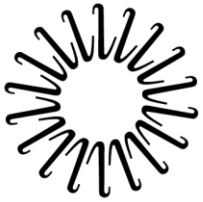
Anatomy & Physiology of the Heart



Lifespan Cardiovascular Institute

Rhode Island Hospital • The Miriam Hospital
Newport Hospital

Delivering health with care®

The Center for Cardiac Fitness

Cardiac Rehab Program

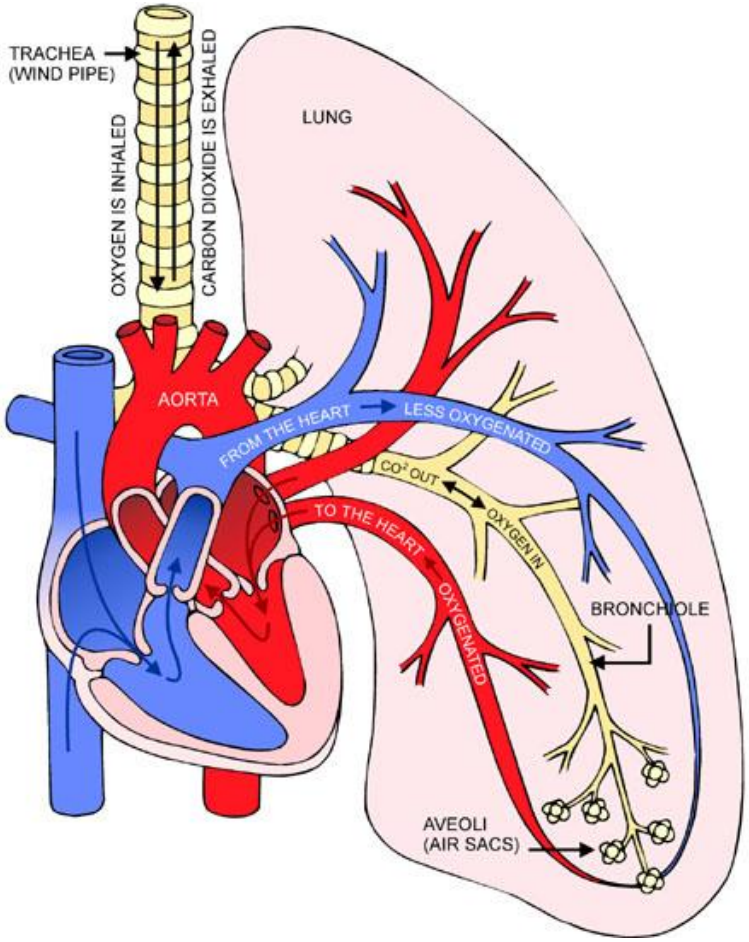
The Miriam Hospital

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

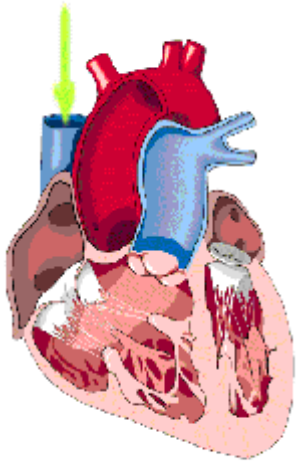


Circulation

Body --> Heart -->

Lungs --> Heart -->

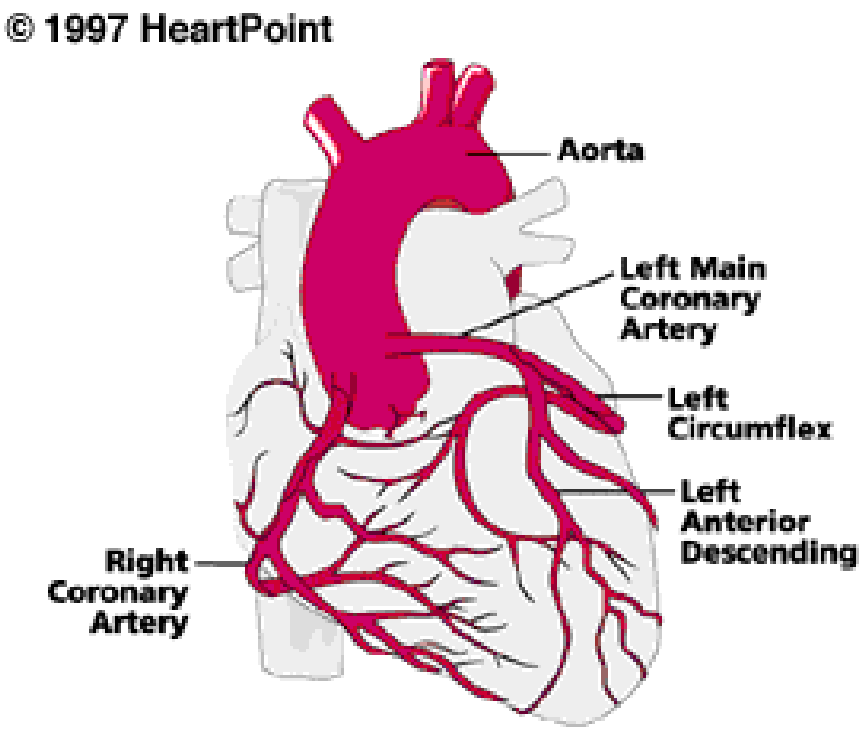
Through Body -->
Back to Heart



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

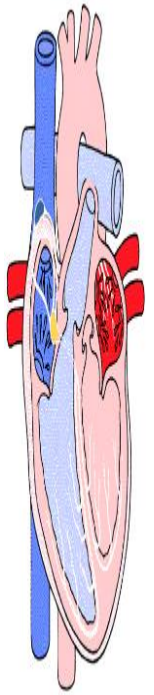
Coronary Artery Anatomy

- Left Main
- LAD
- RCA
- Circumflex



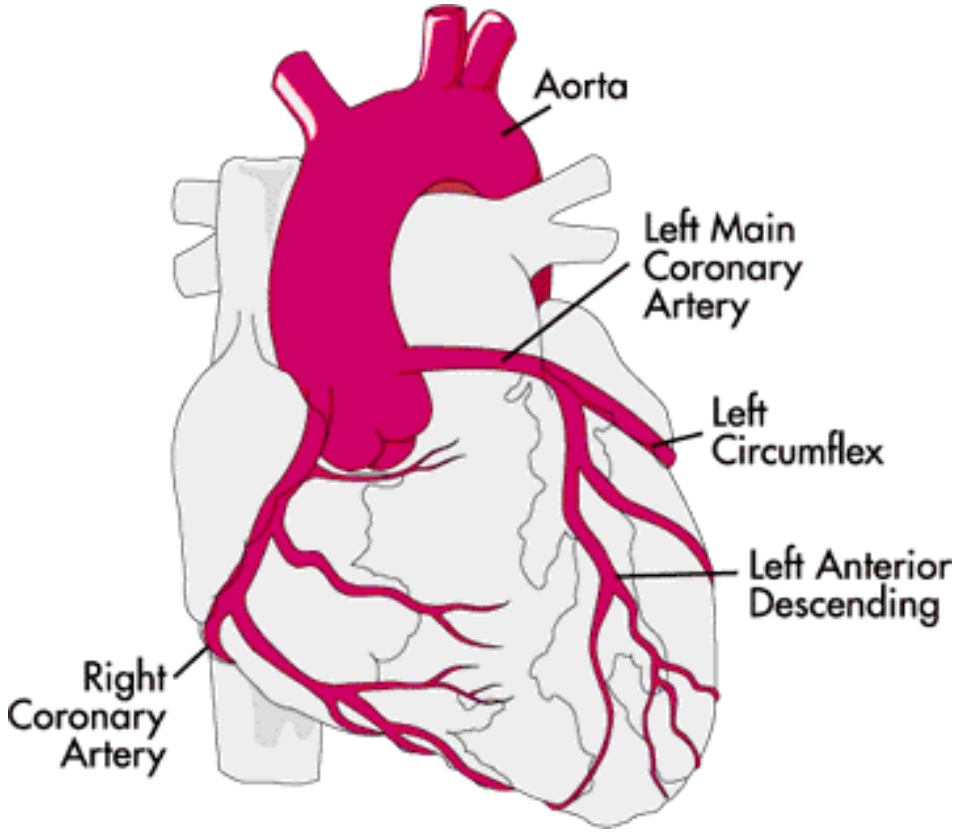
Conduction System

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



Bypass Surgery (CABG)

- Blockages
- Grafts

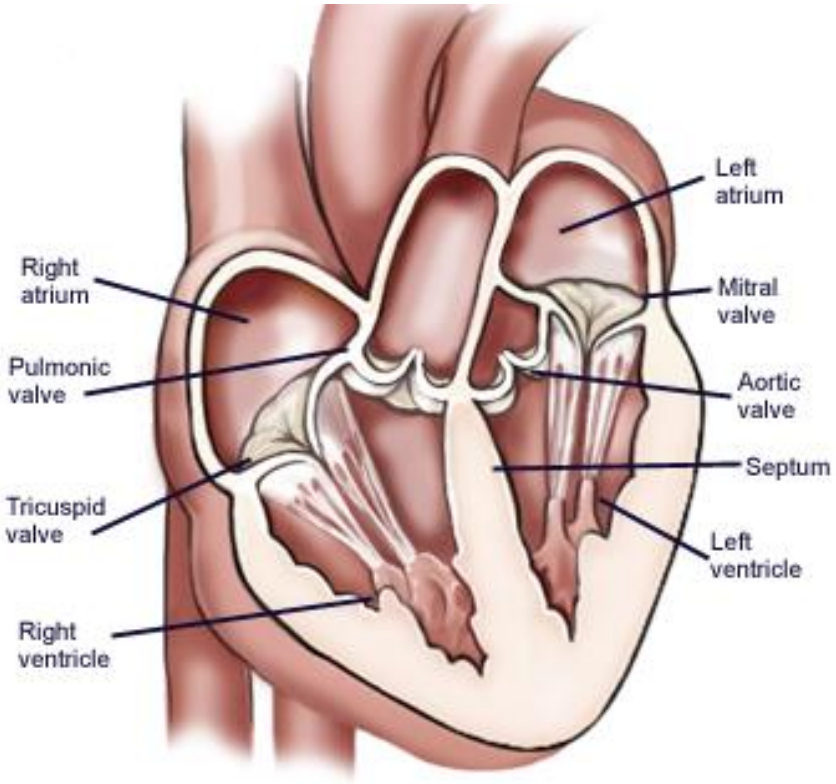


Types of Grafts

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

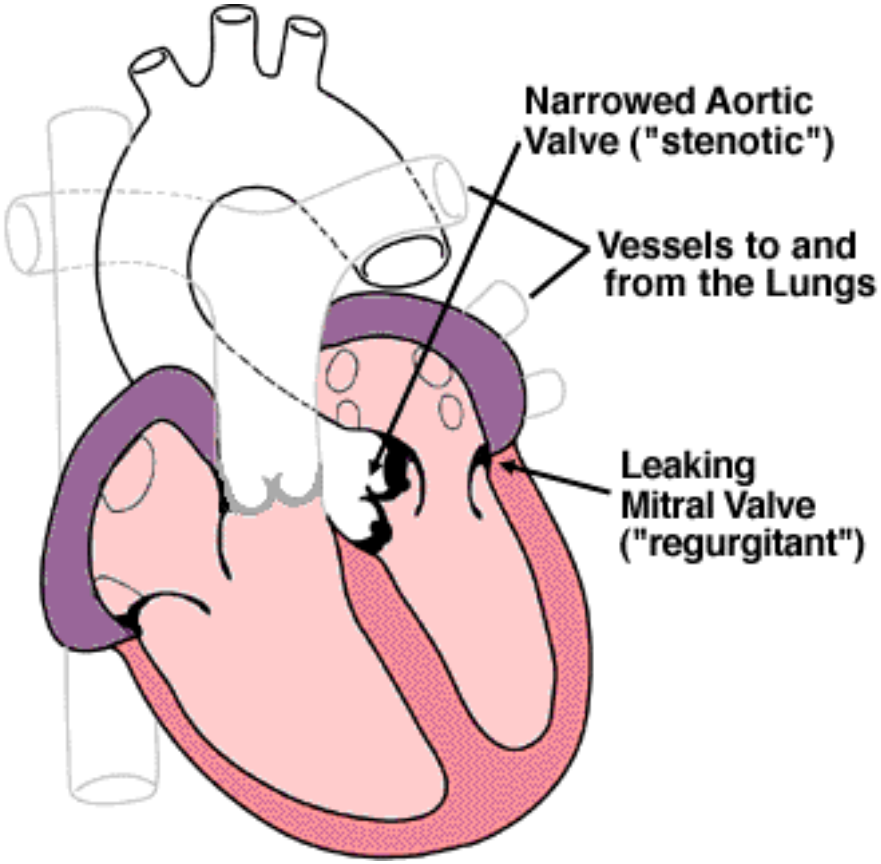
Valve Surgery

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



Types of Valve Problems

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



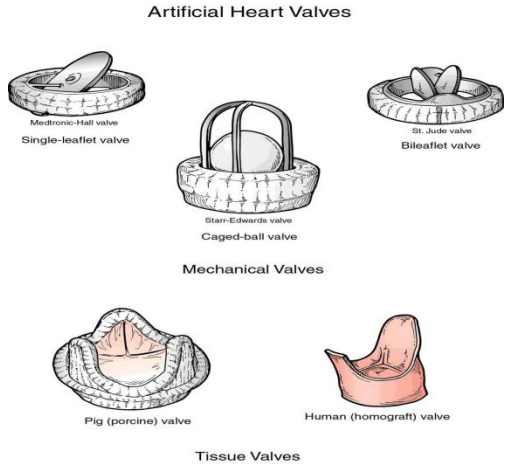
Valve Surgery

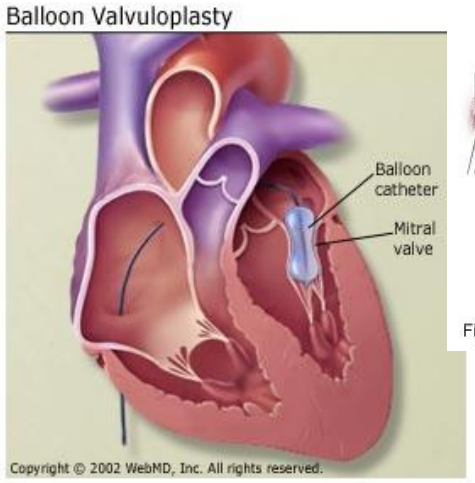
REPAIR

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

REPLACEMENT

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





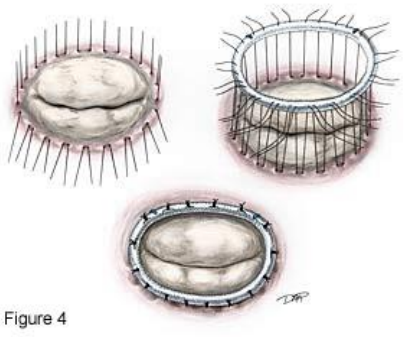


Figure 4