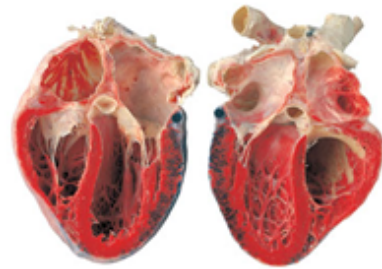


# Anatomy of the Heart

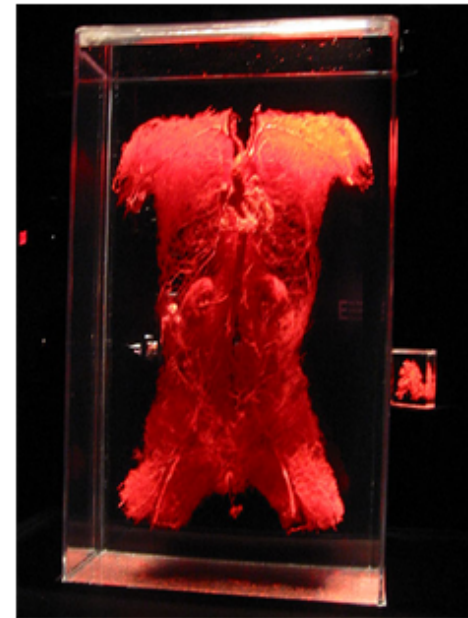


# The cardiovascular system has two components

1. The Heart! (Pumps blood so that it flows to tissue capillaries and lung capillaries)



2. Blood Vessels! (tunnels through which blood flows)



The right side of the heart and its blood vessels form the pulmonary circuit and pumps blood to the lungs.



The left side of the heart and its blood vessels form the systemic circuit and pumps blood to the entire body.



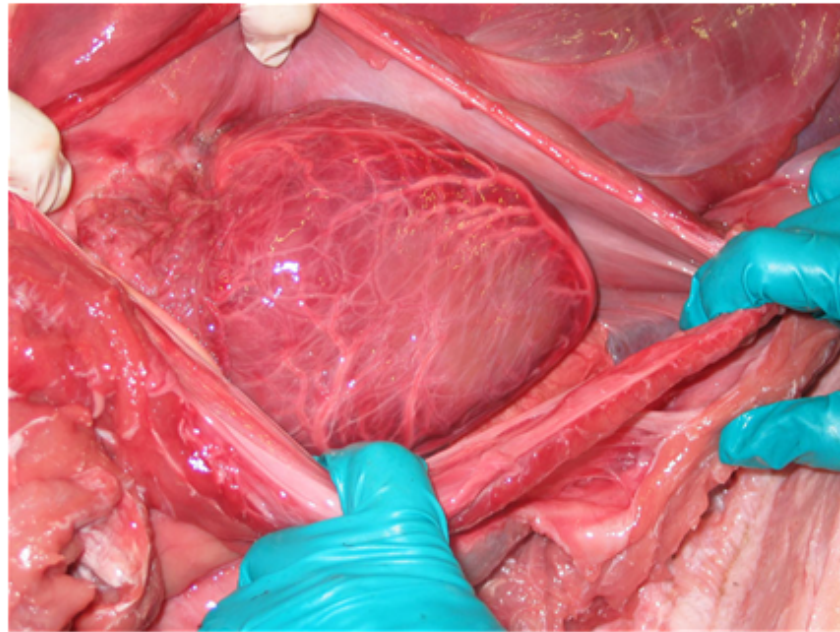
# The Heart

- Located in the thoracic cavity between the lungs within the mediastinum



# The Heart

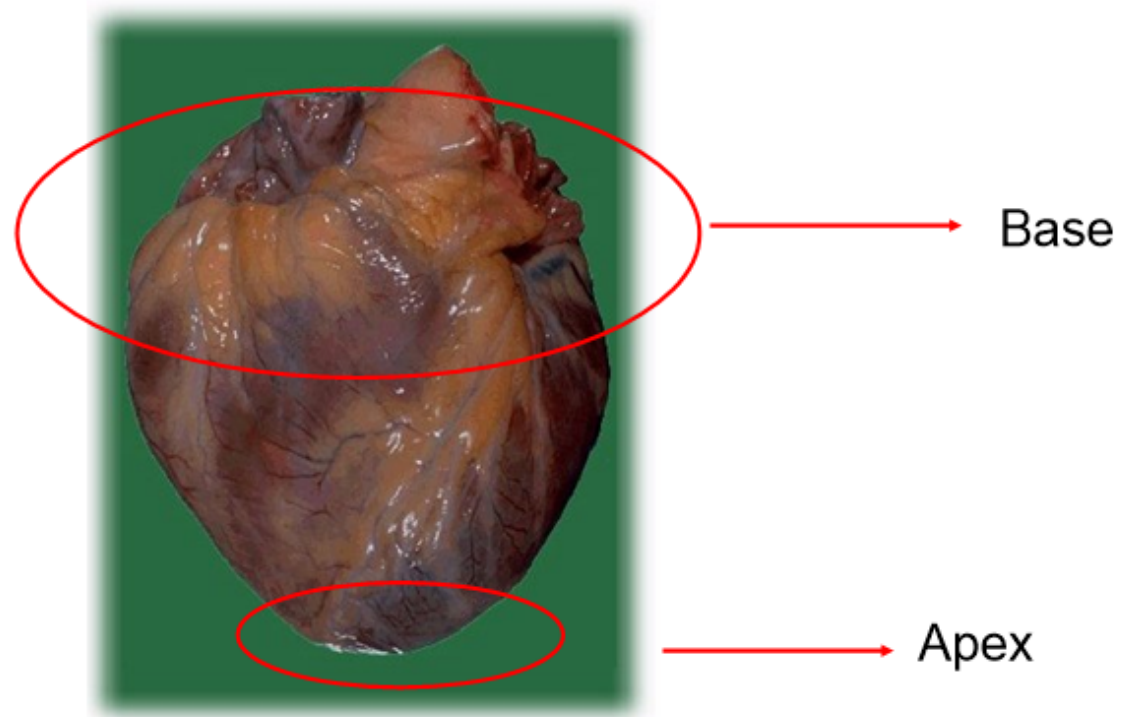
- A hollow cone-shaped muscular organ about the size of your hand wrapped around your fist.





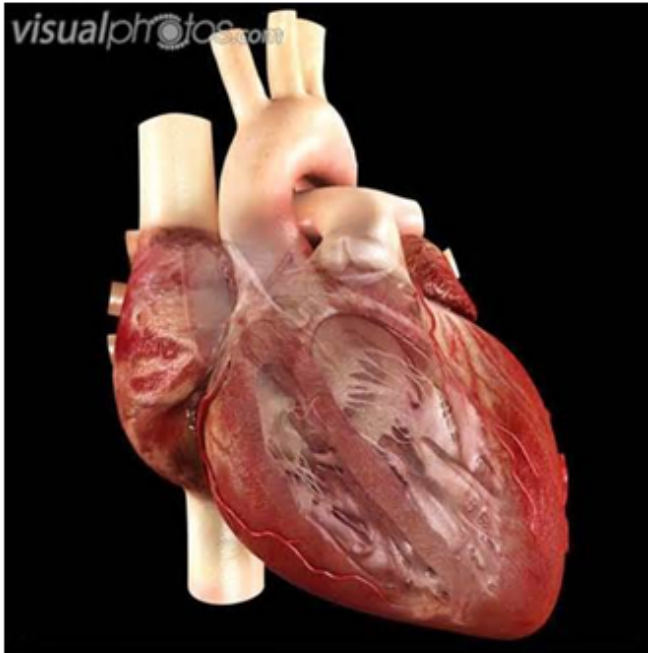
# The Heart

- The widest part is the base and the pointed tip is the apex

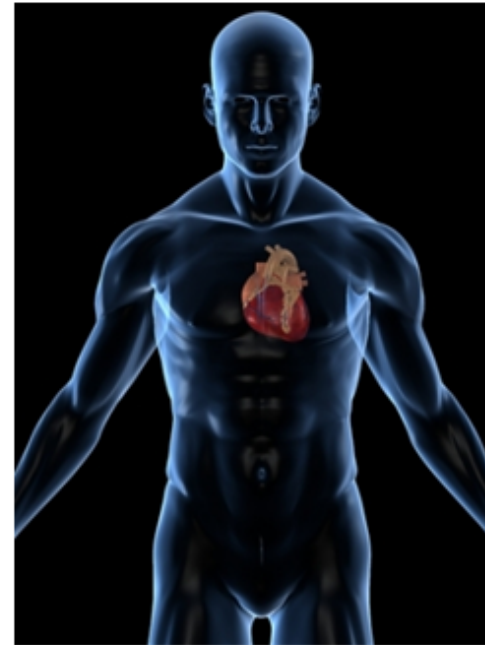


# The Heart

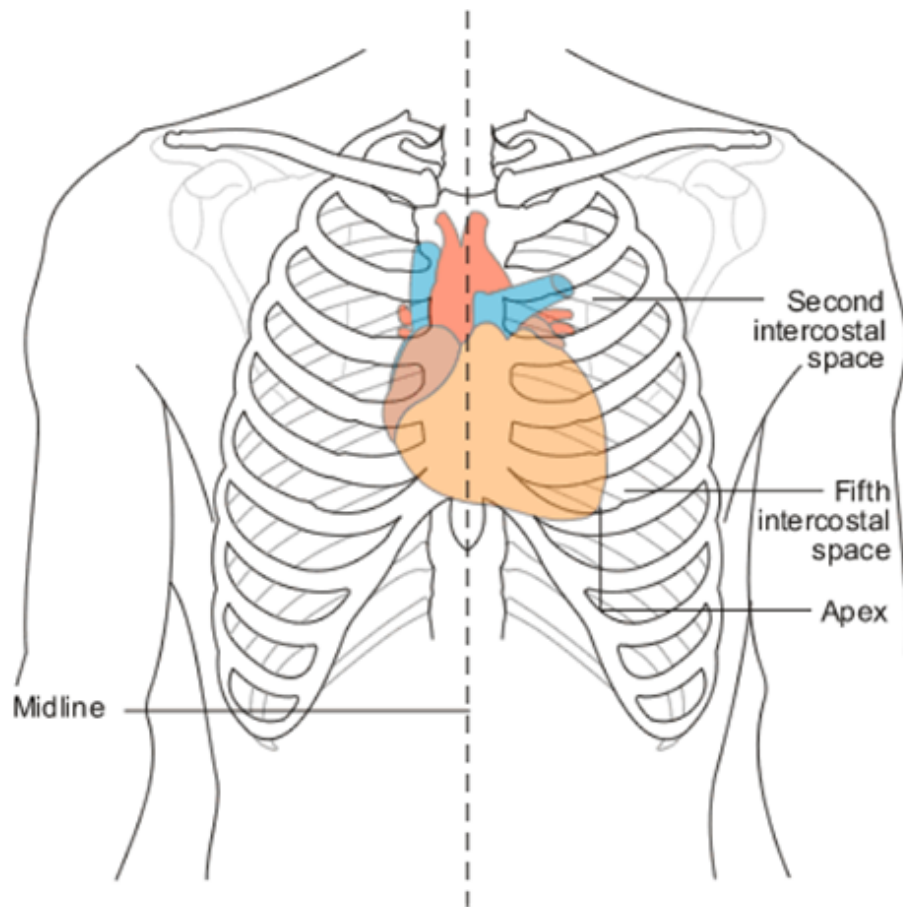
- Positioned at a slant, the based points towards the right shoulder and the apex points toward the left hip



P2160540 [RM] © www.visualphotos.com



# The Heart



- Base is deep to the second rib
- Apex is at the level of the 5th intercostal space

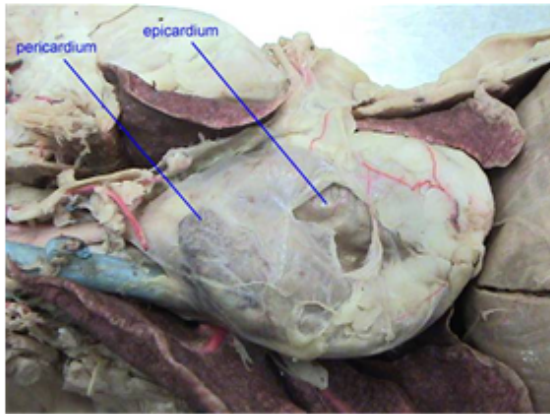


# The Heart

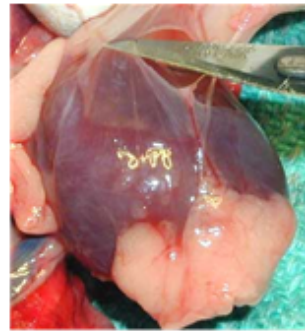
- As the heart pumps blood through the blood vessels, it performs the following:
  1. Keeps oxygen poor blood separate from oxygen rich blood
  2. Keeps blood flowing in one direction - away from the heart and then back in each circuit
  3. Creates blood pressure which moves the blood through the circuits
  4. Regulates the blood supply based on the needs of the body

# The Heart

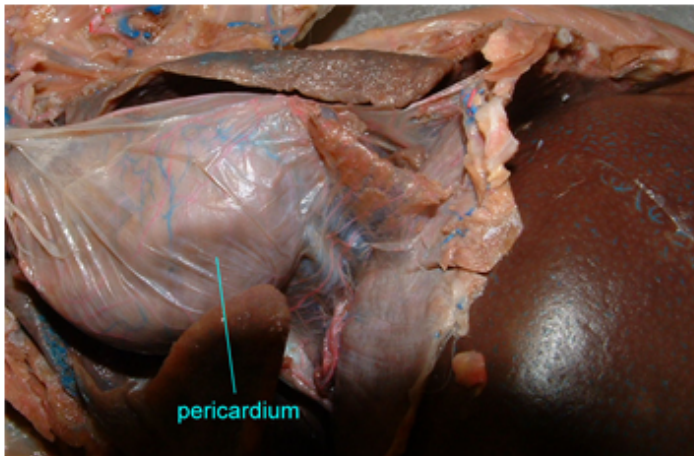
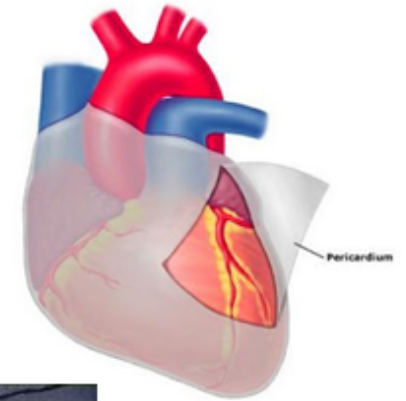
- Enclosed by a 2-layered membrane called the pericardium



Cat



Dog



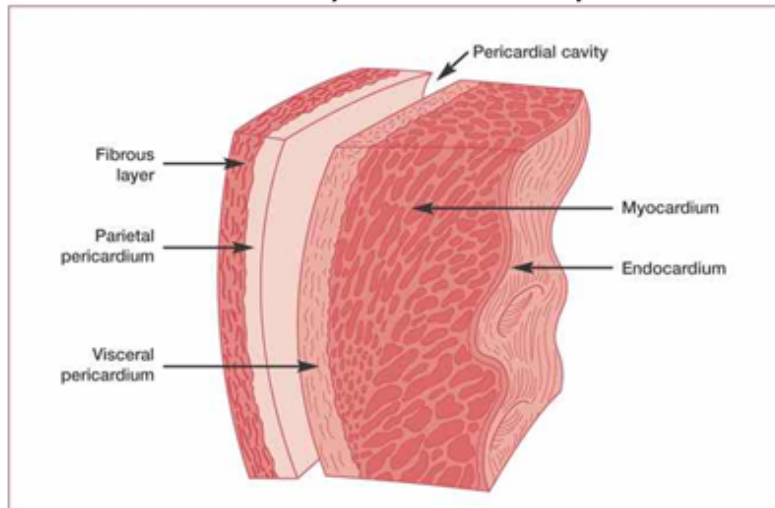
Opossum



Human

# The Heart

- The pericardial cavity forms when the visceral pericardium doubles back to become the parietal pericardium (the other layer). The two membranes secrete a pericardial fluid very similar to plasma that reduces friction as the heart beats.

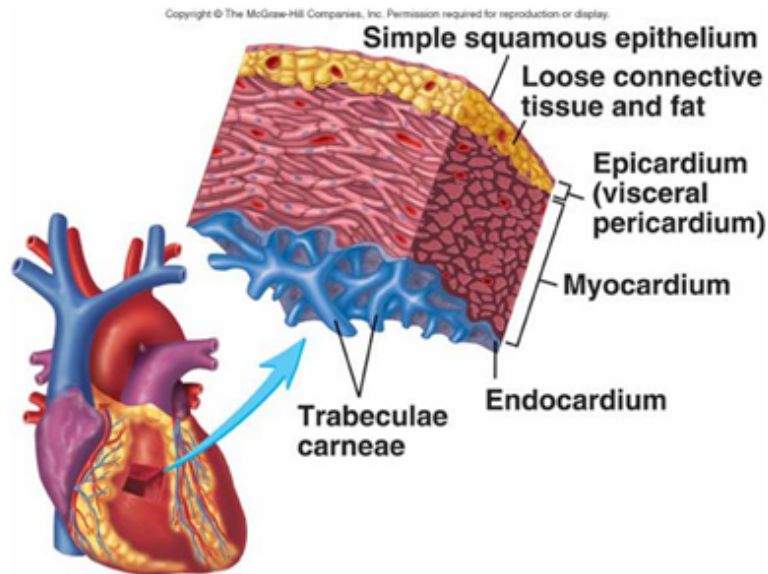


This is a picture of the heart exposed within the pericardial cavity

- The coverings of the heart protect it, confine it to the correct location, and prevent the heart from overfilling yet allowing the heart to contract.

# The Heart

- One of the layers of the pericardium - the visceral pericardium - is considered part of the heart wall and forms the epicardium which is the outer surface of the heart (there is three parts of the heart wall)
- AKA Inner most layer of the Pericardium = Visceral Pericardium = Epicardium



Calf heart  
with  
epicardium

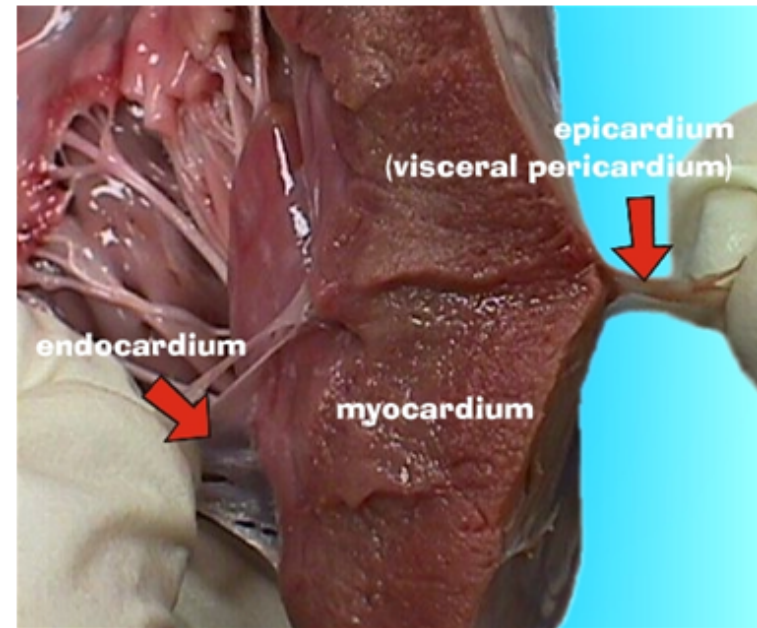
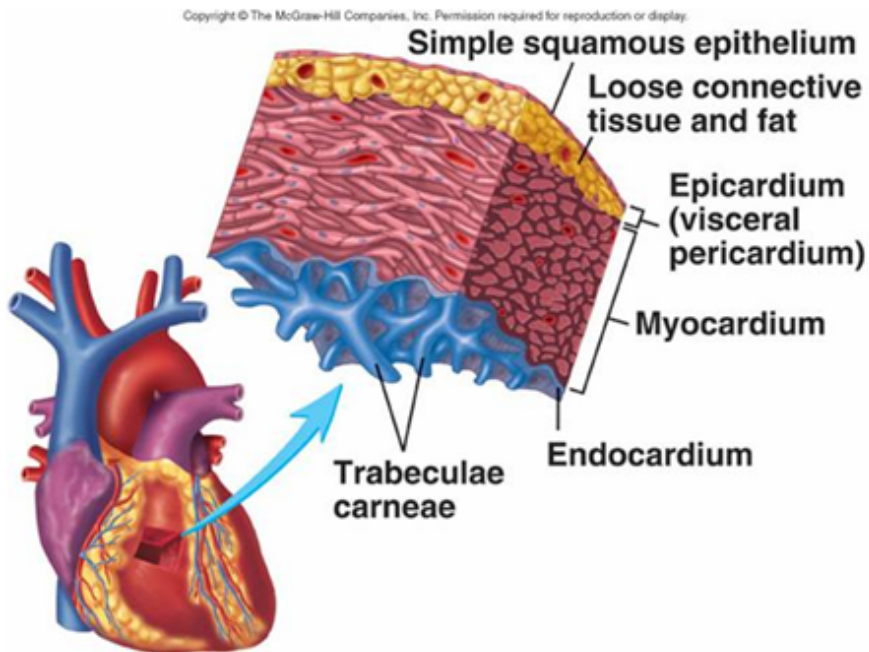
Calf heart  
without  
epicardium





# The Heart

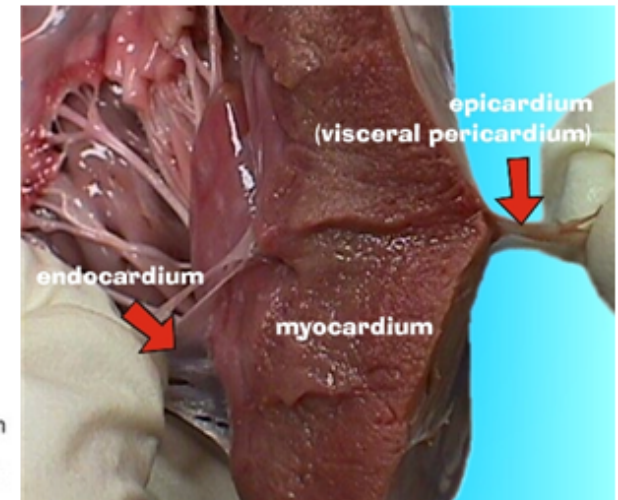
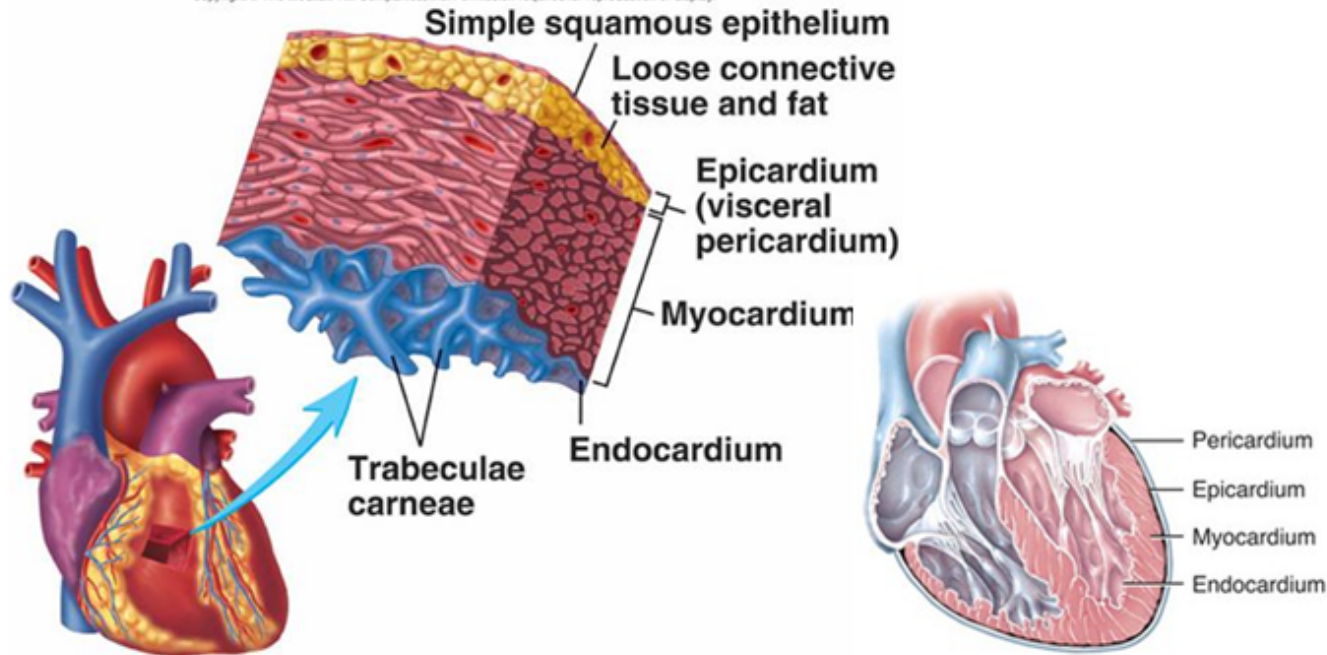
- The myocardium is the thickest part of the heart wall and made up of cardiac muscle



# The Heart

- The endocardium is the innermost layer of the heart wall and lines the heart and blood vessels. It helps prevent blood from clotting because it is so smooth.

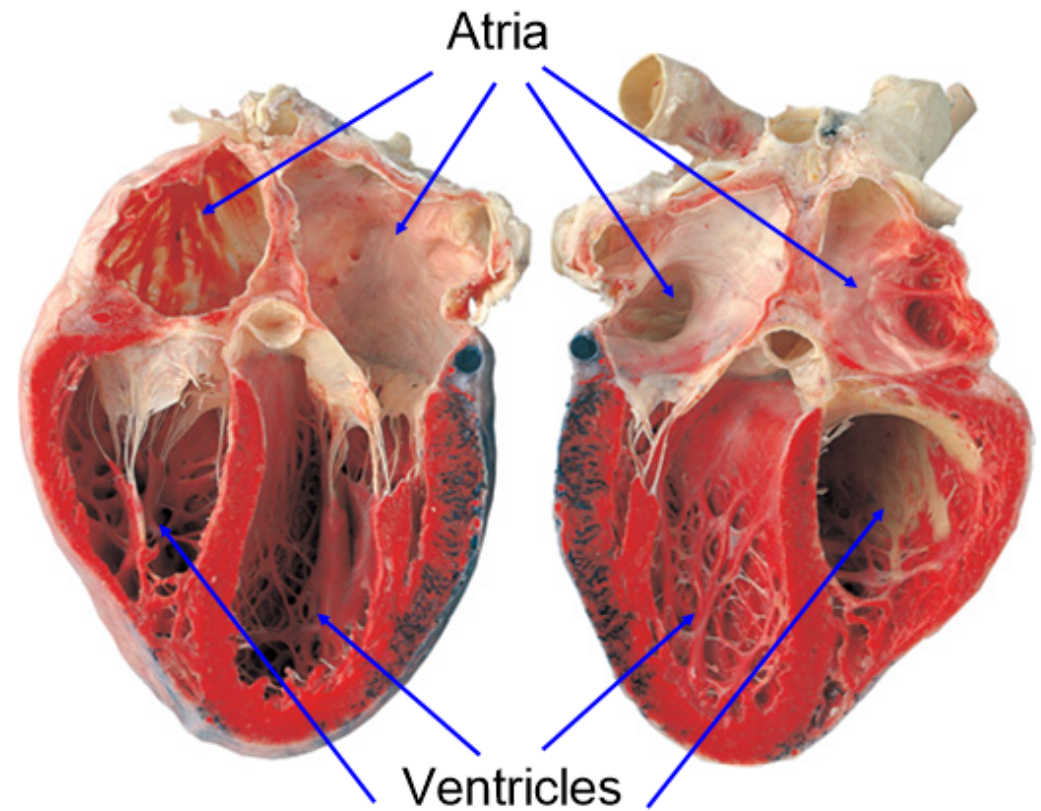
Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.





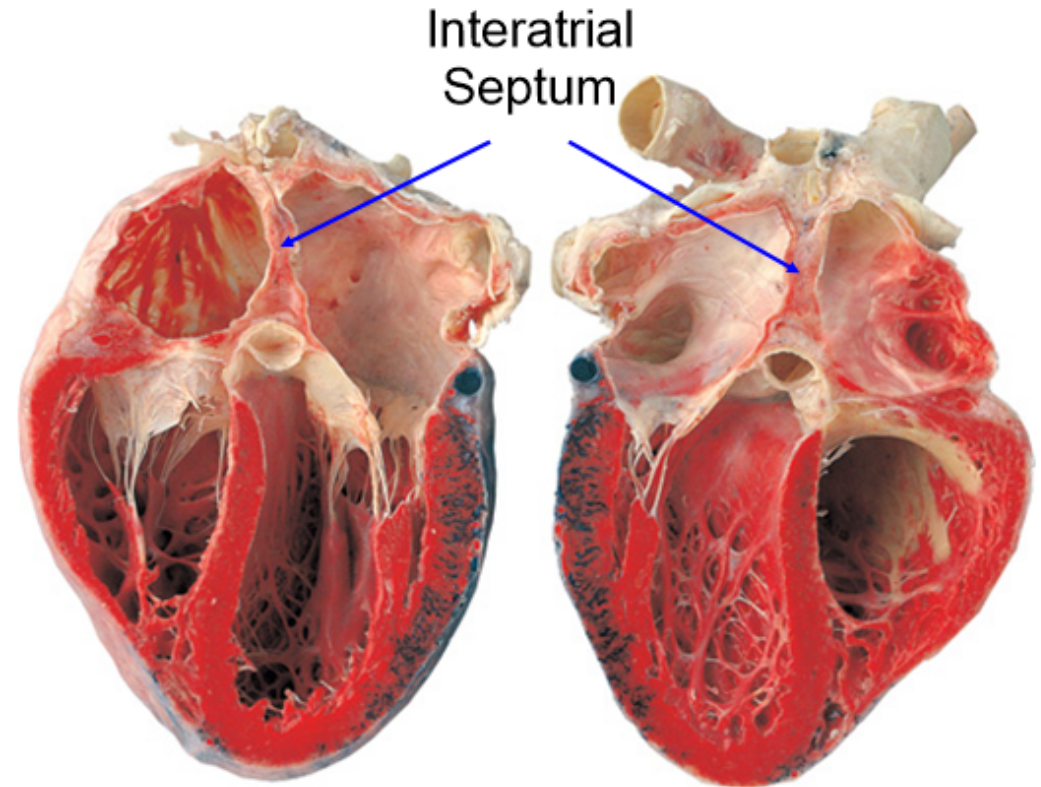
# Chambers of The Heart

- The heart has 4 hollow chambers;  
2 superior atria (atrium = singular)  
2 inferior ventricles



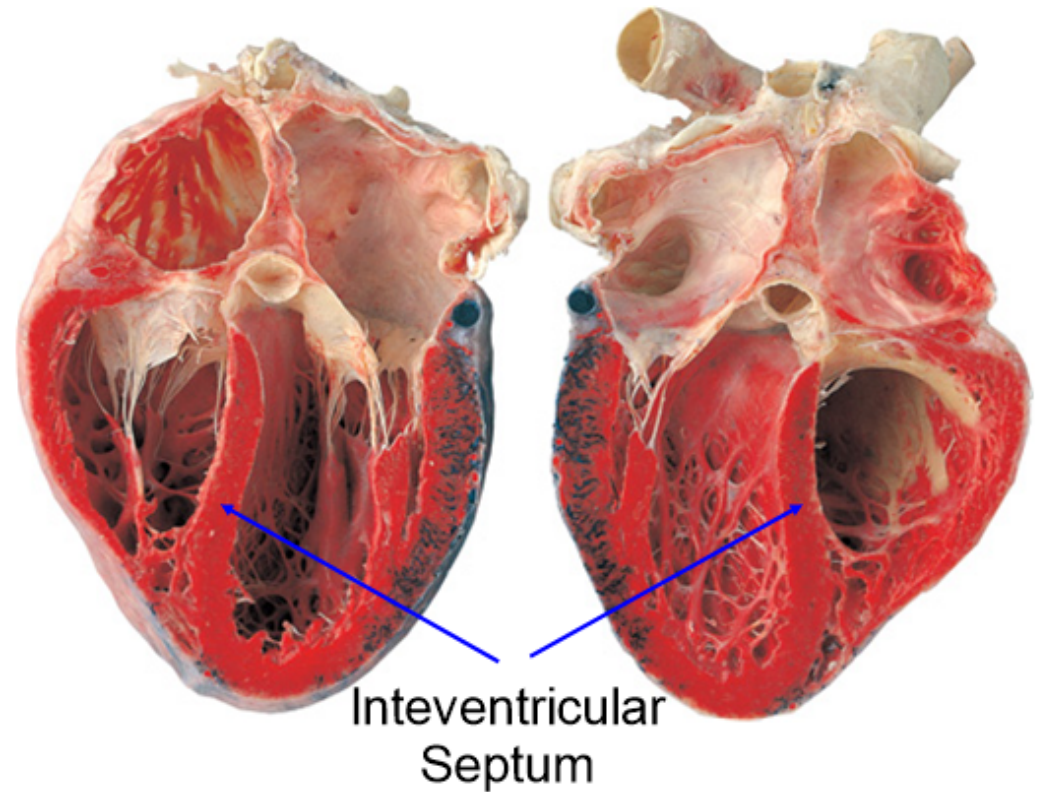
# Chambers of The Heart

- Internally, the atria are separated by the interatrial septum



# Chambers of The Heart

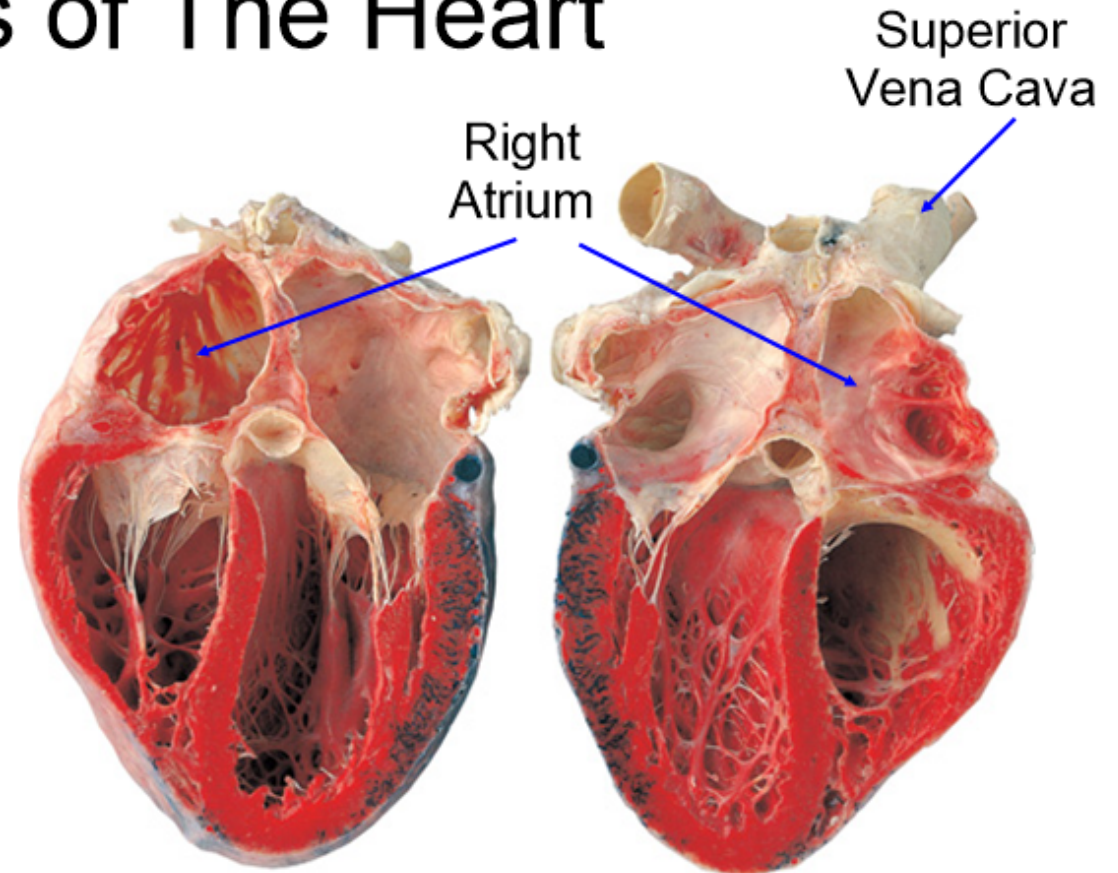
- Internally, the ventricles are separated by the interventricular septum



# Chambers of The Heart

- Right Atrium

Receives Deoxygenated Blood from three veins (superior vena cava, coronary sinus and inferior vena cava)





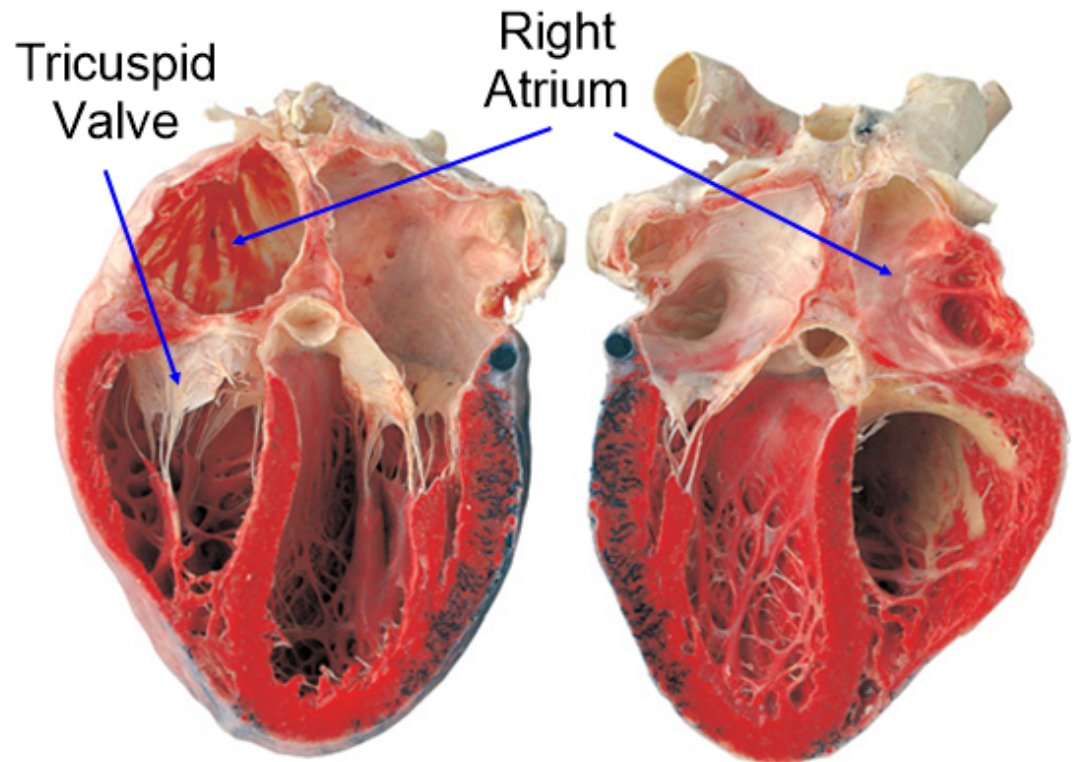
# Chambers of The Heart

- Blood Flow from Right Atrium to Right Ventricle

Blood moves from the right atrium through an atrioventricular (AV) valve

Just like any other valve in the heart, this valve directs blood flow and prevents backflow.

The AV valve on the right side of the heart is specifically called the tricuspid valve because it has three flaps.



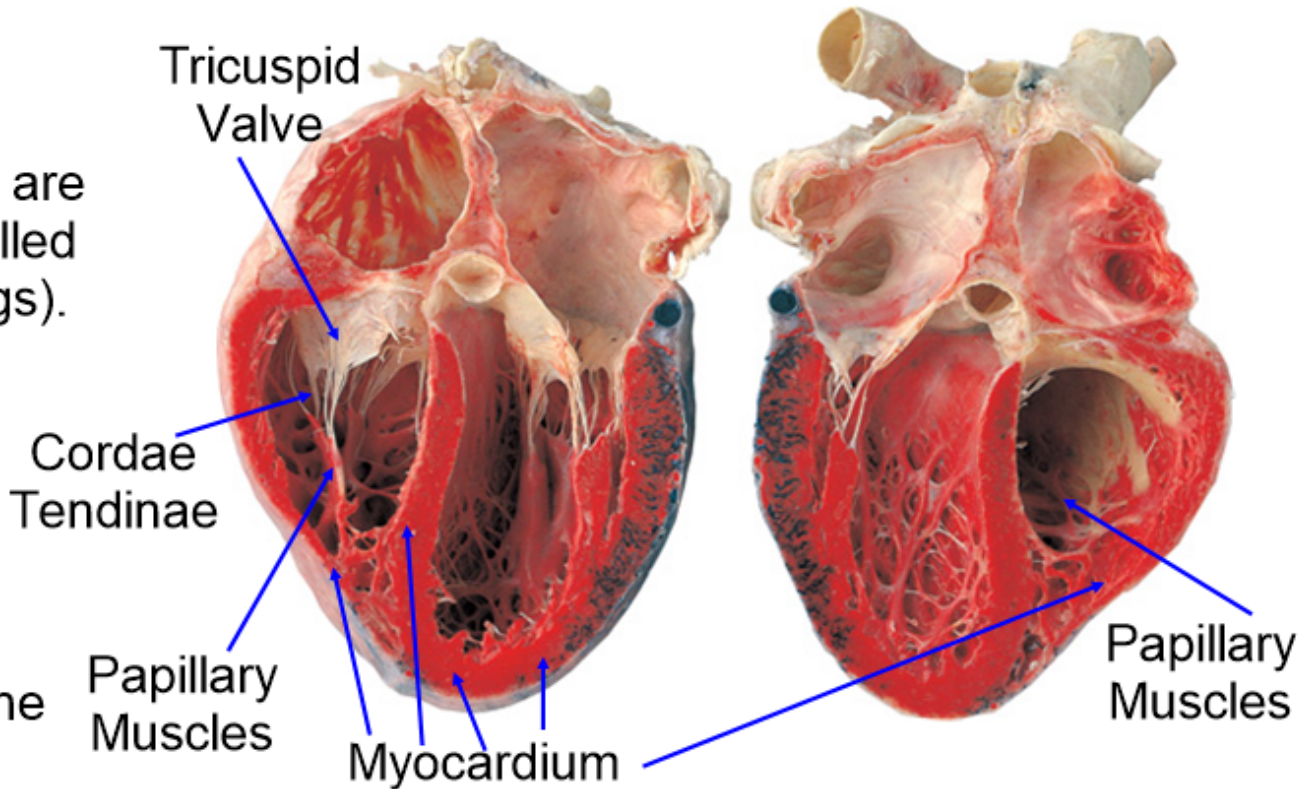
# Chambers of The Heart

- Tricuspid Valve

Cusps from the tricuspid valve are connected by fibrous cords called chordae tendinae (heart strings).

The chordae tendinae are connected to the papillary muscles.

The papillary muscles are connected to extensions of the myocardium.





# Chambers of The Heart

- Right Ventricle

Lower right chamber of the heart.

Blood from the right ventricle passes through a semilunar valve into the pulmonary trunk.

This particular semilunar valve is called the pulmonary semilunar valve and prevents blood from flowing back into the right ventricle.

