SNS COLLEGE OF PHYSIOTHERAPY
COIMBATORE-35

COURSE : BPT

SUBJECT : BIOMECHANICS

TOPIC : JOINT STRUCTURE AND FUNCTION

UNIT : I

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JOINT STRUCTURE AND FUNCTION

Bursae

Cartilage

Bursae

- Bursae, which are similar in structure and function to tendon sheaths, are **flat sacs of synovial membrane** in which the inner sides of the sacs are separated by a fluid film.

Bursae

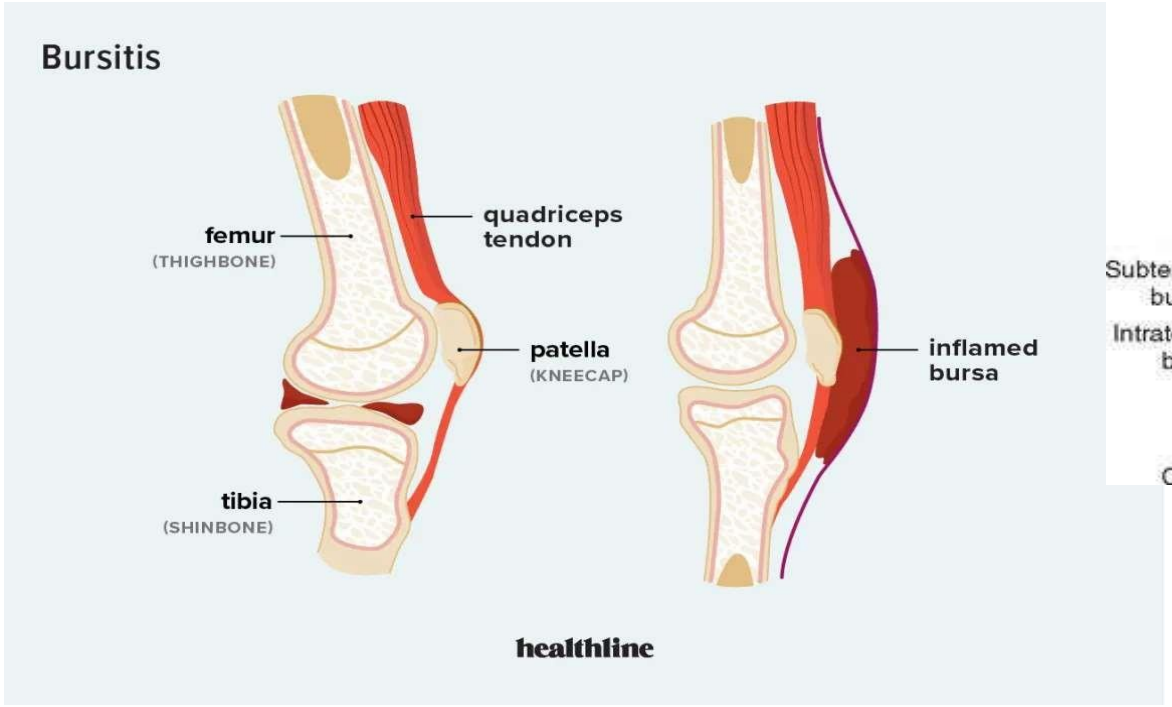
- Bursae are located where moving structures are in tight approximation: that is, between tendon and bone, bone and skin, muscle and bone, or ligament and bone.
- **bone.**

Bursae

- Bursae located between the skin and bone, such as those found between the patella and the skin and between the olecranon process of the ulna and the skin, are called subcutaneous bursae.

Bursae

- Subtendinous bursae lie between **tendon and bone, and submuscular bursae lie between muscle and bone.**


Bursitis
femur
(THIGHBONE)
quadriceps
tendon
patella
(KNEECAP)
tibia
(SHINBONE)
inflamed
bursa
healthline


Subtendinous
bursa
Intratendinous
bursa
Olecranon bursa

CARTILAGE

- **Cartilage is a connective tissue , semi rigid, semi transparent, elastic, flexible & cartilage.**

- **Composed of specialised cells called chondrocytes.**

- **Chondrocytes are embedded in extracellular matrix with collagen and elastin fibers.**

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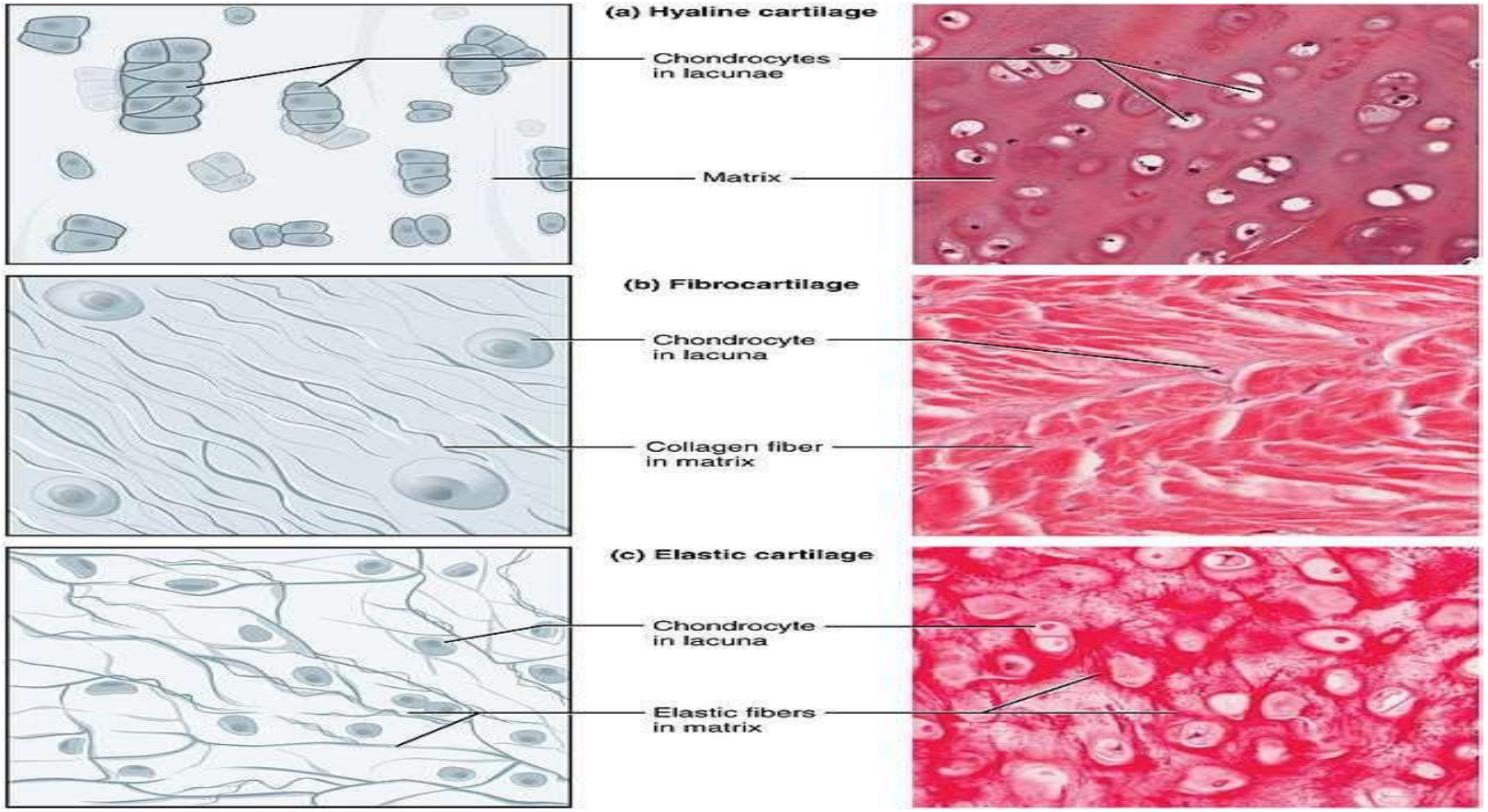
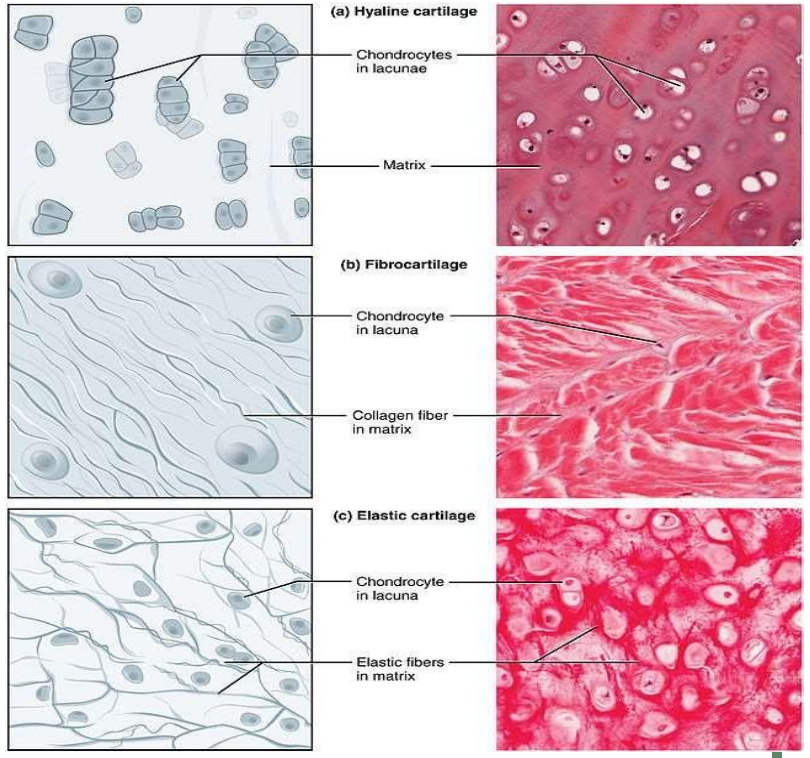
CARTILAGE


(a) Hyaline cartilage
Chondrocytes in lacunae
Matrix
(b) Fibrocartilage
Chondrocyte in lacuna
Collagen fiber in matrix
(c) Elastic cartilage
Chondrocyte in lacuna
Elastic fibers in matrix

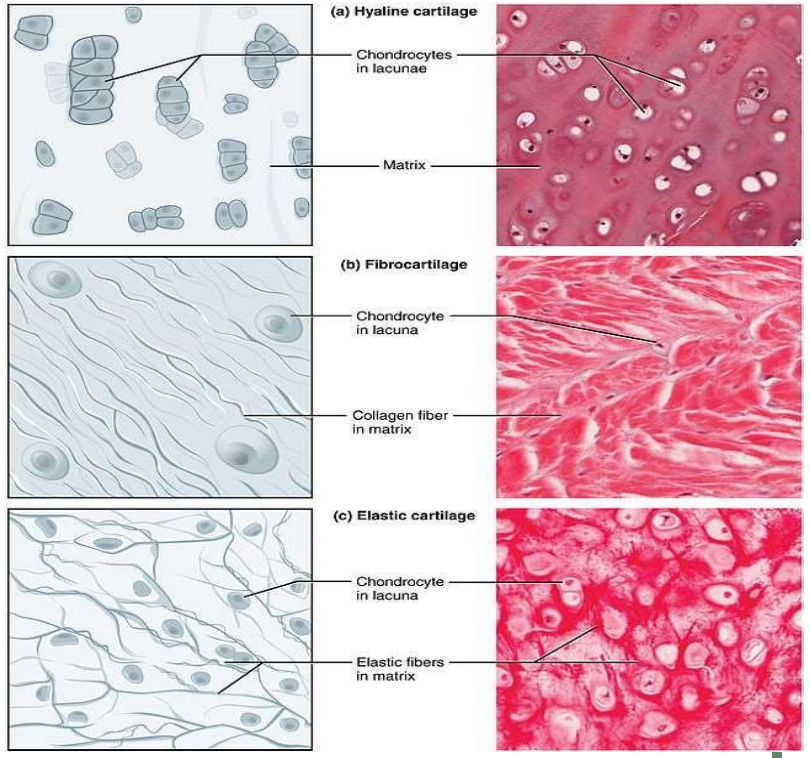
CARTILAGE

- Chondrocytes are present in group-lacunae
- Avascular, aneural
- Nutrition is provided by diffusion.
- Cartilage is usually divided into the following types: **(white) fibrocartilage, (yellow) elastic cartilage, and (articular) hyaline cartilage.**



CARTILAGE

- hyaline cartilage.
- Bluish white
- Most abudent.
- Type II Collagen
- Flexibity, support & smooth surfaces to joint.
- Ends of long bone.

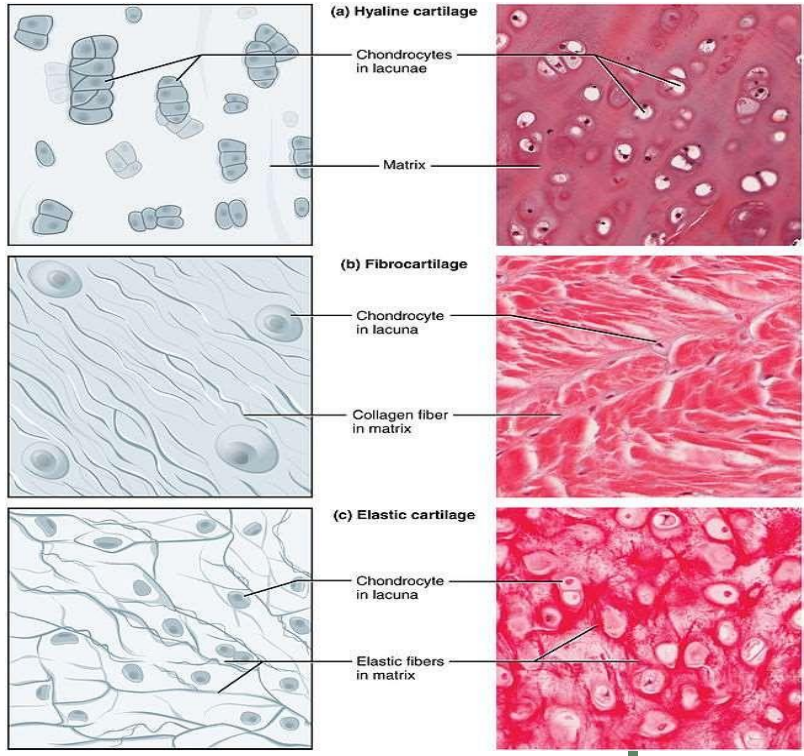


CARTILAGE

- **fibro cartilage.**

Toughest, slightly flexible.

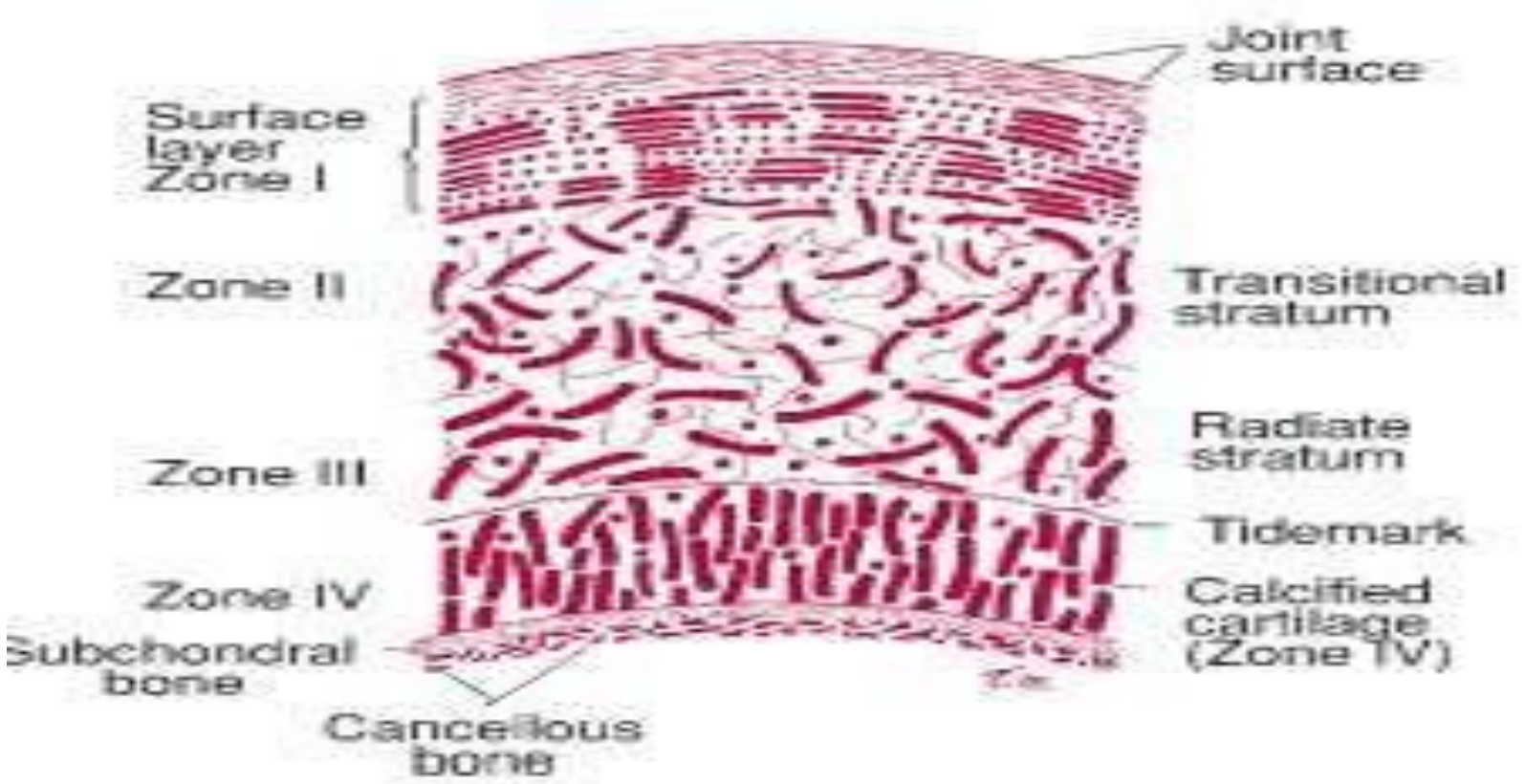
- **white Collagen fibers,**
- **type I & TYPE II**
- **Seen in articulating surface of knee joint, IVD.**
- **Elasticcartilage.**
- **Flexible issue**
- **Yellowish**
- **Provide support & shape of pinna, epiglottis etc.**
- **Type I & ELASTIC FIBERS**



ARTICULAR CARTILAGE

- helps to reduce friction between the opposing joint surfaces
- distribute forces over the joint surface.& distribute load.
- Contains chondrocytes, collagen , PG, water

ARTICULAR CARTILAGE



▲ **Figure 2-9** ■ Structure of hyaline cartilage.

- Act as shock absorber between two bones meet
- Provides flexibility in joint
- Provide supportive structure in external ear, tip of nose, ribcage, rib cage.

THANKYOU