
بسم الله الرحمن الرحيم


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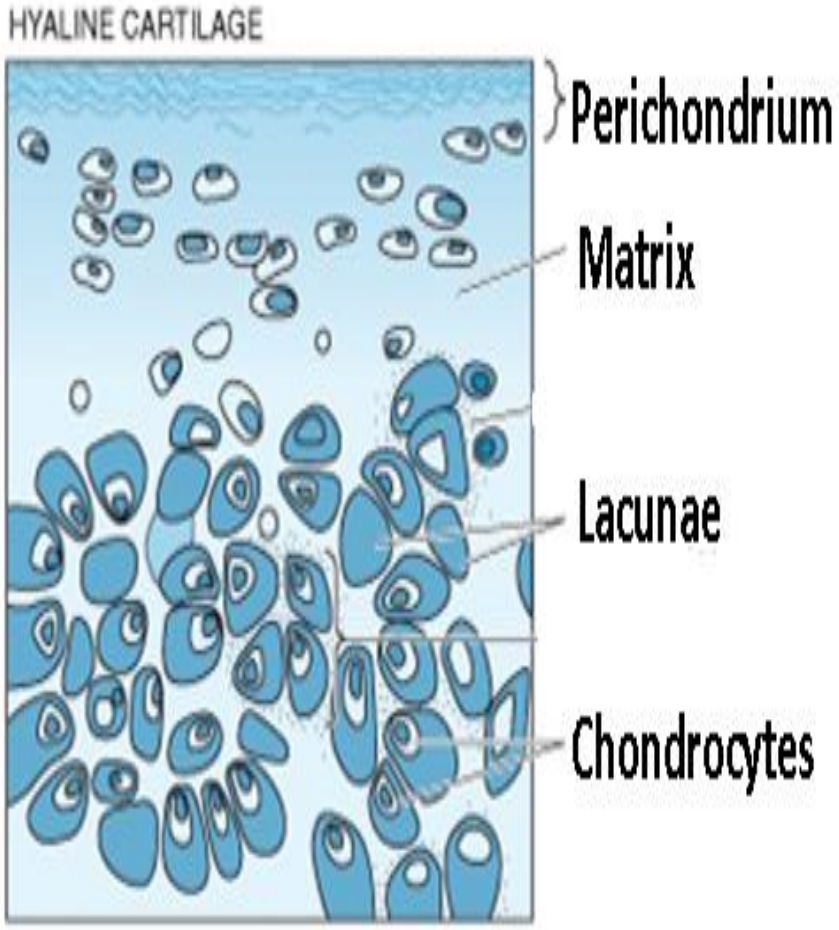
CARTILAGE:

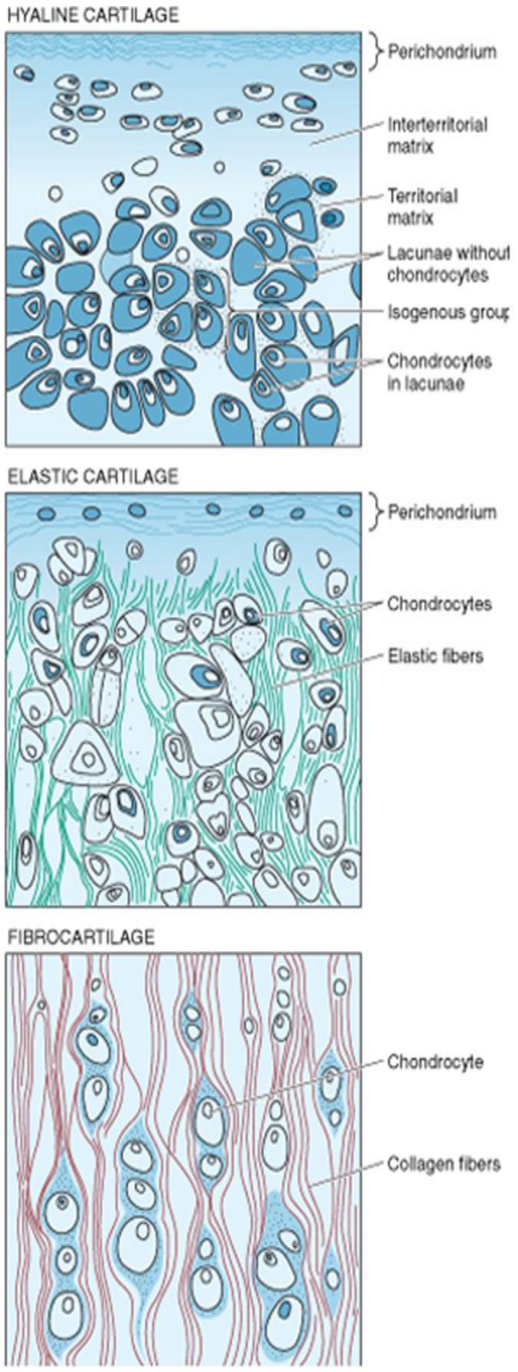
Cartilage is also a type of connective tissue like bones. It contains chondrocytes along with collagen or elastic fibers. Their cells and fibers are embedded in a matrix rich in mucopolysaccharides. It is more flexible and elastic and not as rigid as bone tissue.



Cartilage has no blood vessels, lymphatics and nerves. It receives nutrition by diffusion which explains the slow healing process and is insensitive to pain. The flexibility of cartilage is due to presence of chondroitin and absence of calcium salts.

Types are

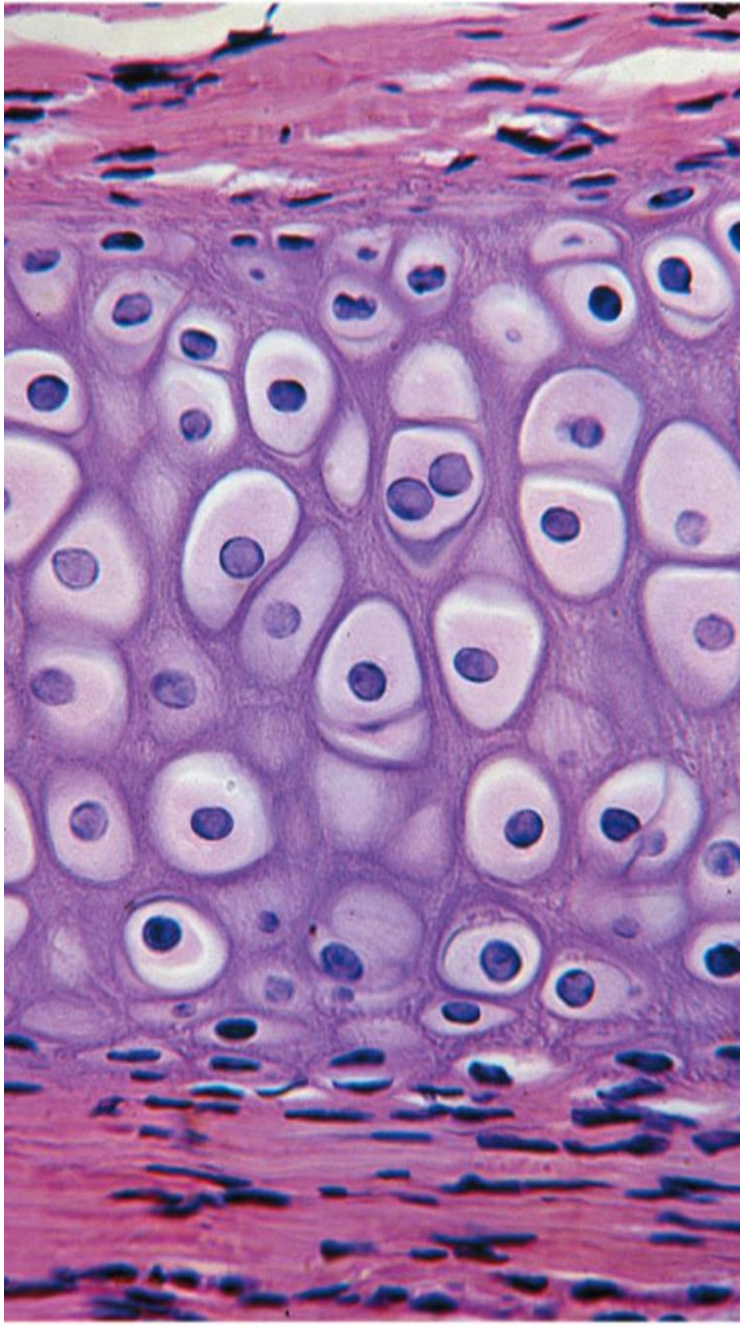
1. **Hyaline cartilage,**
2. **Fibrocartilage and**
3. **Elastic cartilage.**



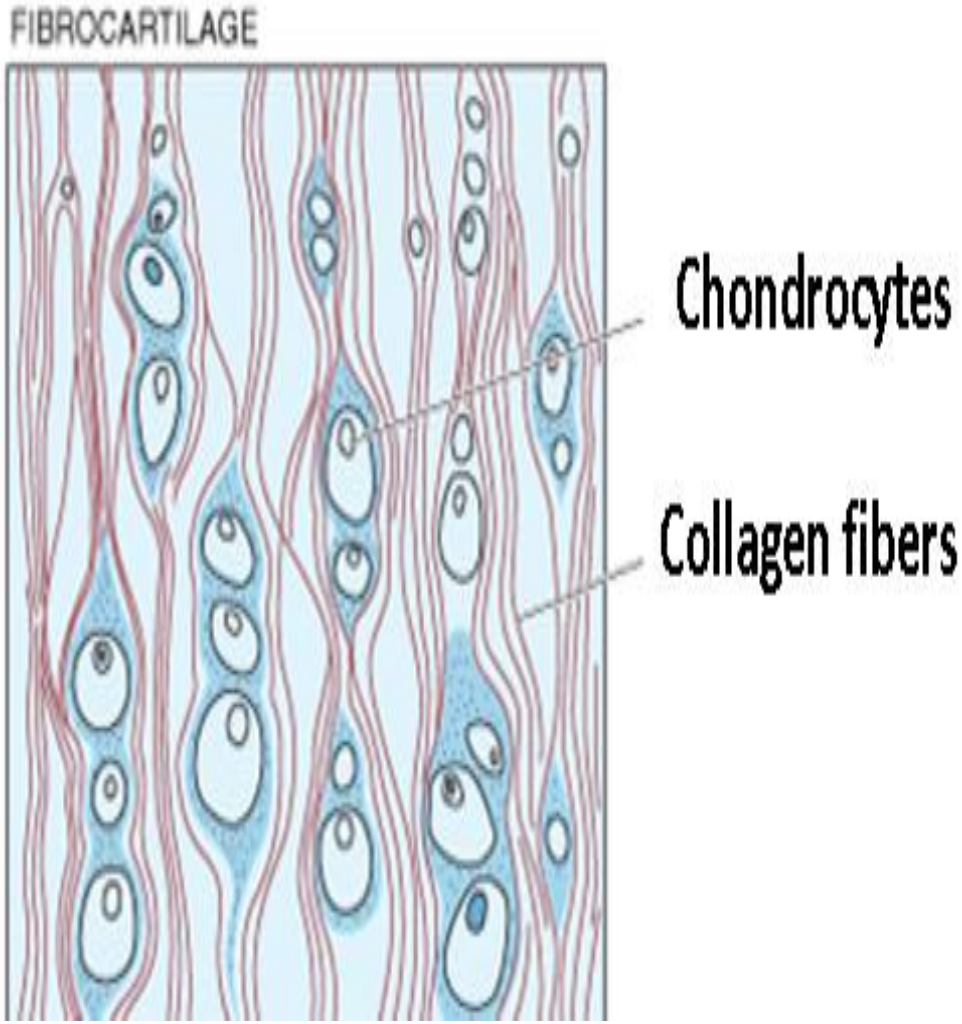
The Hyaline cartilage is the most common type of cartilage in the body. It has bluish glassy appearance due to which it has been called hyaline (**Glassy appearance**) cartilage.

It is relatively stronger cartilage and like other cartilages, is covered by a fibrous membrane called perichondrium except articular cartilage which is also the cause of slow healing when articular cartilage is damaged.

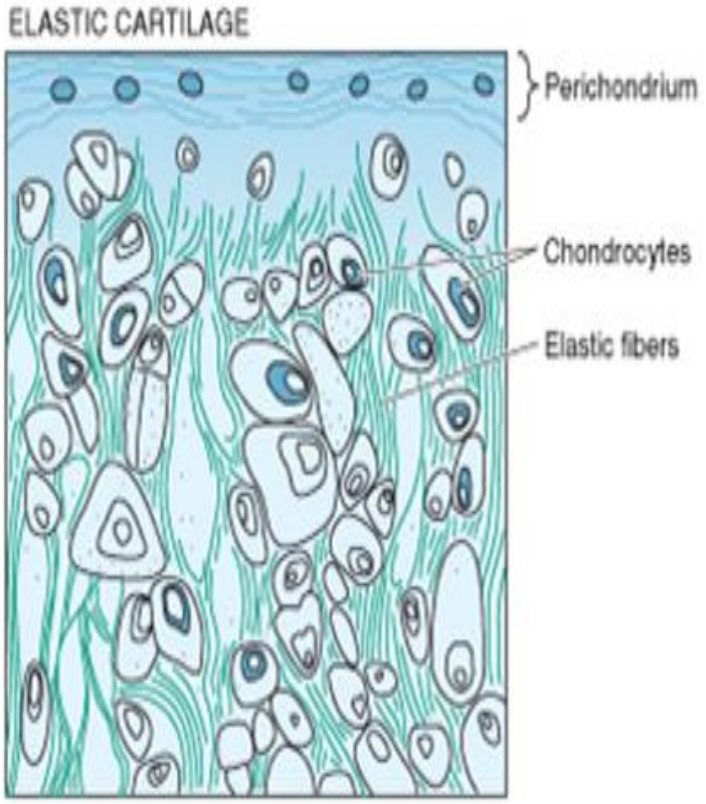
It is present in growth plate, respiratory tract, anterior part of ribs (costal cartilages), articular cartilage, and fetal bones.



FIBROCARTILAGE is more firm and stronger to absorb the pressure more affectively. It has numerous white fibers. Its color is glistening white and is opaque in appearance. It is present in the symphysis pubis, intervertebral discs and sternoclavicular joint etc.



Elastic cartilage is highly flexible type of cartilage and has numerous branching elastic fibers in matrix. It is opaque in appearance and yellowish in colour. The elastic cartilage is present in the ear pinna, external auditory meatus, Eustachian tubes, and epiglottis



CLINICAL ANATOMY OF BONES

Defect in development of bones can cause defective development of skull or vertebral column leading to condition like encephalocele or meningocele.

Periosteum is very sensitive to pain. It is important to keep this in mind during surgical procedures on bones. It also has a key role in fracture healing after fractures.

Fractured bone should be reduced, immobilized for a particular time. No bone unites before 3 weeks and all bones would get united after fracture by the age of 3 months.

Bilateral femur fracture causes sufficient loss of blood to cause shock. This should be avoided by urgent blood transfusion well in time.

Rickets is a condition which leads to defective mineralization of bones during growth which bend under the stress. The resulting deformities are bowing of the long bones of the lower limb, and bossing of the frontal bone.

Epiphyseal plate disorders affect the children mainly. Trauma, infection or malignant conditions can affect the growth at epiphyseal plate. This can change the length of the limbs. Increased vascularity can increase the growth rate in bone and a decrease in blood flow can cause shortening of a limb.

Practical: Write true or false in front of each option or fill in the blanks when required.

Upper end of humerus is growing end.

The direction of nutrient artery is towards lower end of humerus .

The lower end of femur is growing end.

The direction of nutrient artery is towards upper end.

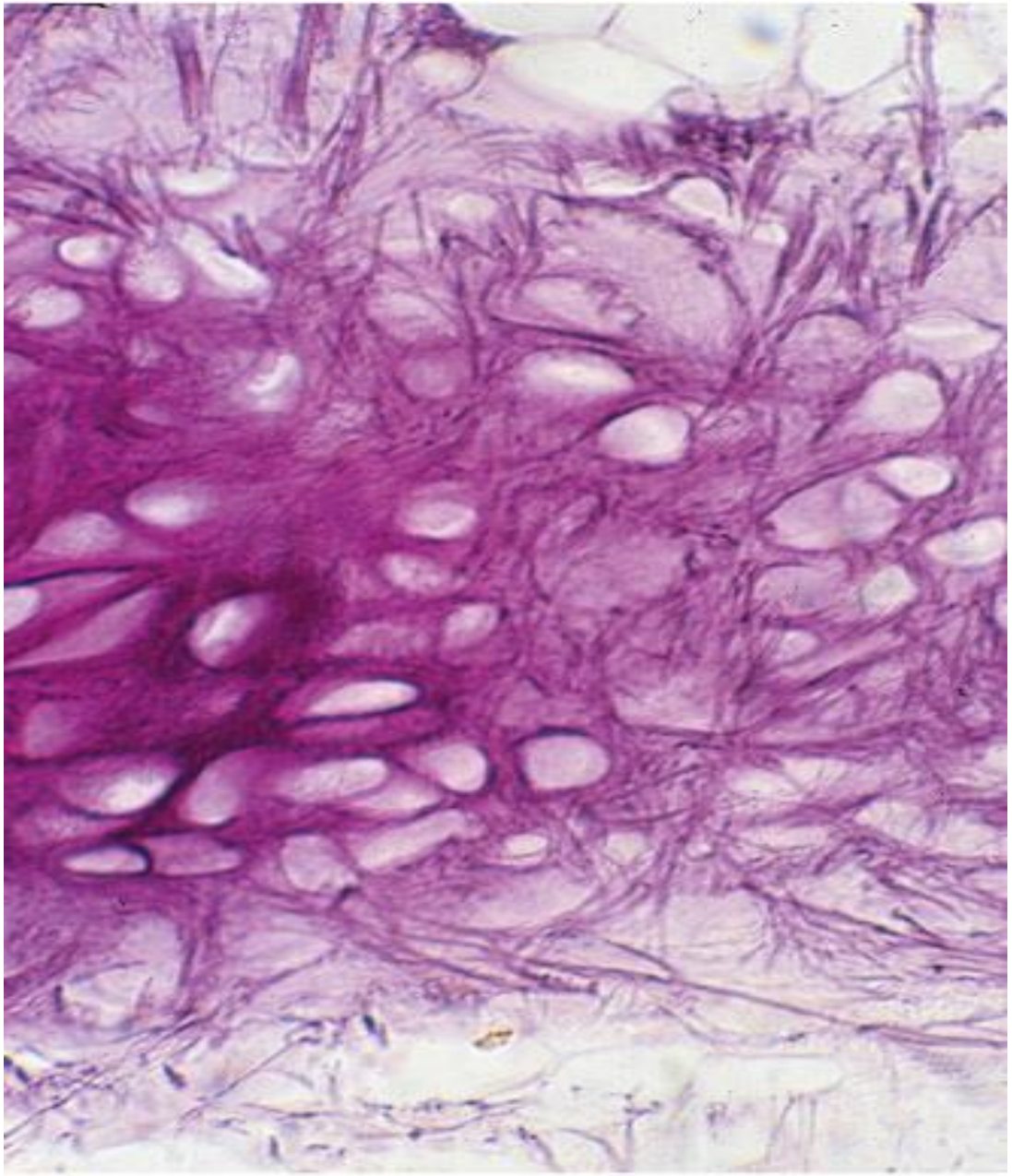
Treatment of bone fracture is ----------and----------for a particular time.

No bone fracture unites before----weeks and all bone fractures are united by ----months.

Write name of type of following bones according to shape.

Elastic Cartilage

Elastic cartilage is found in the auricle of the ear, the walls of the external auditory canals, the auditory (eustachian) tubes, the epiglottis, and the cuneiform cartilage in the larynx



Growth

The growth of cartilage is attributable to two processes: **interstitial growth,** resulting from the mitotic division of preexisting chondrocytes, and **appositional growth,**

Poor Regeneration of Cartilage Tissue

Except in young children, damaged cartilage regenerates with difficulty and often incompletely, by activity of the perichondrium, which invades the injured area and generates new cartilage.

In extensive wound the perichondrium produces a scar of dense connective tissue instead of forming new cartilage.

Intervertebral Disks

Each intervertebral disk is situated between two vertebrae and is held to them by means of ligaments. The disks have two components: the fibrous **annulus fibrosus** and **the nucleus pulposus**. The intervertebral disk acts as a lubricated cushion that prevents adjacent vertebrae from being eroded by abrasive forces during movement of the spinal column. The nucleus pulposus serves as a shock absorber to cushion the impact between vertebrae.

THANKS