



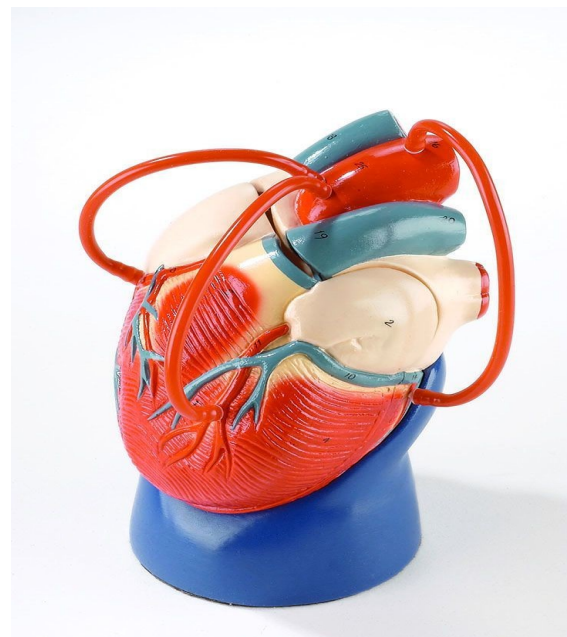
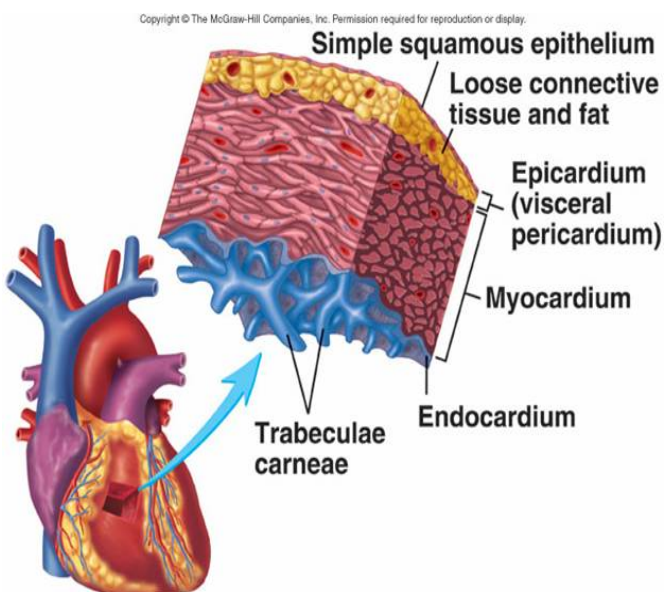
# Histology of the Heart

## “Cardiac Wall & Valves”

### OBJECTIVES:

By the end of the lecture, the student should be able to describe the microscopic structure of

1. Wall of the heart
2. Cardiac valves.



## Endocardium

- is the innermost layer of tissue that lines the chambers of the heart, comes in contact with blood

### Endothelium

- Simple Squamous Epithelium

### Subendothelium

- Connective Tissue layer

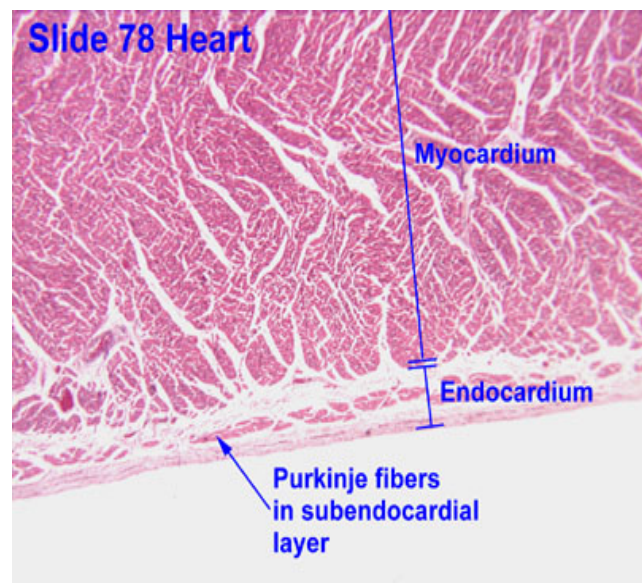
### Dense CT Layer

### Subendocardial Layer

- Loose CT layer, contain **Purkinje Fibers**, small blood vessels and nerves
- It attaches to the endomysium of cardiac muscles

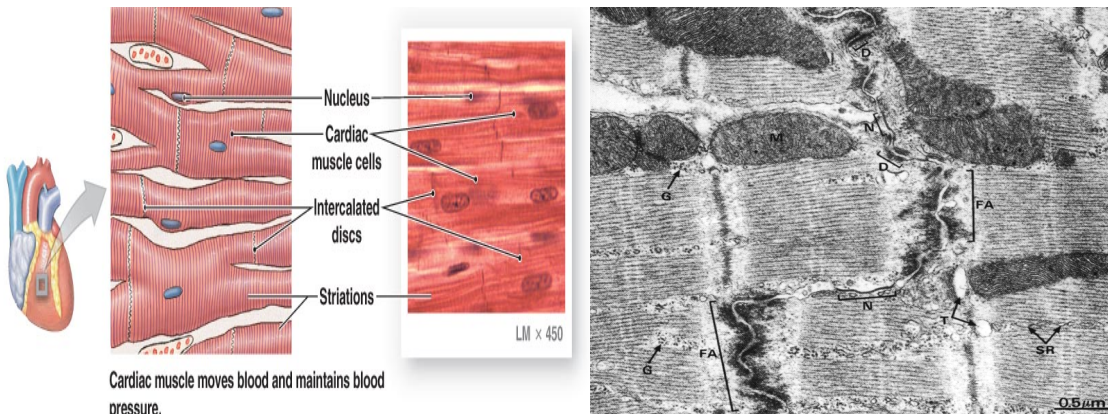
## Myocardium

- It is the middle layer,
- Most thick layer
- Contains Cardiac Muscle with **endomysium** "Loose CT"



## L.M Picture

- ✓ **Cylindrical** in shape.
- ✓ Intermediate in diameter between skeletal and smooth muscle fibers.
- ✓ **Branch** and **anastomose**.
- ✓ Covered by a thin **sarcolemma**.
- ✓ Mononucleated. Nuclei are oval and central.
- ✓ **Sarcoplasm** is acidophilic and shows non-clear striations (fewer myofibrils).
- ✓ Divided into short segments (cells) by the intercalated discs.



## E.M Picture

- ✓ Few myofibrils.
- ✓ Numerous mitochondria.
- ✓ Less abundant SR.
- ✓ T-tubules come in contact with only one cisterna of SR forming "**Diads**" (not triads).
- ✓ Glycogen & myoglobin.
- ✓ **Intercalated discs**: are formed of the two cell membranes of 2 successive cardiac muscle cells, connected together by junctional complexes (desmosomes and gap junctions).

# Epicardium

- The inner “Visceral” layer of the pericardium,

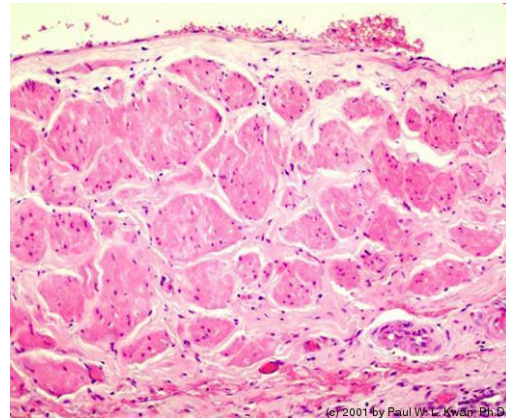
## Mesothelium

Simple Squamous Epithelium

## Subepicardial Layer

Loose connective tissue

Contain:  
Coronary vessels,  
nerves, ganglia  
and fat cells



# Cardiac Valves

- ✓ Each leaflet (cusp) of heart valve is formed of:
  - A core of Dense irregular C.T.
  - This core is covered by: Endocardium.
- ✓ The leaflets of the heart valves are normally **AVASCULAR**.
- ✓ Blood capillaries can be found **only** in the base or root of the leaflet.

