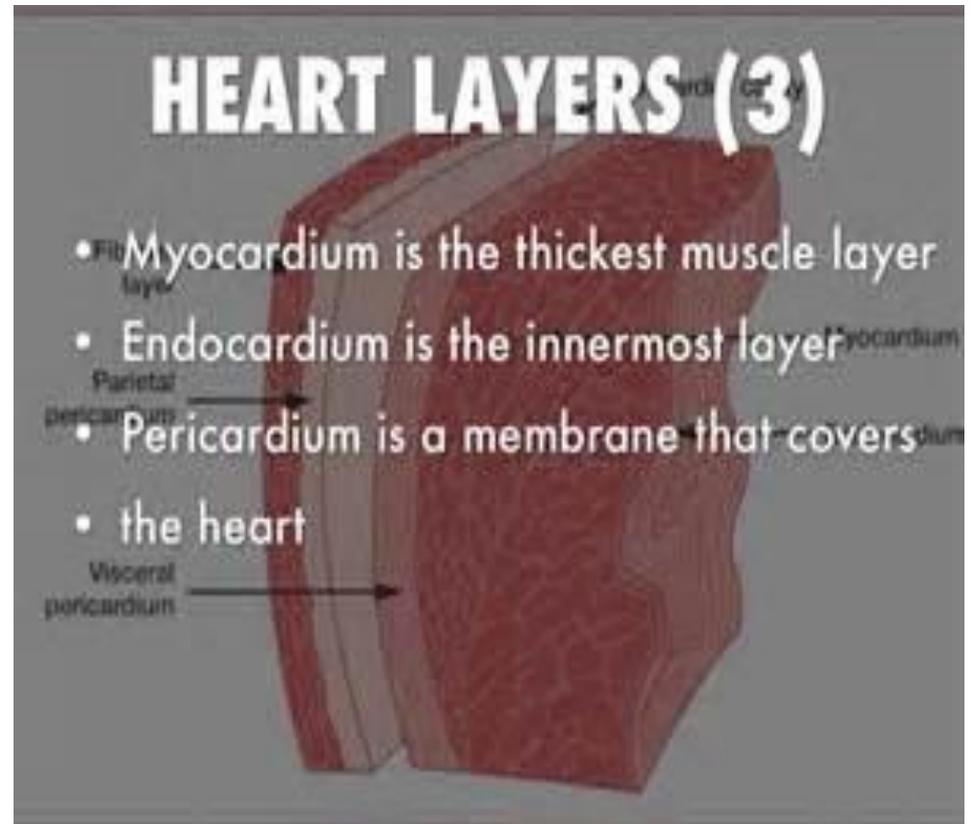
- ▶ Which of these descriptions of the heart's location is correct?
 - a) Posterior to the sternum and superior to the diaphragm
 - b) Anterior to the lungs and medial
 - c) Superior to the diaphragm and laterally to the right of the sternum
 - d) Inferior to the clavicle and diaphragm

Correct answer: A



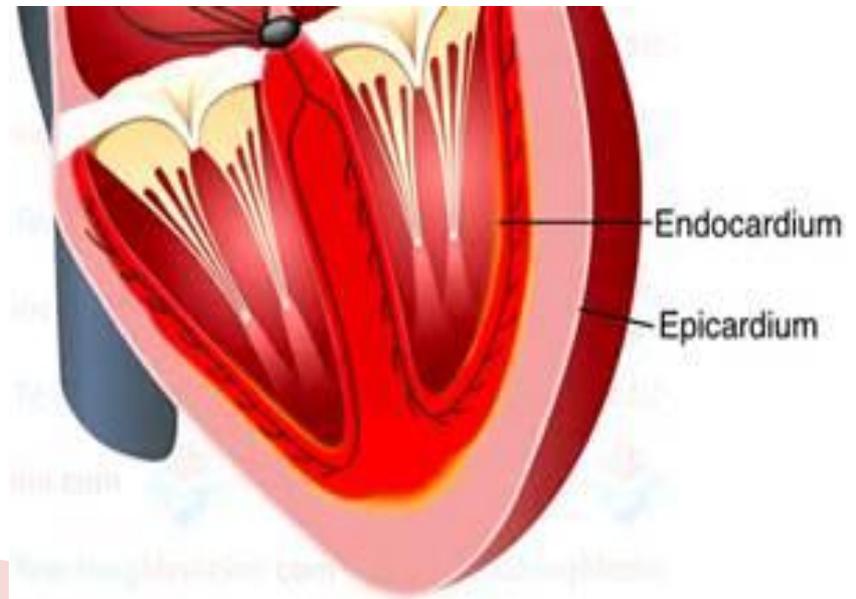
3 layers of tissue form the heart:

- ▶ Endocardium
- ▶ Myocardium
- ▶ Pericardium

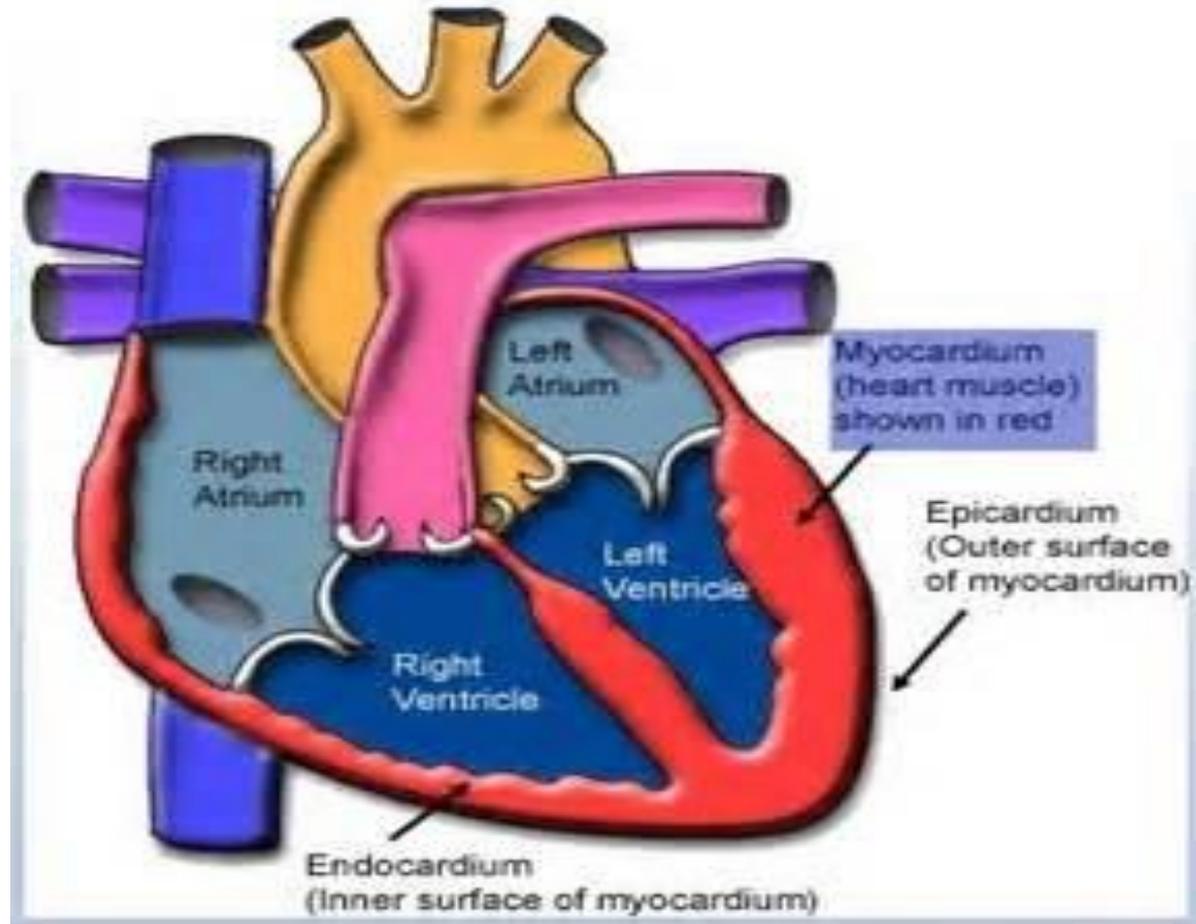


1. Endocardium –

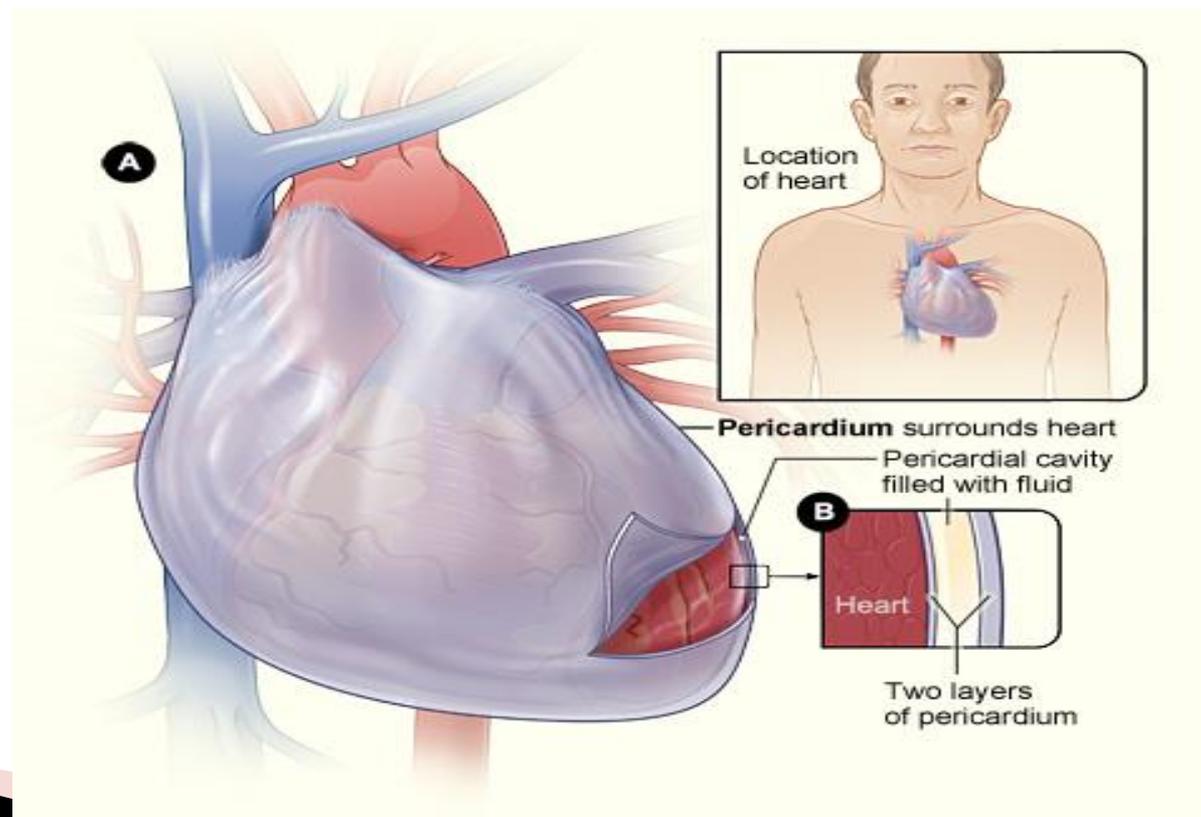
- ▶ smooth layer of cells
- ▶ lines inside of the heart and is continuous with inside of the blood vessels
- ▶ allows for smooth flow of blood.



2. Myocardium – muscular middle layer

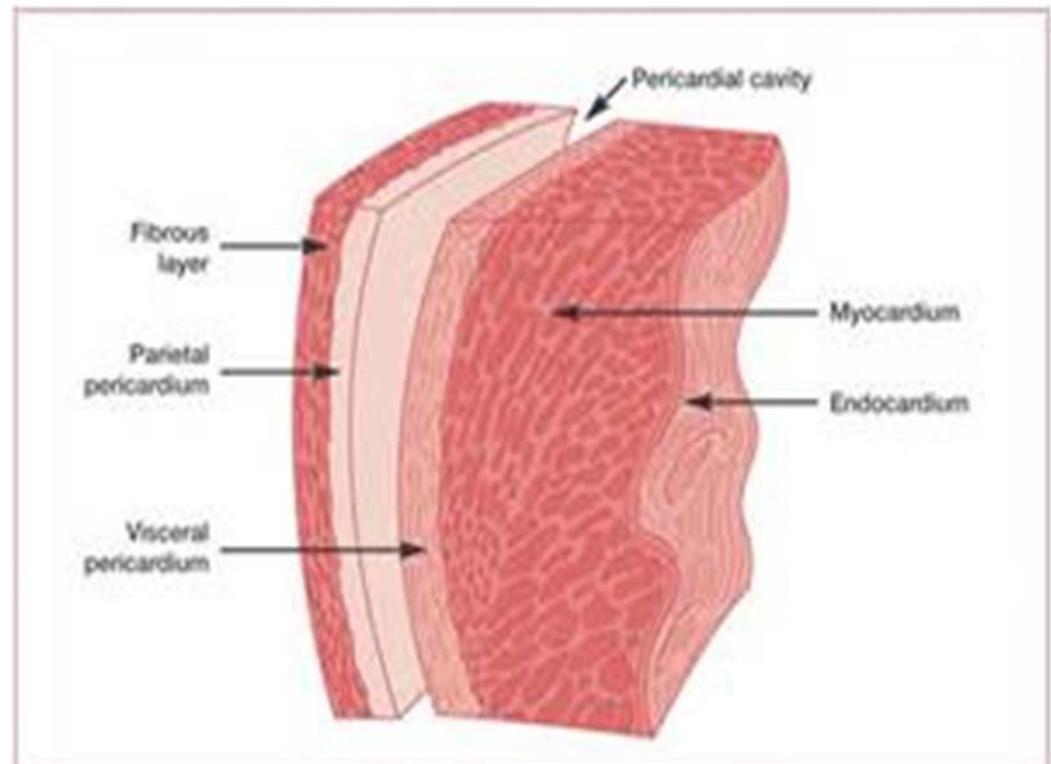


3. Pericardium – double layered membrane or sac that covers outside of the heart filled with pericardial fluid



Pericardial fluid (lubricating fluid)

- ▶ fills the space between the 2 layers
- ▶ prevents friction & damage to the membranes as the heart contracts



Test Your Knowledge

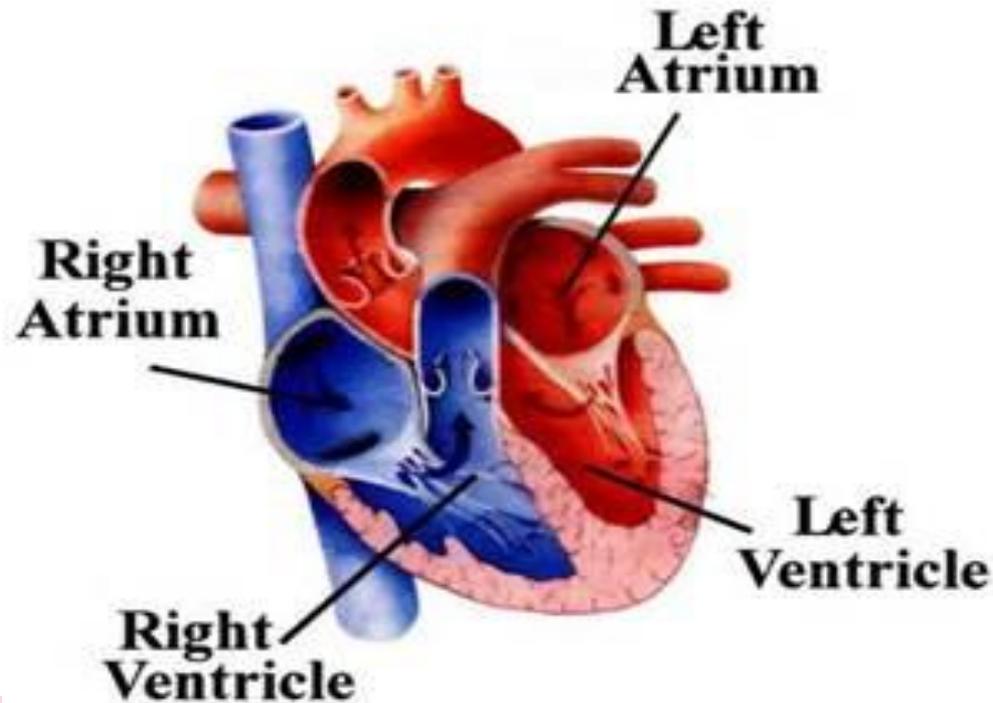
- ▶ The endocardium..
 - a) Is also known as the parietal pericardium
 - b) Is a layer of cardiac muscle
 - c) Is the visceral pericardium
 - d) Line the heart chambers
 - e) Is the pacemaker of the heart

Correct answer: D



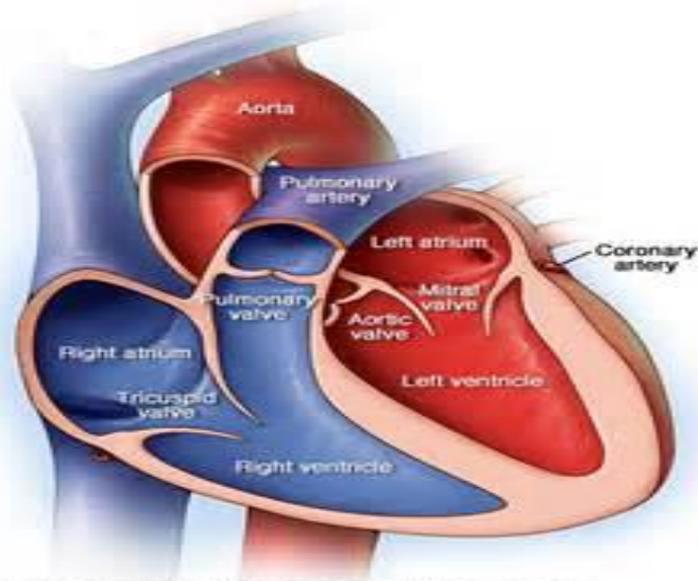
4 Chambers of the heart.

1. 2 upper chambers=atria/atrium
2. 2 lower chambers=ventricles



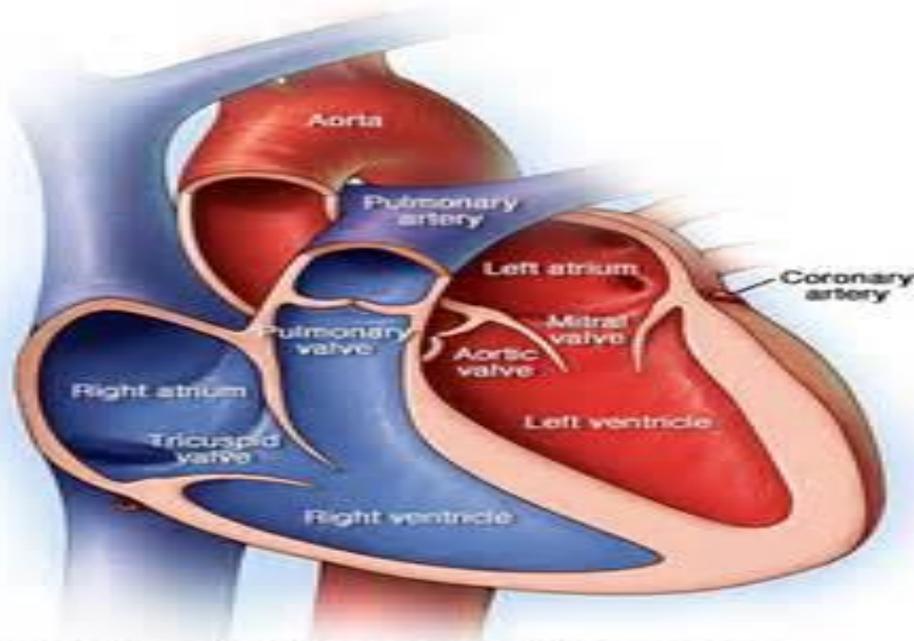
Right Sided Chambers of the heart -

- ❖ Right Atrium (RA)- receives deoxygenated blood as it returns from the body cells
- ❖ Right Ventricle (RV)- receives blood from RA & pumps it into pulmonary artery to be carried to the lungs for O₂



Left Sided Chambers of the heart -

- ❖ Left Atrium (LA)- receives oxygenated blood from the lungs
- ❖ Left Ventricle (LV)- receives blood from LA & pumps it into aorta for transport to body cells



Test Your Knowledge

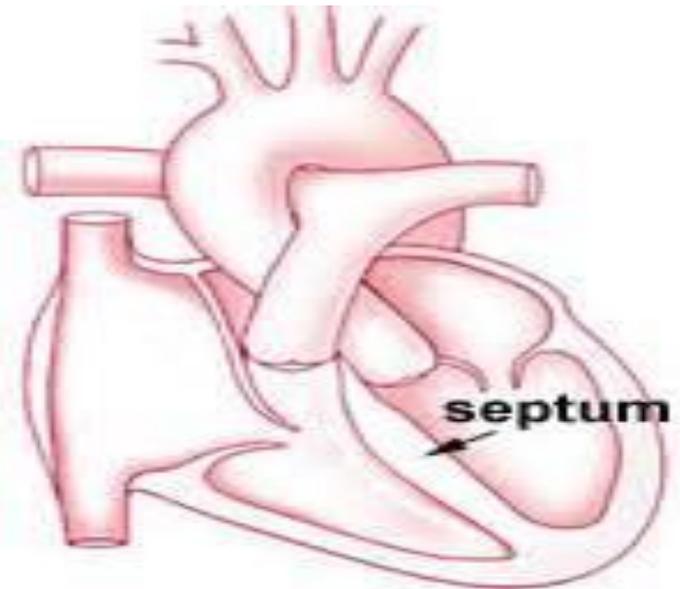
- ▶ When blood leaves the left atrium, where does it go next?
 - a) Aorta
 - b) Left ventricle
 - c) Right atrium
 - d) Pulmonary artery

Correct Answer: B



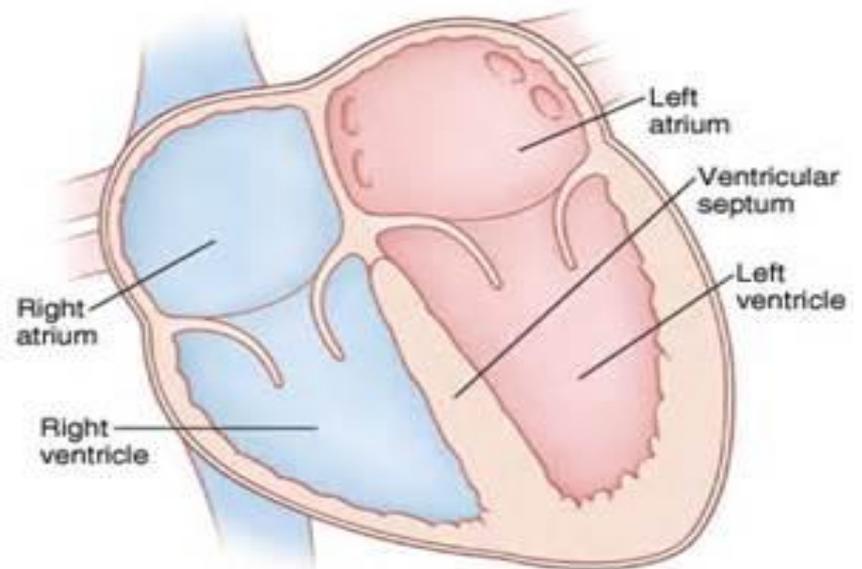
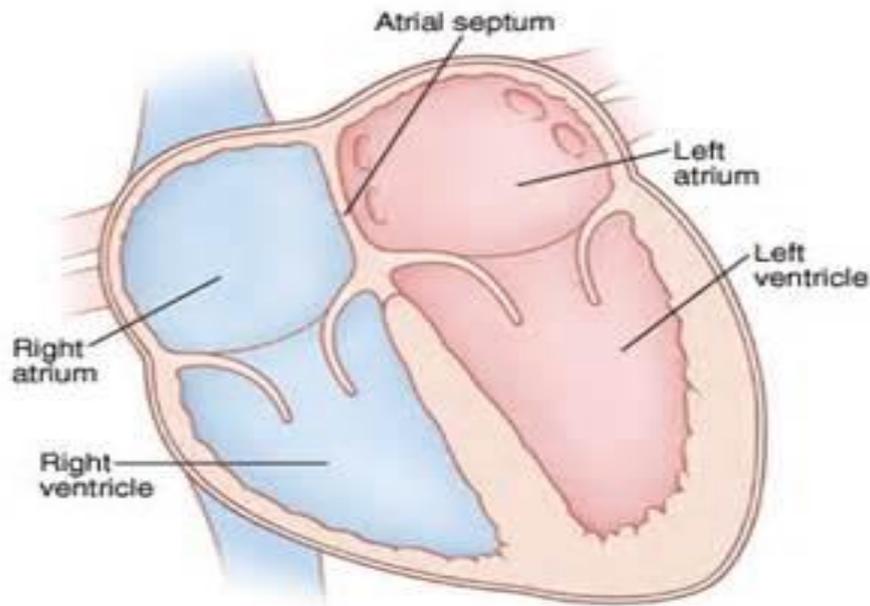
Septum

- Muscular wall that separates heart into R and L sides
- It prevents blood from moving between R and L sides



Septum

- Upper part – interatrial septum
- Lower part – interventricular septum



Test Your Knowledge

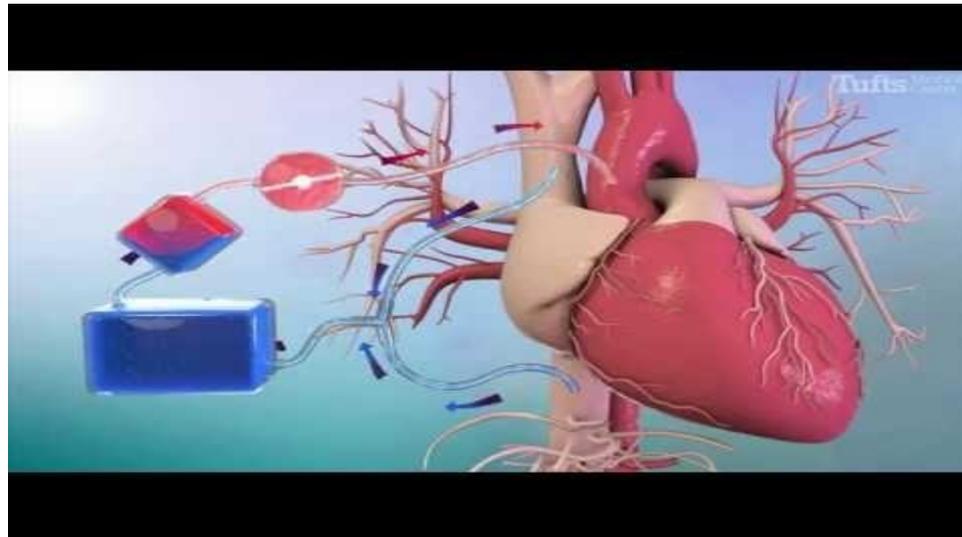
- ▶ What would happen if a small hole developed in the septum?
 - a) The heart would stop pumping
 - b) Blood would move between the right and left sides of the heart
 - c) The blood from the pulmonary artery would enter the aorta
 - d) Blood would not flow into the coronary arteries

Correct answer: B



Septal Myectomy

<https://www.youtube.com/watch?v=ux7iNMMbfG0>

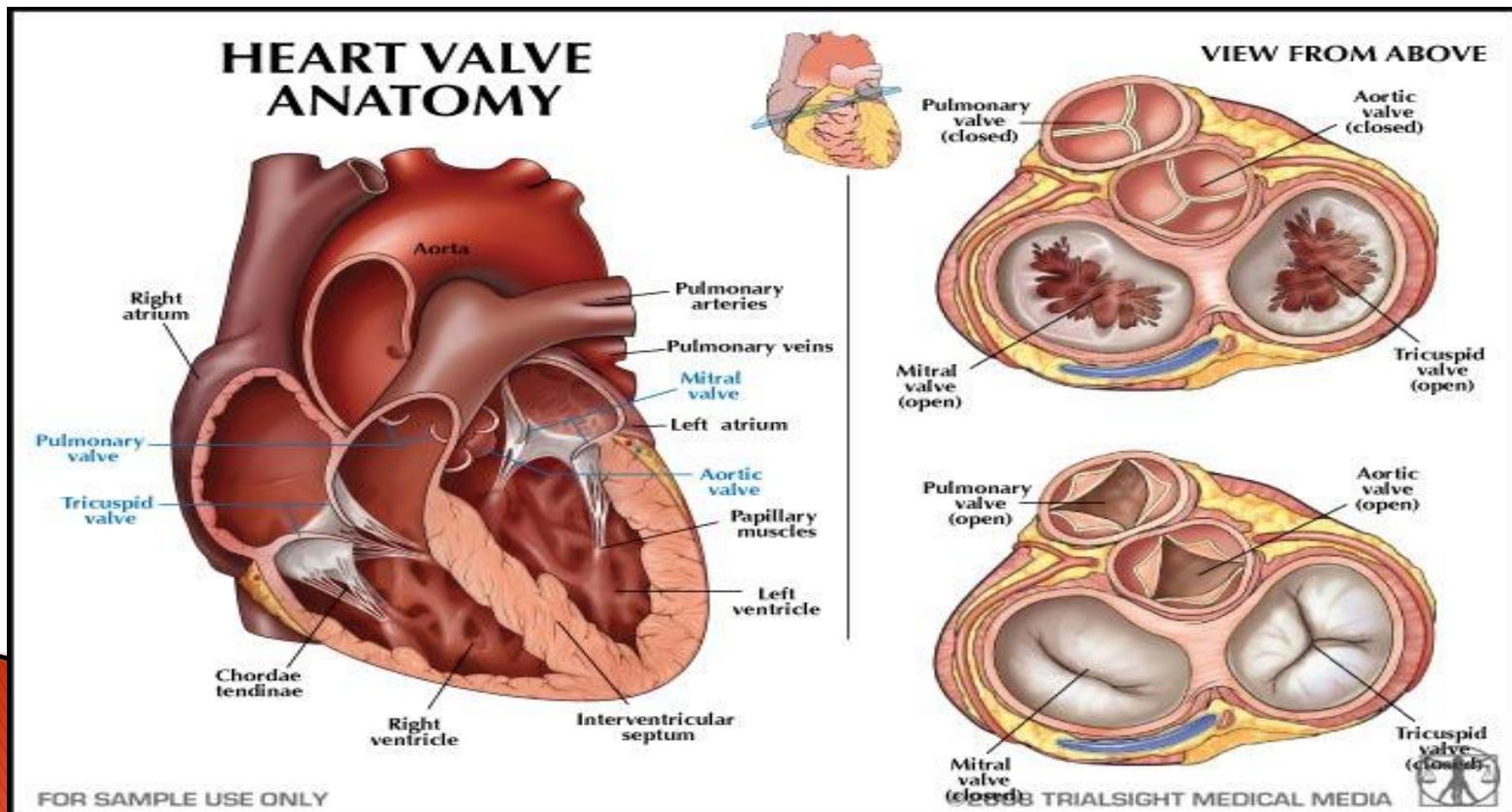


4 Valves-

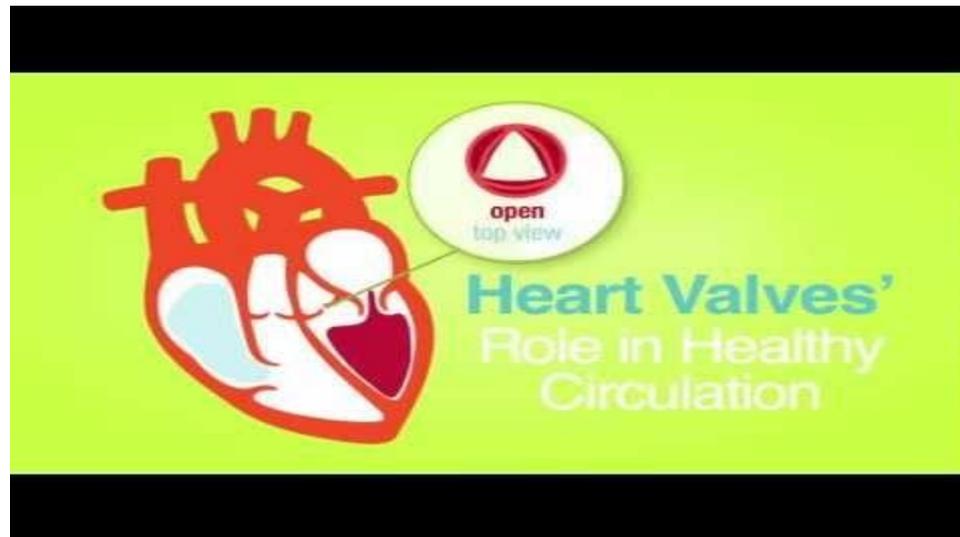
One way valves keep the blood flowing in the right direction

2 Types of valves:

Atrioventricular (AV) and Semilunar



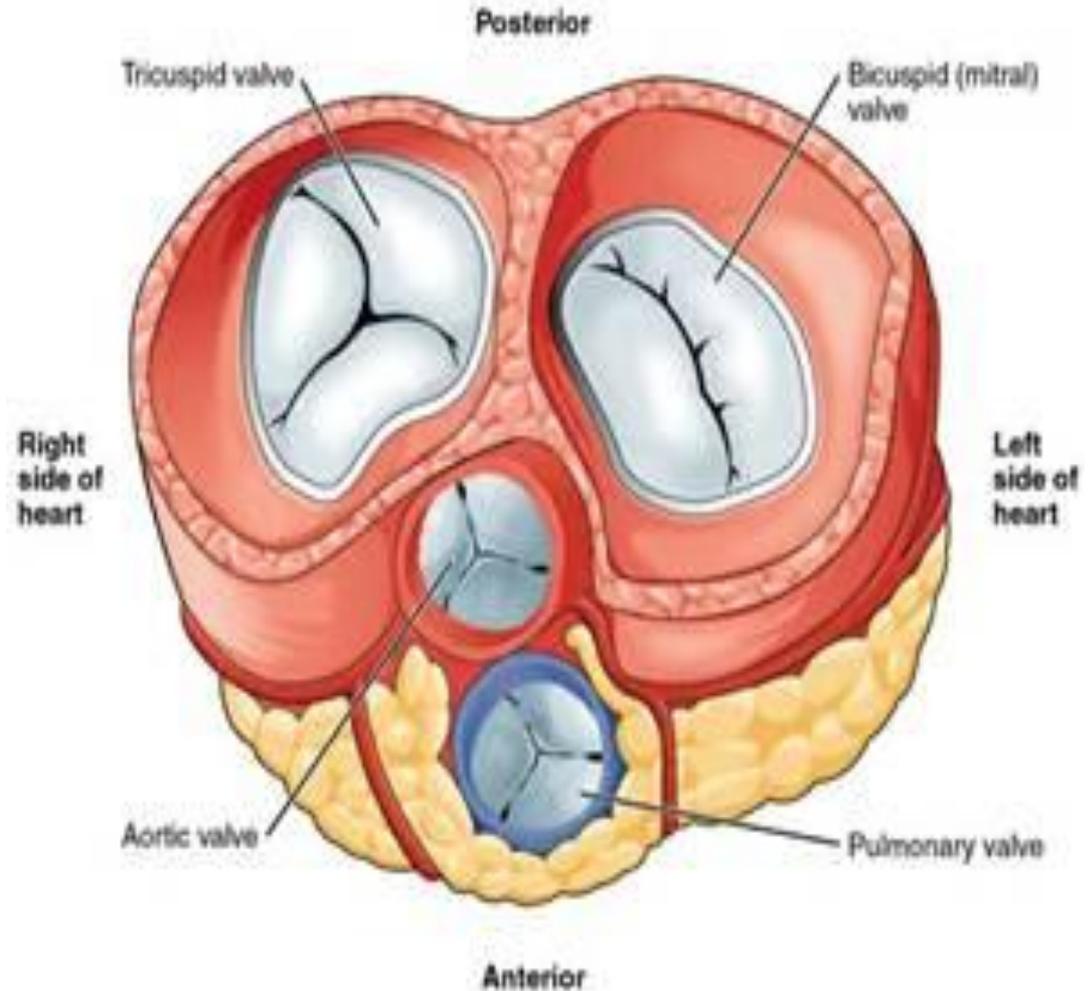
Valves of the Heart



2 AV Valves -

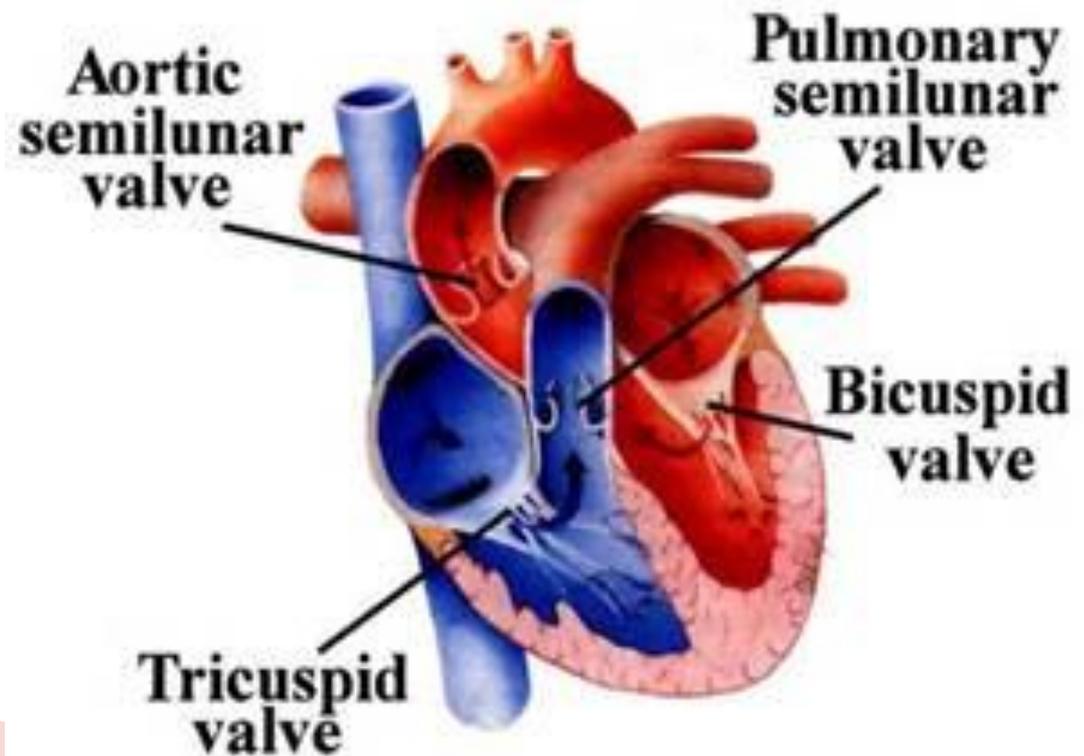
(Separate
atria &
ventricles)

- ▶ Tricuspid
- ▶ Bicuspid (Mitral)



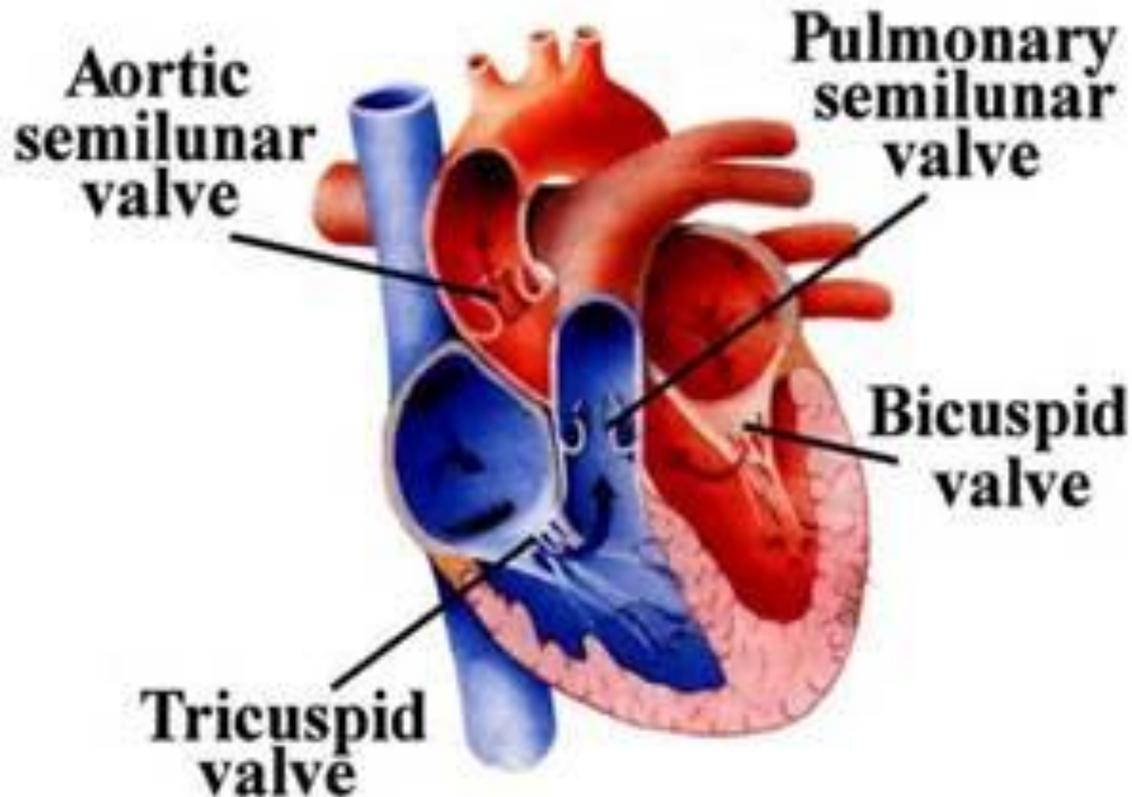
AV Valves -

- ❖ Tricuspid valve - between RA and RV, closes when RV contracts
- ❖ Allows blood to flow to lungs & prevents it from flowing back into RA



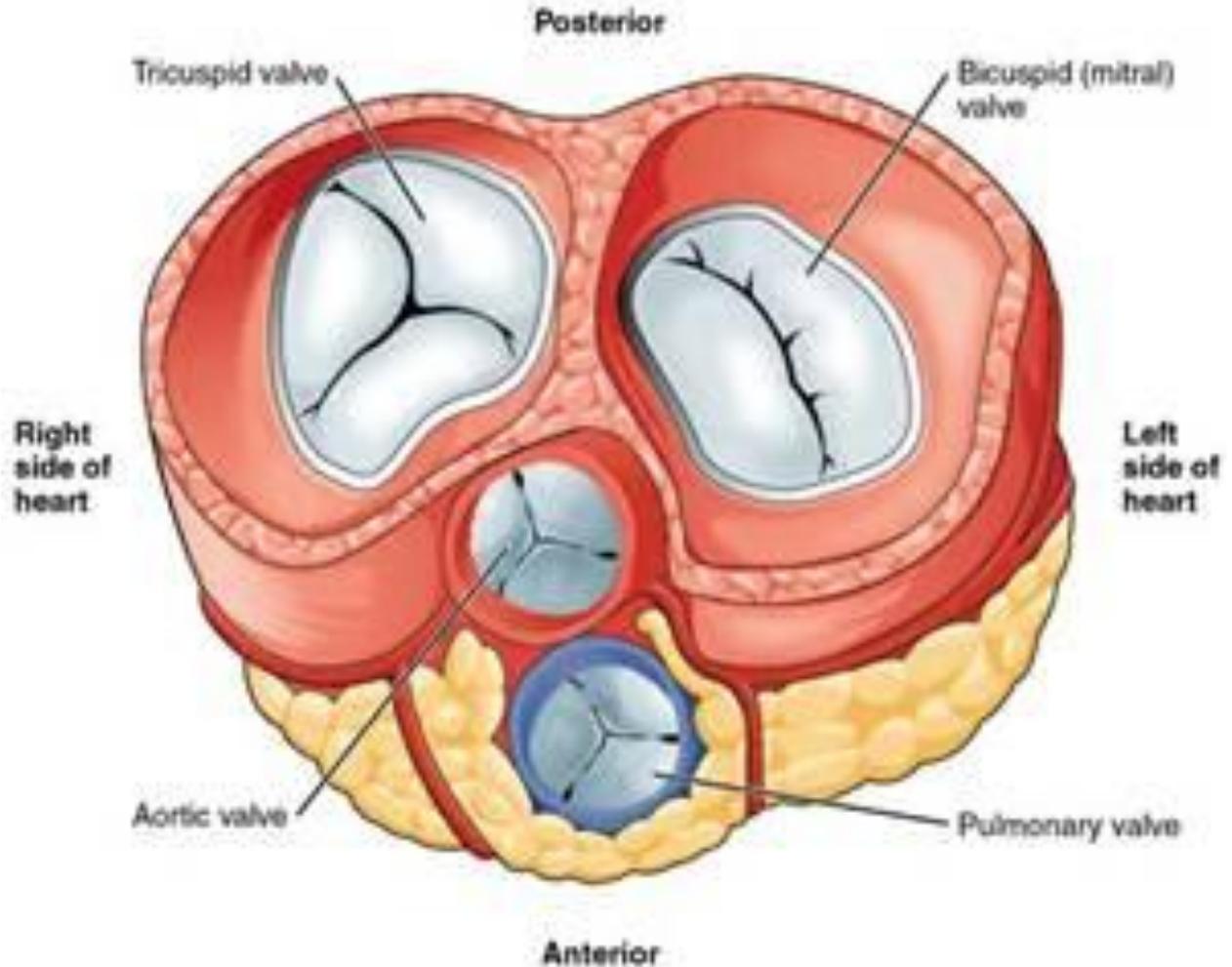
AV Valves -

- ❖ Bicuspid (Mitral) Valve - between LA and LV, closes when LV contracts
- ❖ Allows blood to flow into aorta & prevents it from flowing back into LA



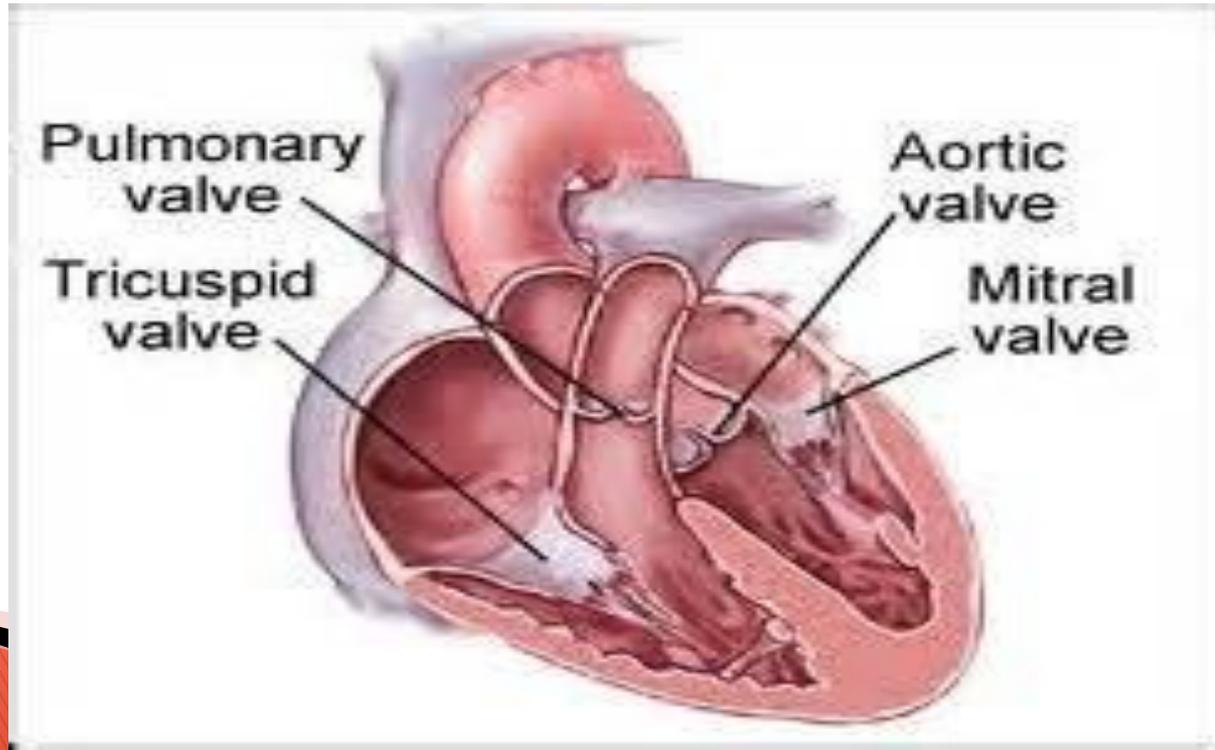
2 Semilunar Valves-

- ▶ Pulmonary
- ▶ Aortic



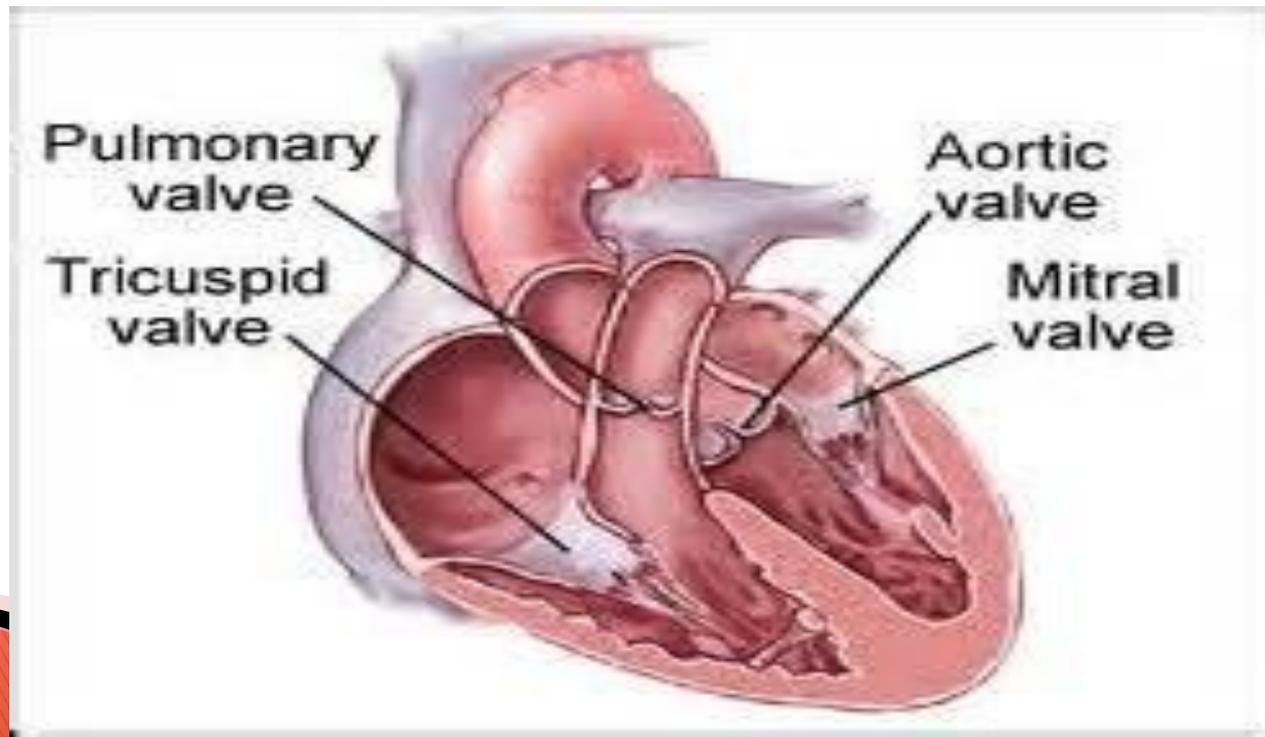
Semilunar Valves -

- ❖ Pulmonary semilunar valve - between RV and pulmonary artery, closes when RV has finished contracting
- ❖ Allow blood to flow into pulmonary artery & prevents blood from flowing back into RV



Semilunar Valves -

- ❖ Aortic Semilunar Valve - between LV and aorta, closes when LV has finished contracting
- ❖ Allows blood to flow into aorta & prevents blood from flowing back into LV



Test Your Knowledge

- ▶ After blood leaves the right atrium, what valve prevents back flow?
 - a) Tricuspid
 - b) Mitral
 - c) Pulmonary
 - d) Aortic

Correct answer: A



Test Your Knowledge

- ▶ Arrange the following valves in the order in which an RBC would pass through them after returning to the heart from the left arm.

1) Aortic semilunar 2) bicuspid/mitral
3) Pulmonary semilunar 4) tricuspid

- a) 1,2,3,4
- b) 2,3,1,4
- c) 3,1,2,4
- d) 4,3,2,1

Correct Answer: D