

# Anatomy & Physiology of the Heart



## **Lifespan Cardiovascular Institute**

**Rhode Island Hospital • The Miriam Hospital  
Newport Hospital**

*Delivering health with care.®*

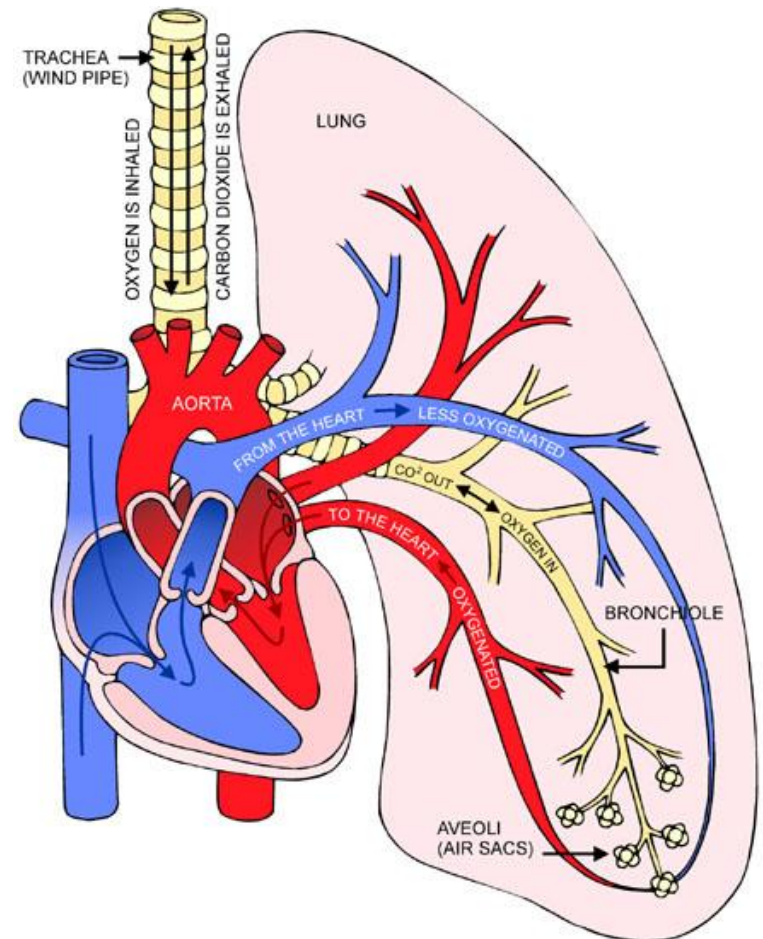
**The Center for Cardiac Fitness  
Cardiac Rehab Program  
The Miriam Hospital**

# OBJECTIVES

- Identify chambers and valves of the heart
- Explain circulation through heart and coronary anatomy
- Identify grafts used for CABG

# Anatomy

- Chambers
- Valves
- Major blood vessels to and from heart

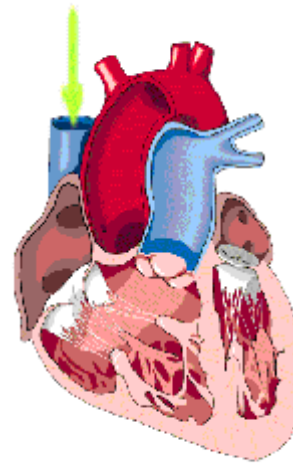


# Circulation

Body --> Heart -->

Lungs --> Heart -->

Through Body -->  
Back to Heart

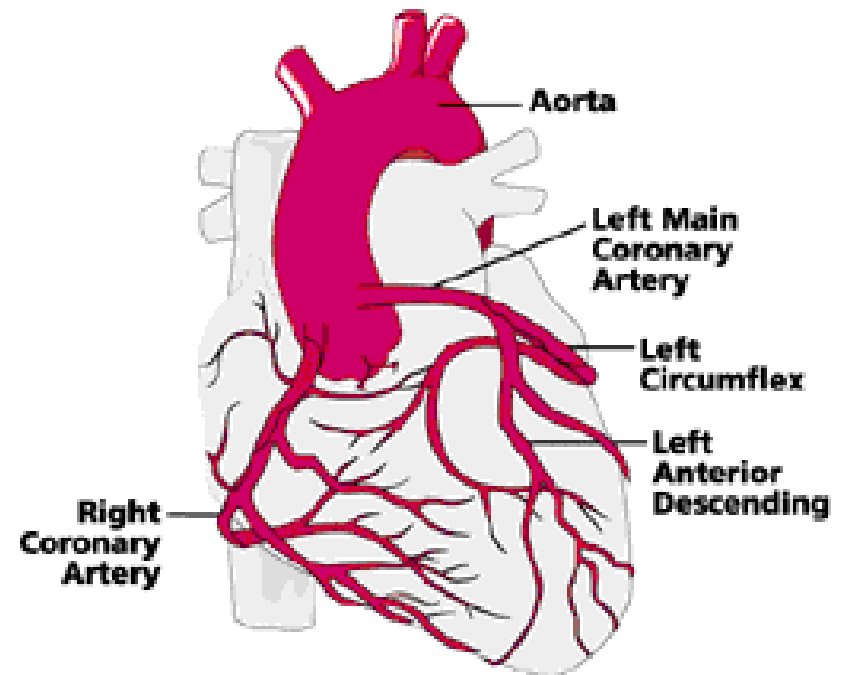


- Right Atrium
- Tricuspid Valve
- Right Ventricle
- Pulmonic Valve
- Pulmonary Arteries
- Pulmonic Veins
- Left Atrium
- Mitral Valve
- Left Ventricle
- Aortic Valve
- Aorta

# Coronary Artery Anatomy

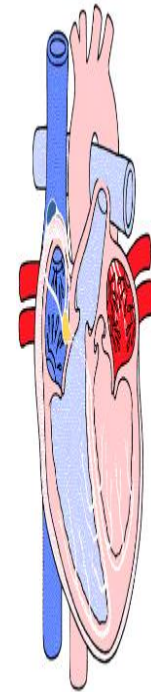
- Left Main
- LAD
- RCA
- Circumflex

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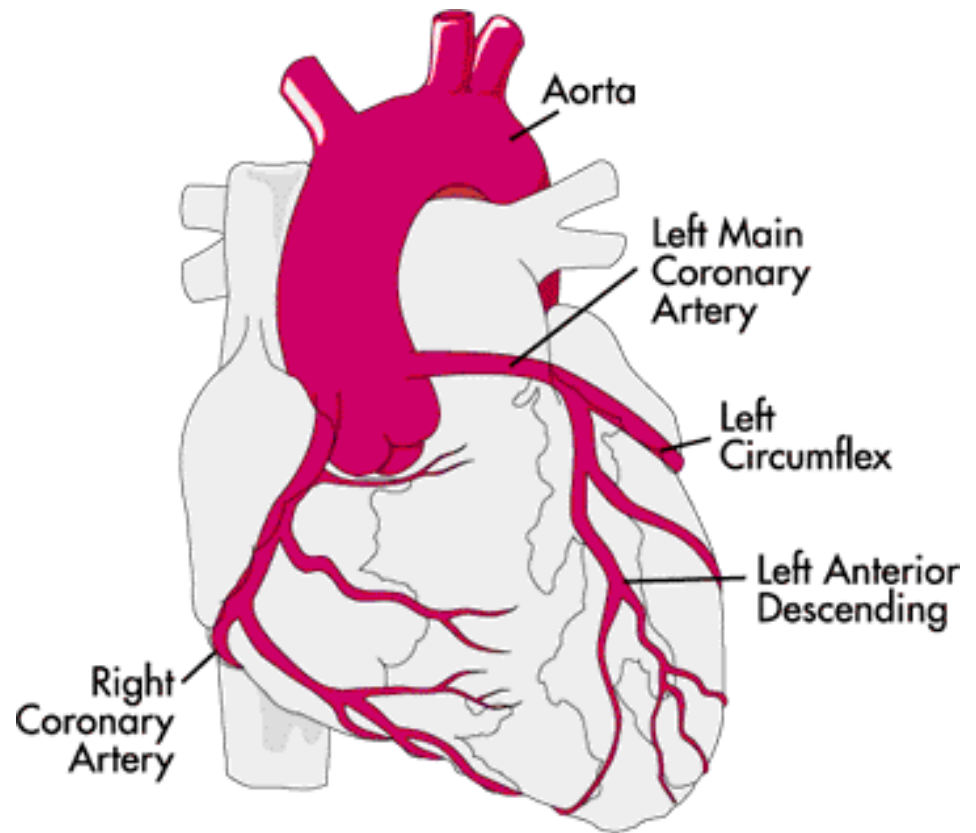
# Conduction System

- SA Node
- AV Node
- Bundle Branches
- Purkinje Fibers



# Bypass Surgery (CABG)

- Blockages
- Grafts

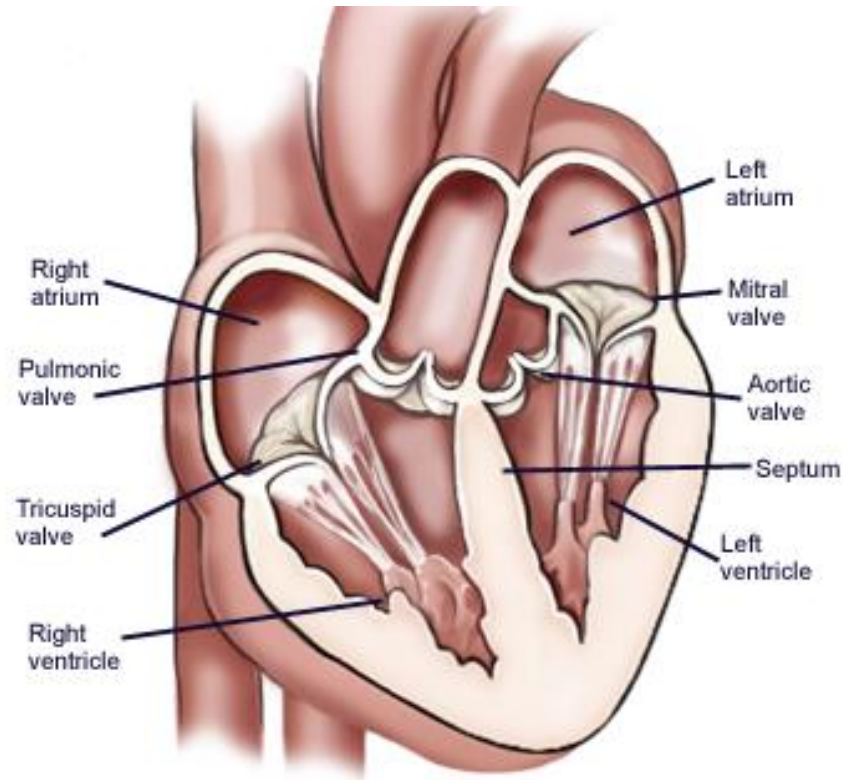


# Types of Grafts

- Saphenous Veins (legs)
- Internal Mammaries Arteries (chest)
- Radial Arteries (arms)

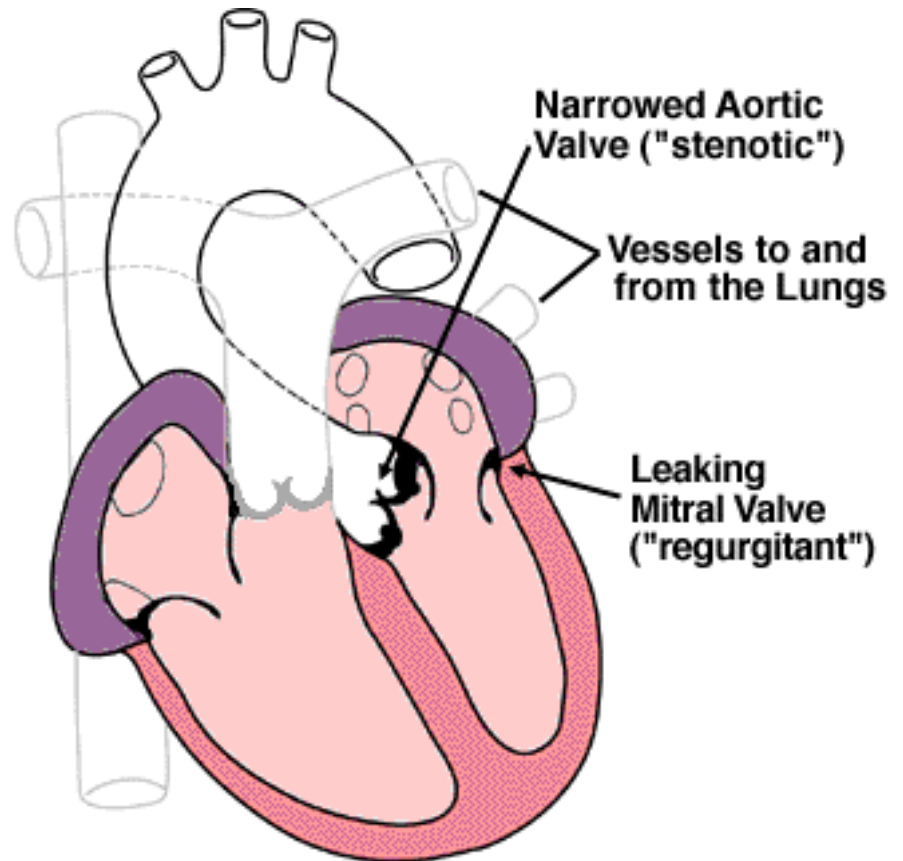
# Valve Surgery

- Mitral Valve
- Tricuspid Valve
- Pulmonary Valve
- Aortic Valve



# Types of Valve Problems

- Stenosis: valve does not open completely
- Regurgitation: valve does not close tightly



# Valve Surgery

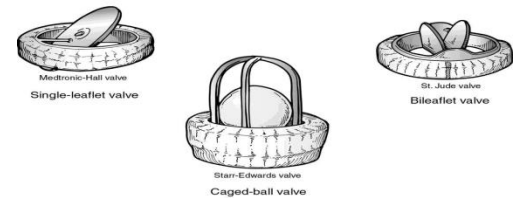
## REPAIR

- Balloon Valvuloplasty
  - Balloon/catheter used to open narrowed valve
- Annuloplasty
  - More challenging surgery
  - Ring is used to repair valve

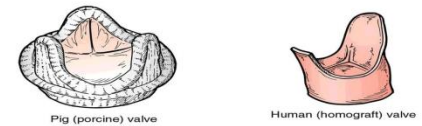
## REPLACEMENT

- Mechanical
  - Lifetime of anticoagulant medication
- Biological Tissue
  - Pig, cow, or human
  - No anticoagulant medication

Artificial Heart Valves



Mechanical Valves



Tissue Valves

Balloon Valvuloplasty

