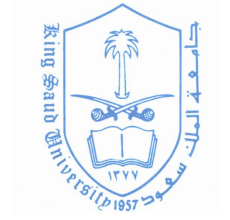


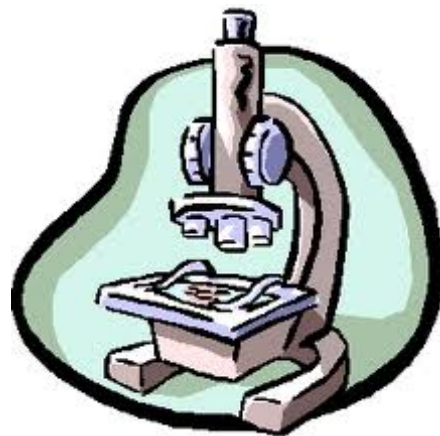


King Saud University
College of Medicine
Musculoskeletal Block

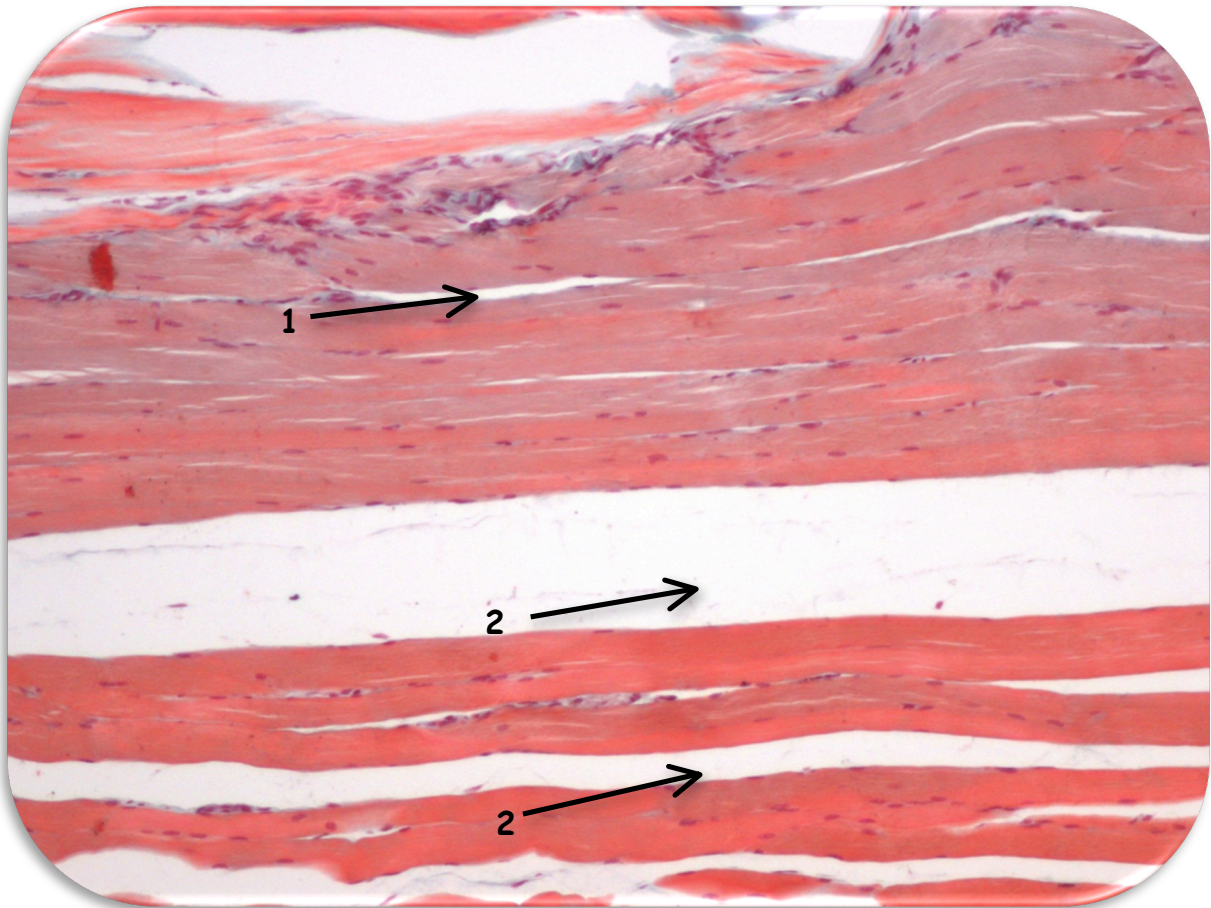


Histology
Practical Lectures
Histology Team 432
Mohammed Adel
Rana Al Ohaly

Teams



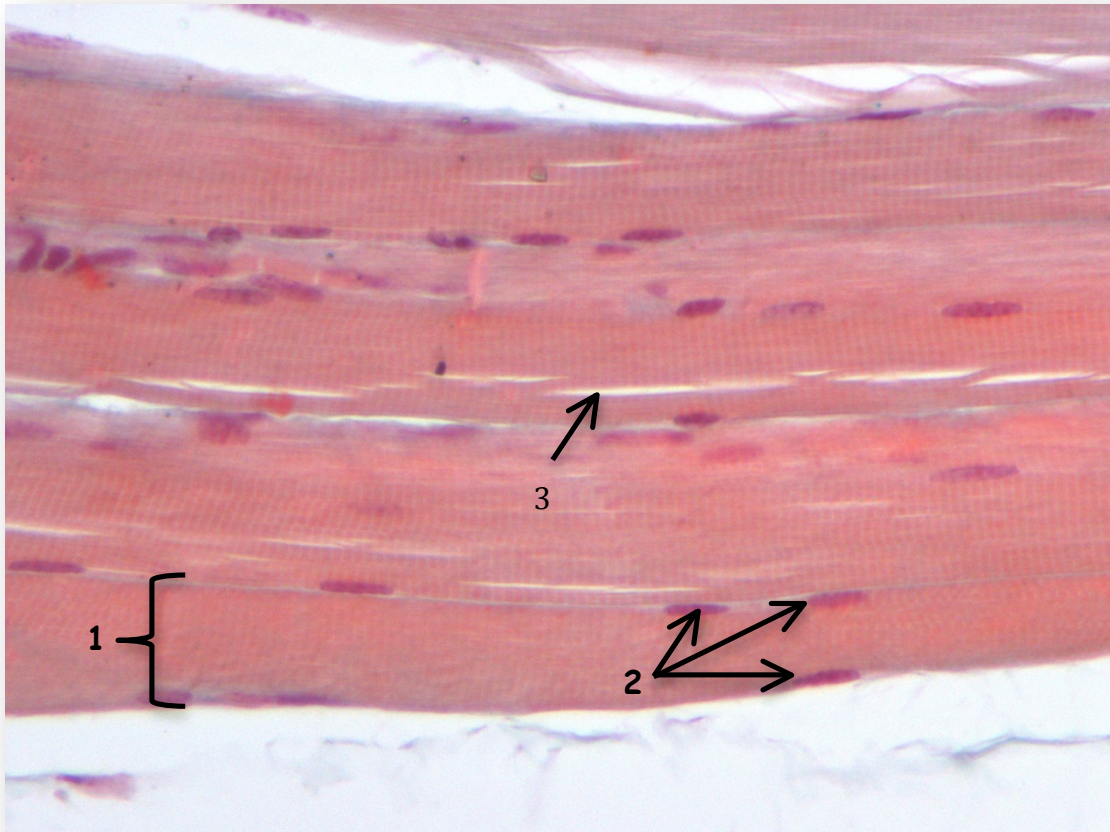
Skeletal Muscles



Feature

- 1 - Endomysium (Loose C.T).
- 2- Perimysium (Dense C.T)
- Cylindrical in shape.
- Peripheral flattened nuclei

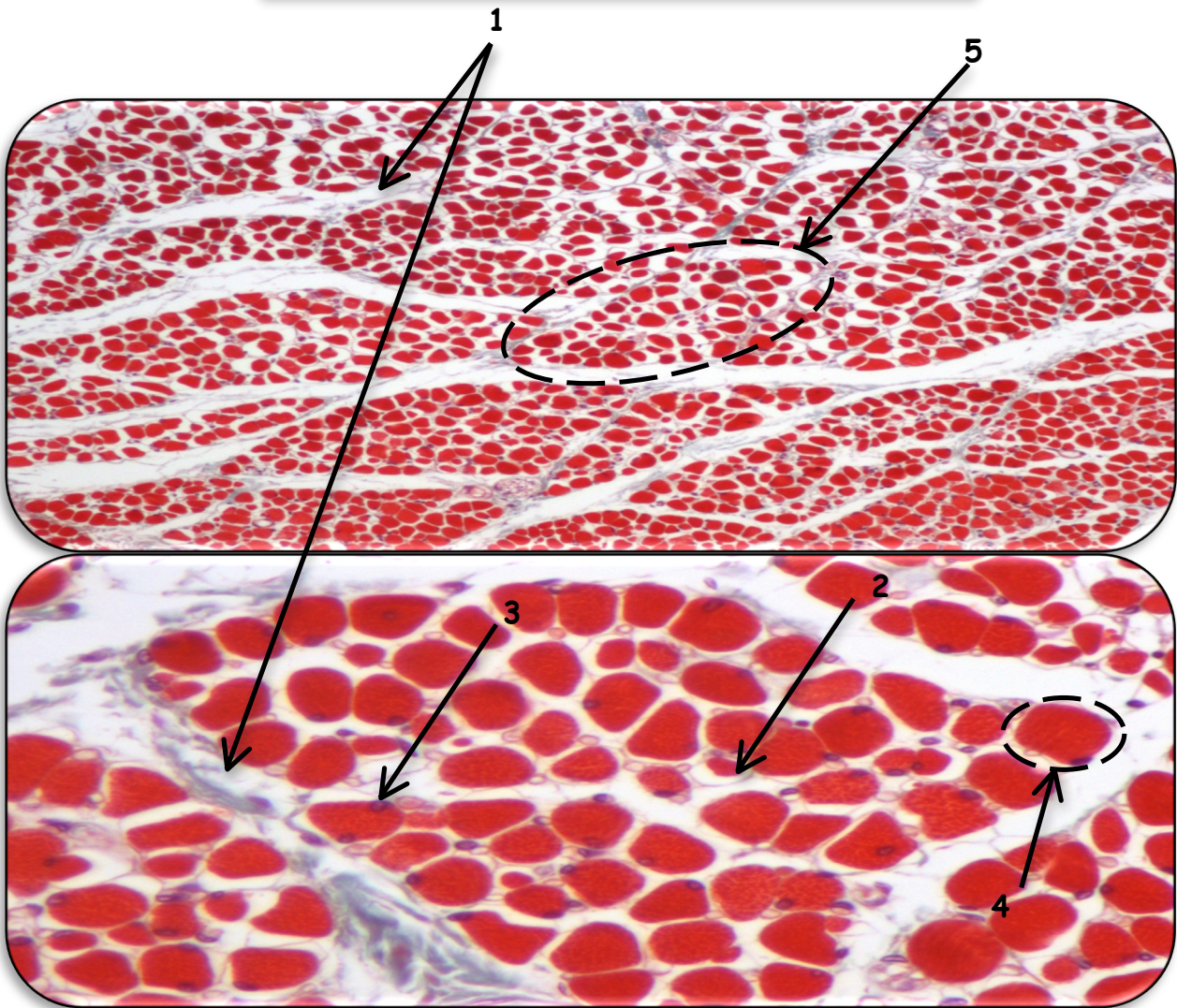
Skeletal Muscles



Feature

- 1-muscle fiber
- 2- Nuclei “peripheral, flattened , Multinucleated ”
- 3- Endomysium
- Striations.

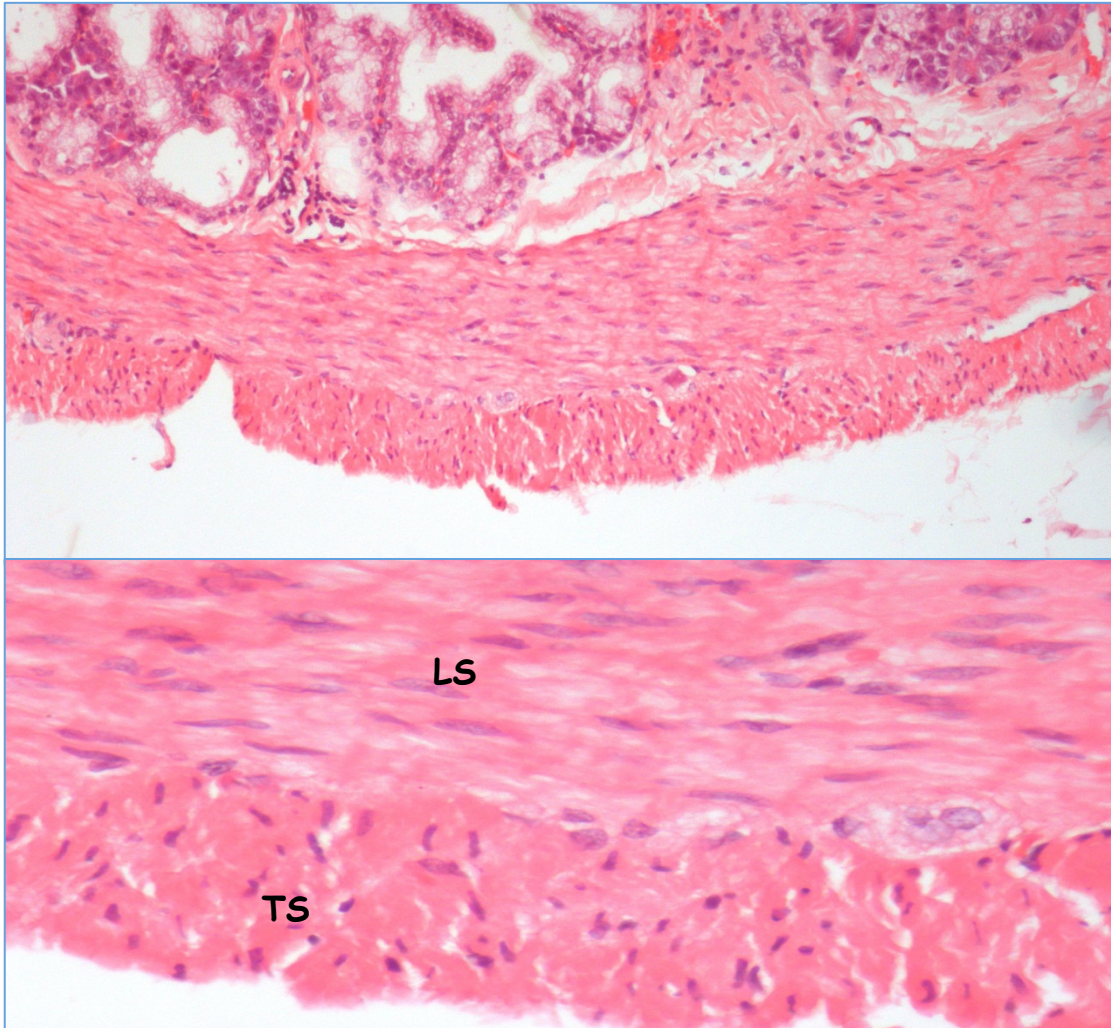
Skeletal Muscles



Feature

- 1- Perimysium.
- 2- Endomysium (C.T).
- 3- Nuclei “peripheral, flattened , Multinucleated ”
- 4-muscle fiber
- 5- muscle fiber bundle

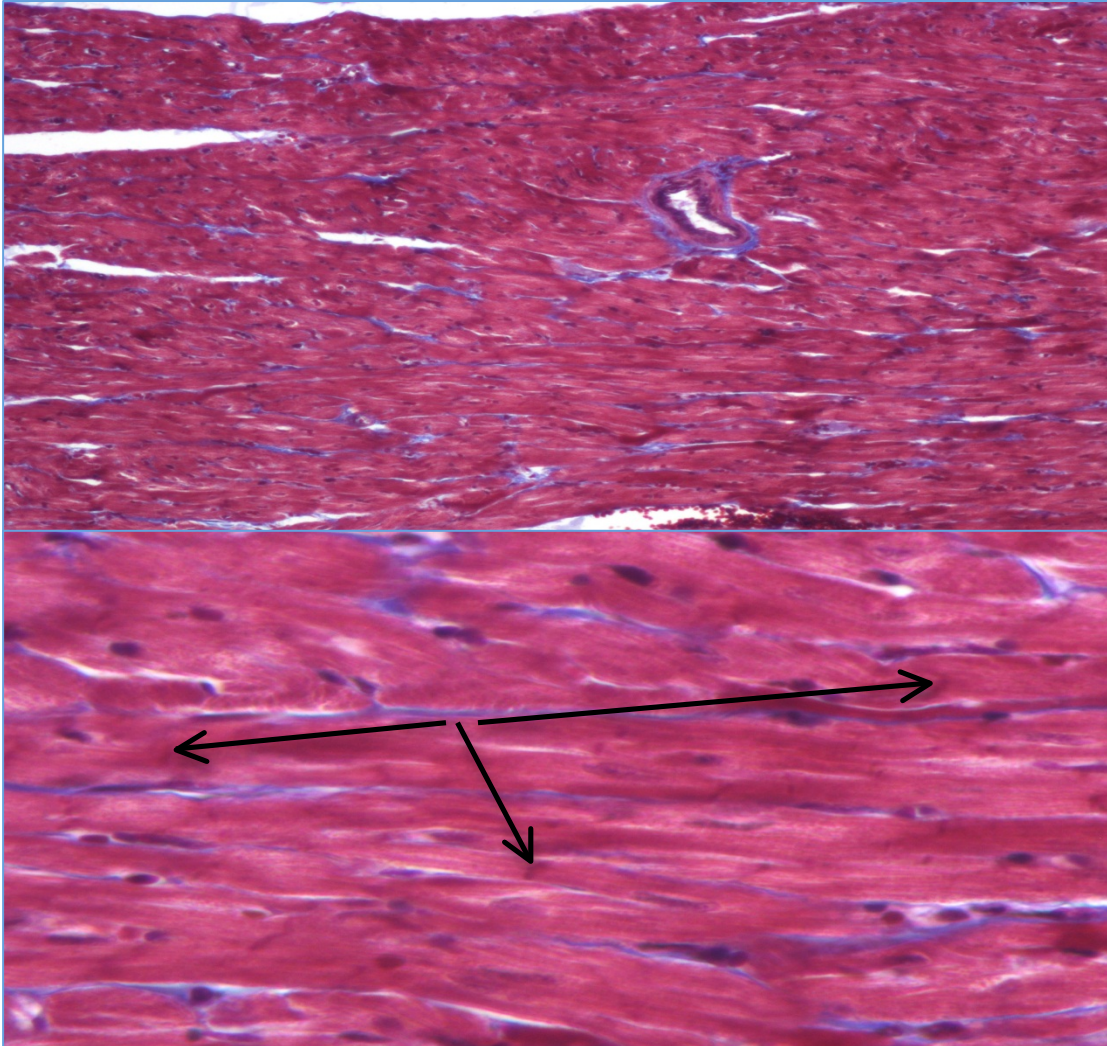
smooth Muscles



Feature :

- Mononucleated. Nuclei are oval & central
- Non-branched
- non-striated
- spindle-shaped

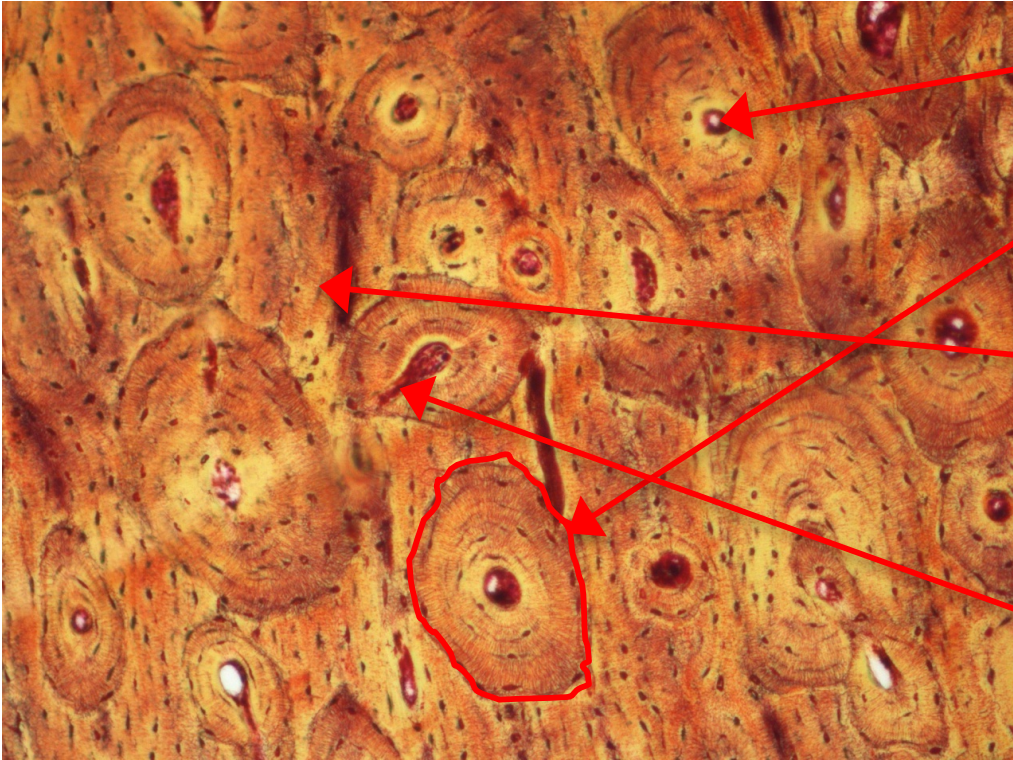
cardiac Muscles



Feature :

- 1- intercalated discs.
- Mononucleated. Nuclei are oval & central n position.
- Branch and anastomose
- non-clear striations
- Cylindrical in shape.
- Note: the blue lines are loose C.T.

Compact Bone

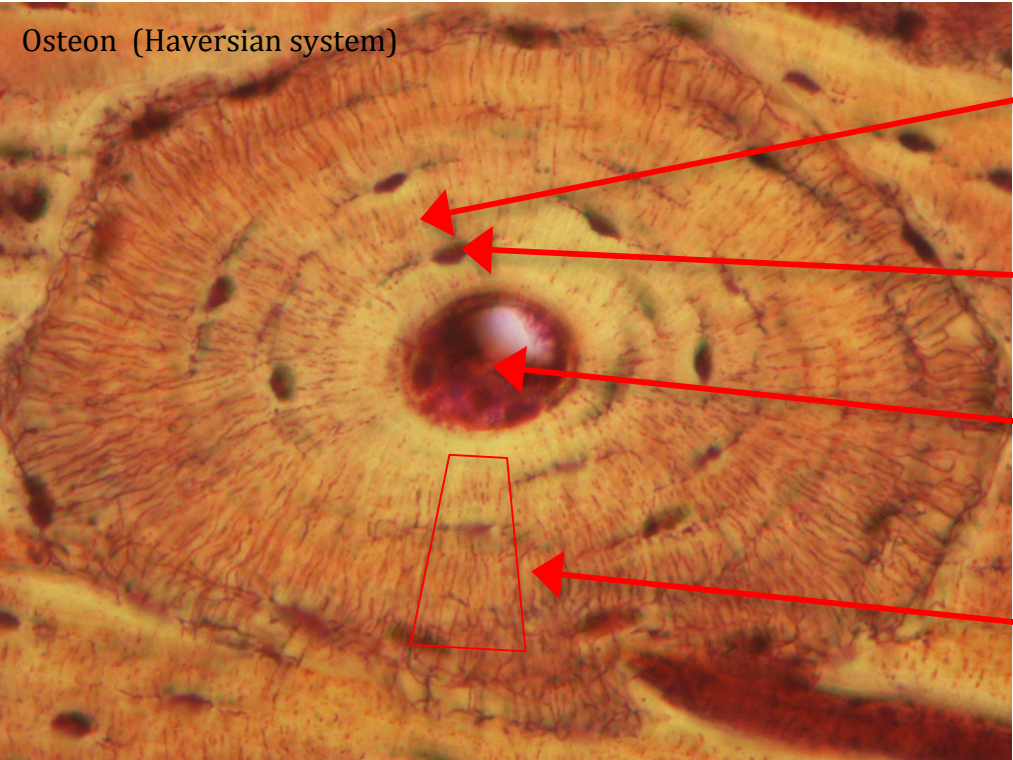


Haversian canal

Haversian Systems (Osteons)
(It is the main feature)

Interstitial Lamellae
(The bone between haversian systems)

Volkmann's canals
(NOT a component of Haversian system - it just connects haversian systems)



Osteon (Haversian system)

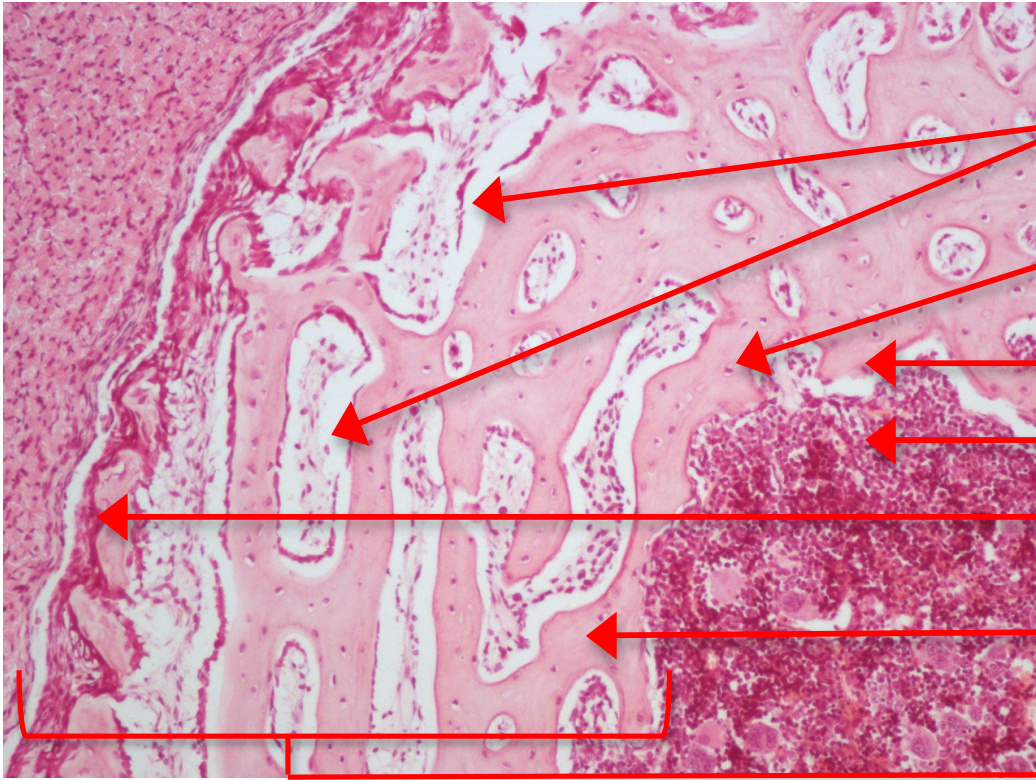
concentric lamellae

Osteocyte

Haversian canal

Note: the radiating light red lines are **canaliculi**

Spongy Bone



irregular bone marrow spaces

osteocyte

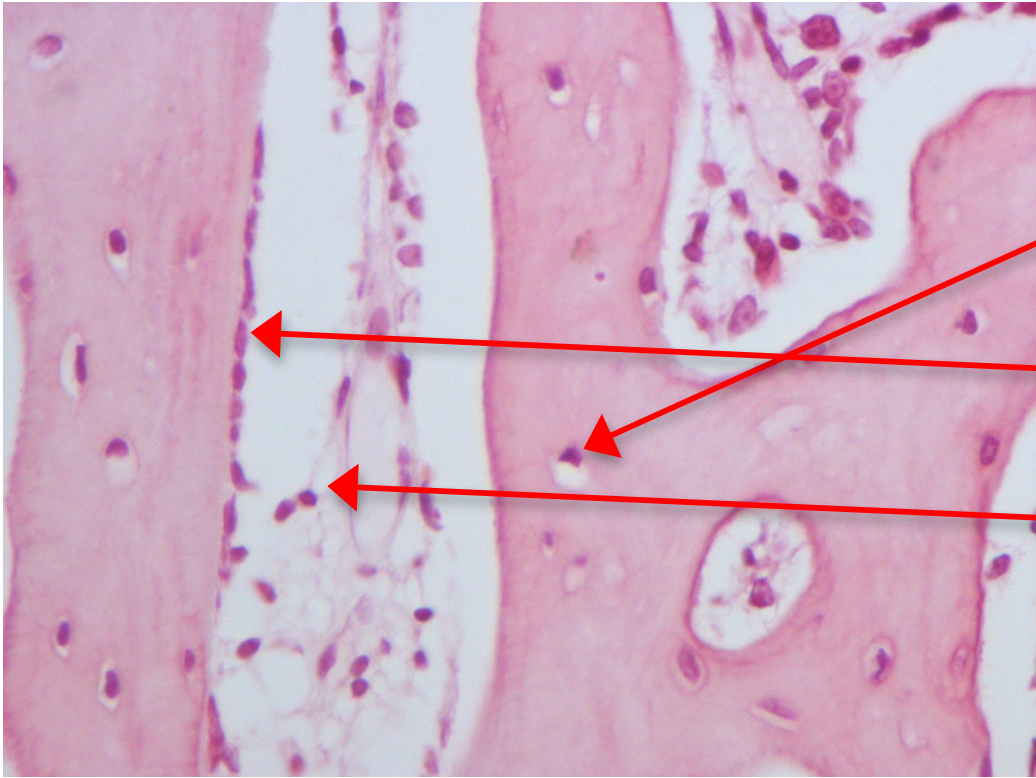
endosteum

Bone marrow cavity

periosteum

Irregular bone trabeculae

Spongy bone



Osteocyte (Scattered)

endosteum

Blood cells

- Features:
- Bone marrow cavities
 - Plates (trabeculae) of bone

Cartilage

- **Cartilage is a specialized type of C.T. with a rigid جامد matrix.**
- **Cartilage is usually nonvascular (avascular).**
- **3 Types:**
 - ✓ Hyaline cartilage.
 - ✓ Elastic cartilage.
 - ✓ Fibrocartilage.

Note:

Staining

Muscle = acidophilic

Bone = acidophilic

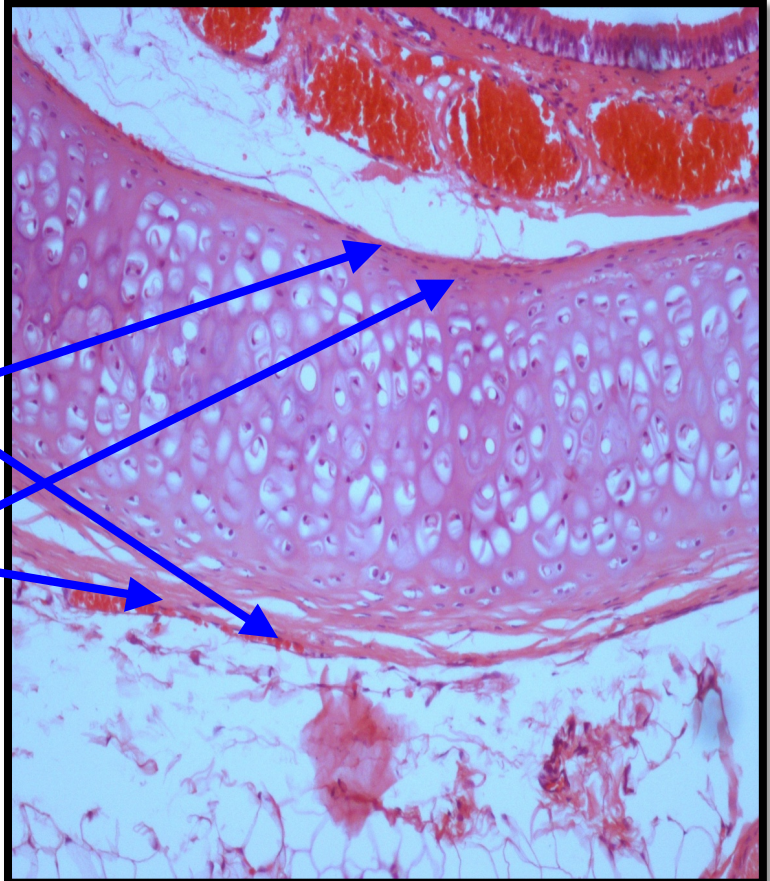
Cartilage = Basophilic

Hyaline Cartilage

1- Perichondrium

:

- Vascular C.T. **membrane** formed of 2 layers:
- **Outer fibrous layer:** dense fibrous C.T.
- **Inner chondrogenic layer:** contains chondroblasts (no lacunae).



Notes:

Main component of Hyaline cartilage:

- Collagen type II
- Chondrocytes are within lacunae and can divide

Comparison:

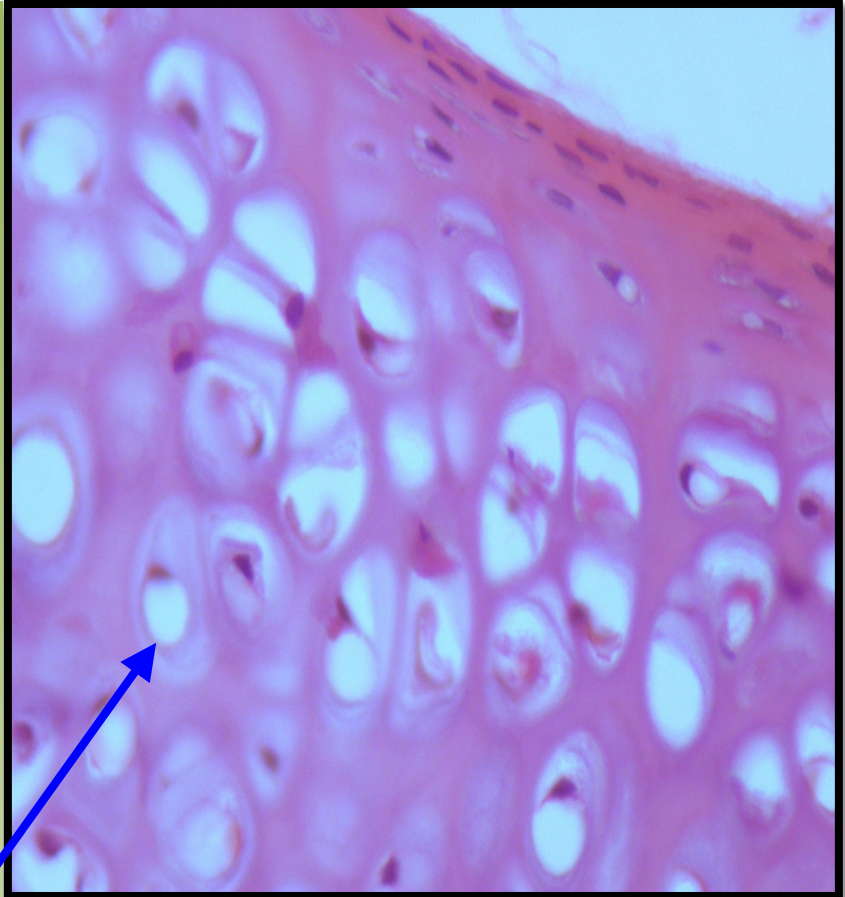
Chondrocytes	Osteocytes
In lacunae	
No canaliculi	Has canaliculi

Hyaline Cartilage

2- Cells

(Chondrocytes):

- Found in spaces called lacunae.
- **Young chondrocytes:** are small & present singly in their lacunae.
- **Mature chondrocytes:** are large, and are found **singly** or in groups of 2, 4 or 8 cells in their lacunae (cell nests).



Main feature:

- Homogenous ground substance

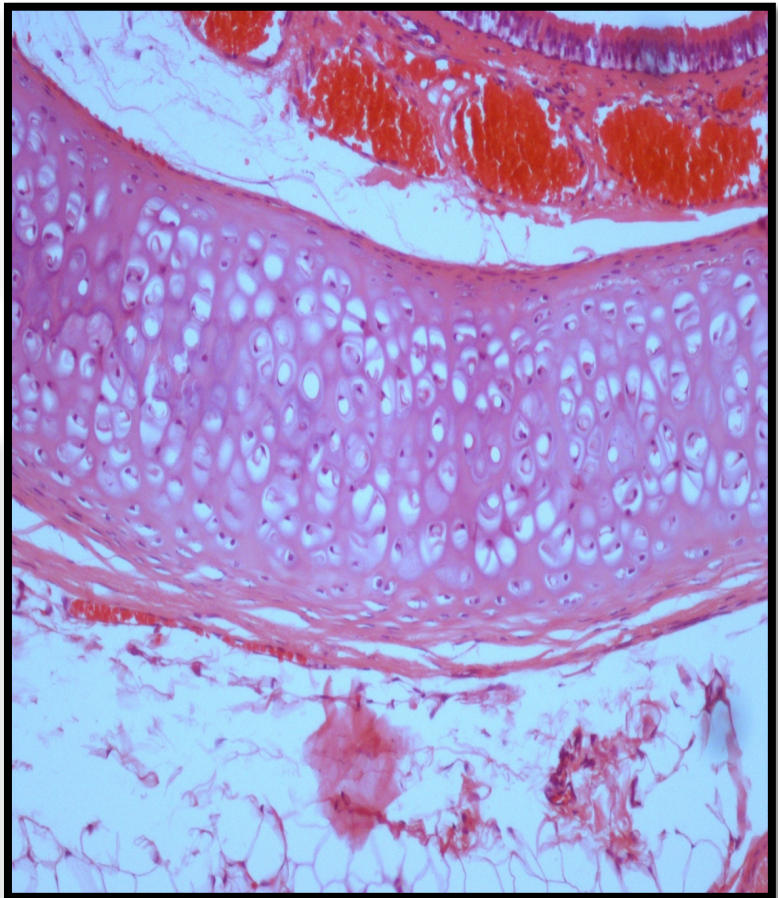
Hyaline Cartilage

3- Matrix:

- Homogeneous and basophilic.
- **Contains collagen type II**

Sites of hyaline cartilage:

- Foetal skeleton.
- Costal cartilages.
- Articular surfaces of bones.
- Nose, trachea & bronchi.



Note:

Division of Chondrocytes in lacunae = Interstitial growth

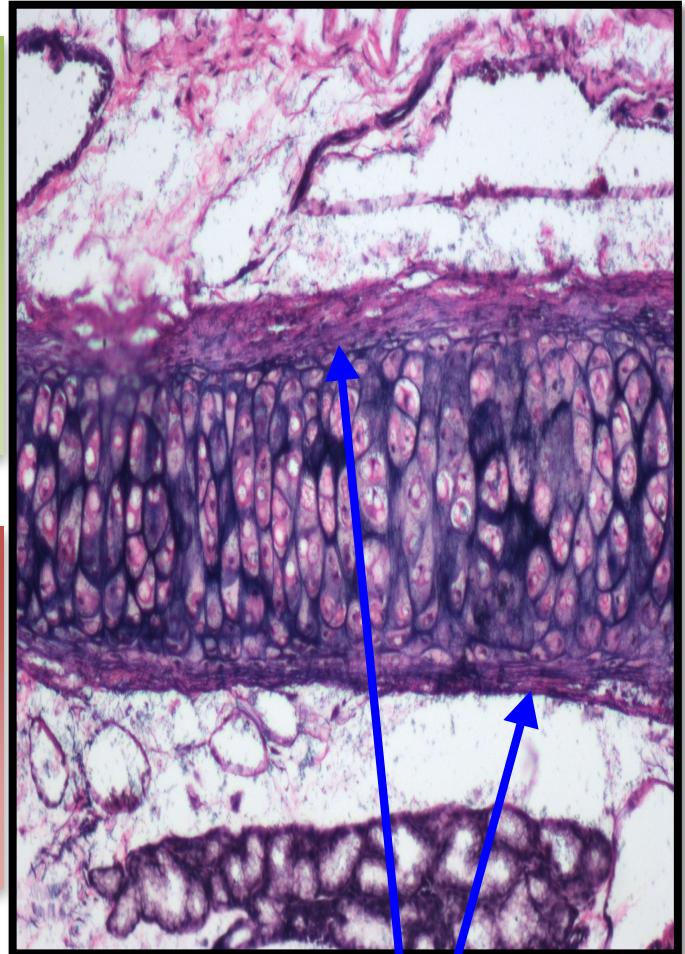
Division of chondroblasts = Appositional growth

Elastic Cartilage

Similar to hyaline cartilage
+ elastic fibres in the matrix
."(to give it elasticity)"
(don't forget it also has collagen type II)

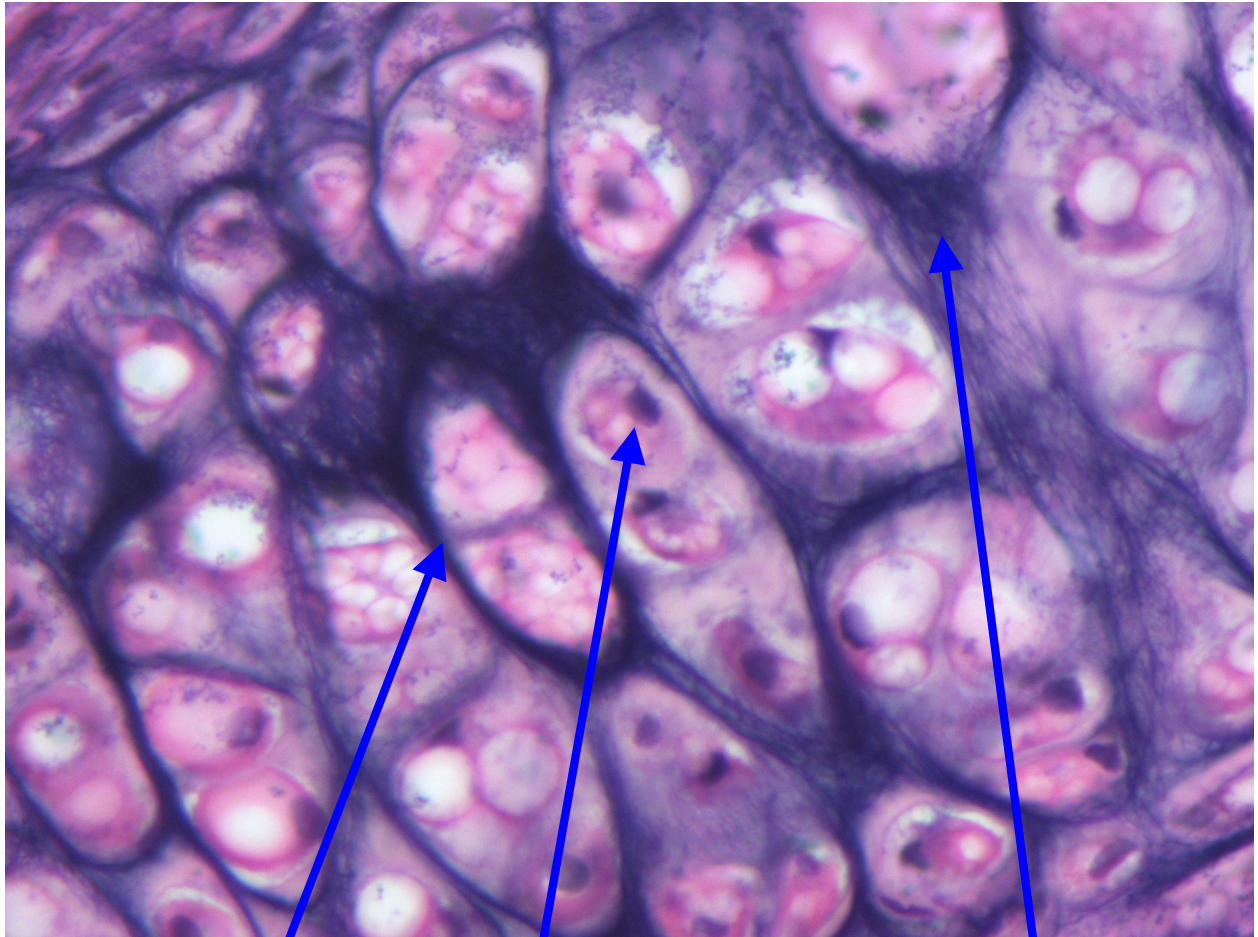
Sites:

External ear (ear pinna).
Epiglottis.



perichondrium

Elastic Cartilage



Cell nest

chondrocyte

Elastic fibers

Please send us any questions or mistakes on 432histologyteam@gmail.com