



ALAYEN UNIVERSITY

ANESTHESIA DEPARTMENT

FIRST STAGE

BIOLOGY

Specialized connective tissue

The specialized connective tissue consist of three parts

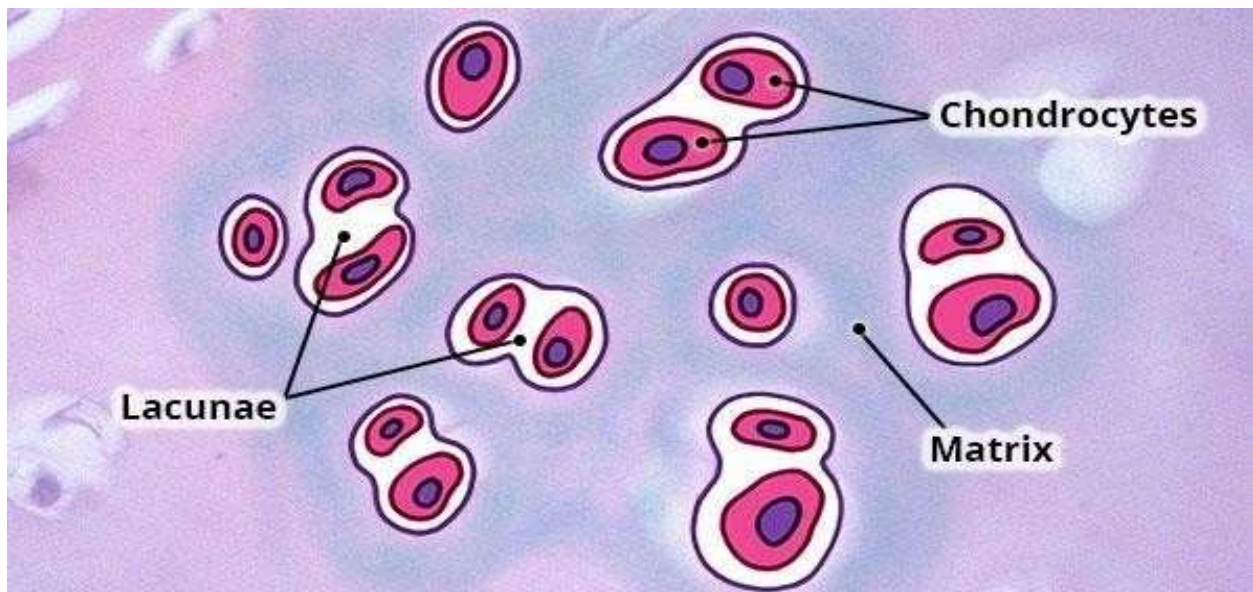
Cartilage .1

Bone .2

Blood .3

Cartilage and bone form a framework of the body while the blood are a vascular tissue

A. Cartilage is a special form of Connective tissue that consists mainly of cells called **chondrocytes**.



Cartilage are classified according to three main types

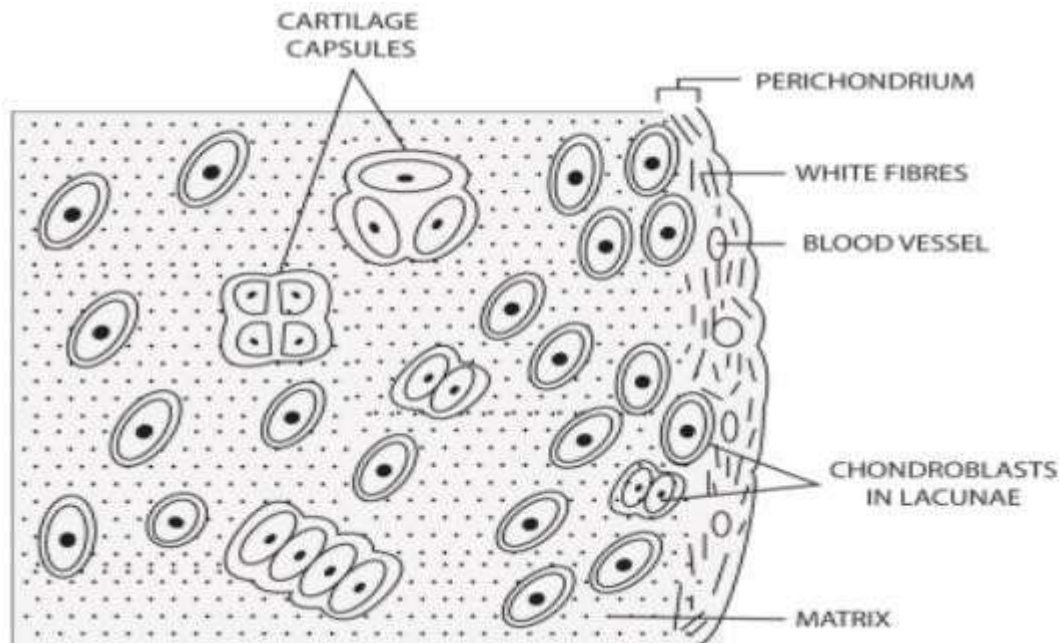
Hyaline cartilage .1

Elastic cartilage .2

Fibro cartilage .3

Hyaline Cartilage .1

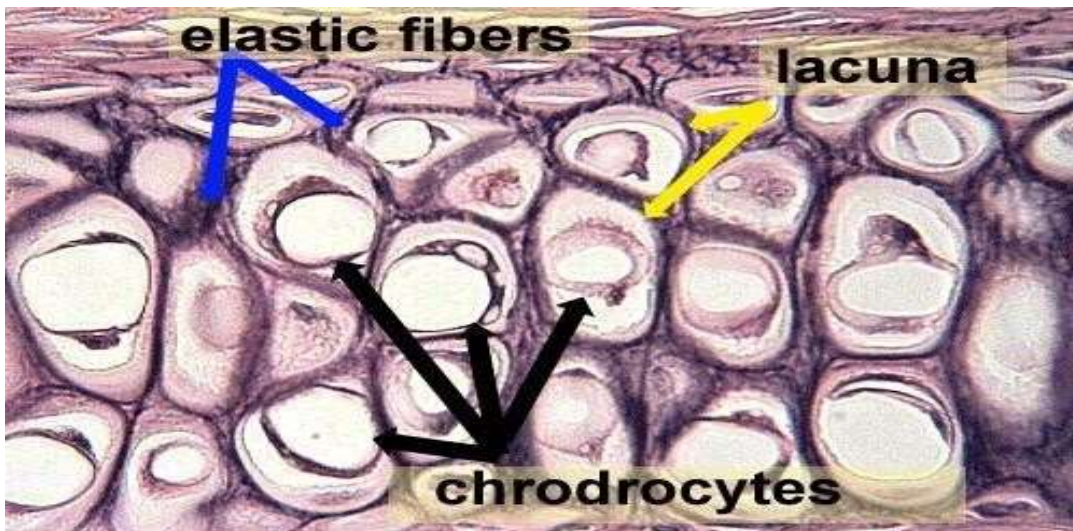
Soft cartilage is covered externally by a fibrous membrane, called the perichondrium. This membrane contains vessels that provide the cartilage with nutrition. It consists of cells (chondrocytes) .These cells are contained in cavities in the matrix called cartilage lacunae. E. g. **nose** and **embryonic skeleton**.



2. Elastic cartilage

Elastic cartilage is histologically similar to hyaline cartilage but contains many yellow elastic fibers lying in a solid matrix. It is much more flexible than hyaline cartilage because it contains elastic fibers embedded in its matrix e.g.

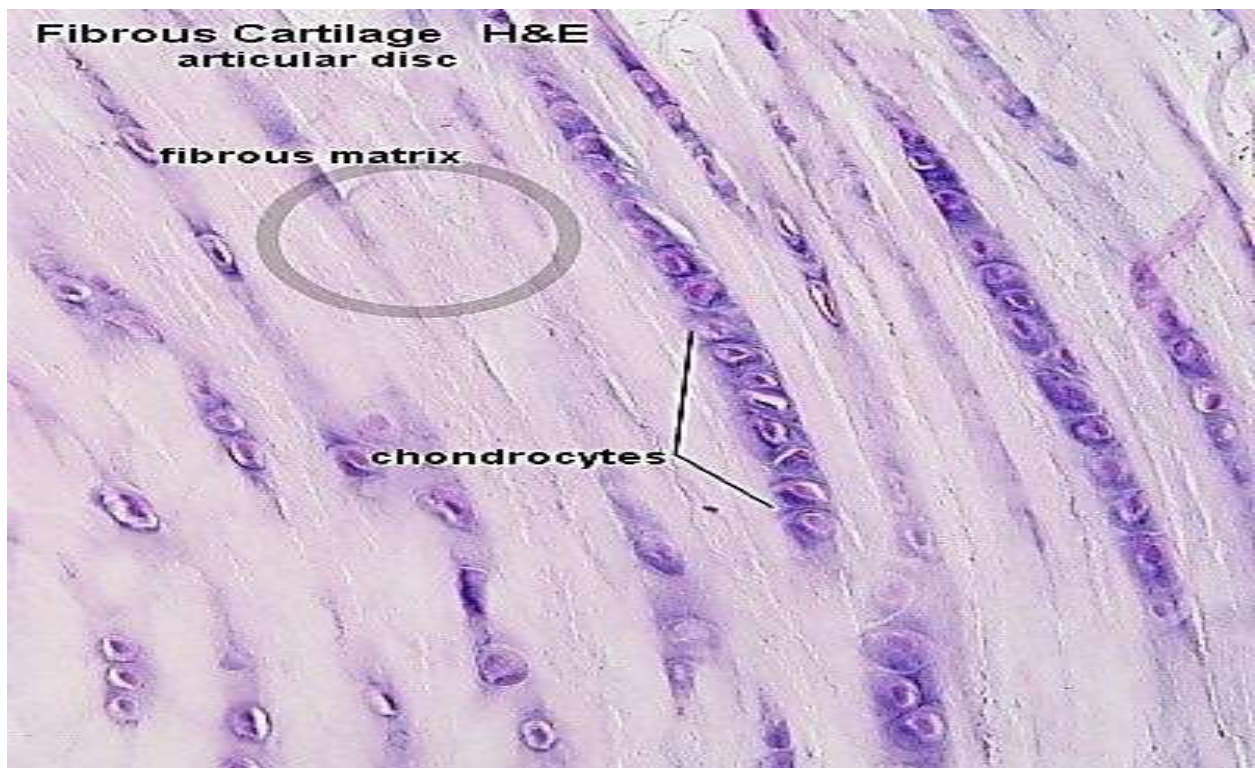
cartilage of external ear



3. Fibro cartilage

It is a tough flexible tissue which contain dense collagenous fibers imbedded in matrix -It is very useful for resisting compressive forces and physical shock -Found in:

intervertebral disc.



Bone is a type of connective tissues. It is hard because of the calcification of its extracellular matrix and possesses a degree of elasticity because of the presence of organic fibers. The adult human skeleton composed of 206 bones.

Periosteum: is a thick layer of fibrous tissue covers all bone surfaces.

Major Functions:

Protection for example, the skull and vertebral column protect the (a brain and spinal cord from injury.

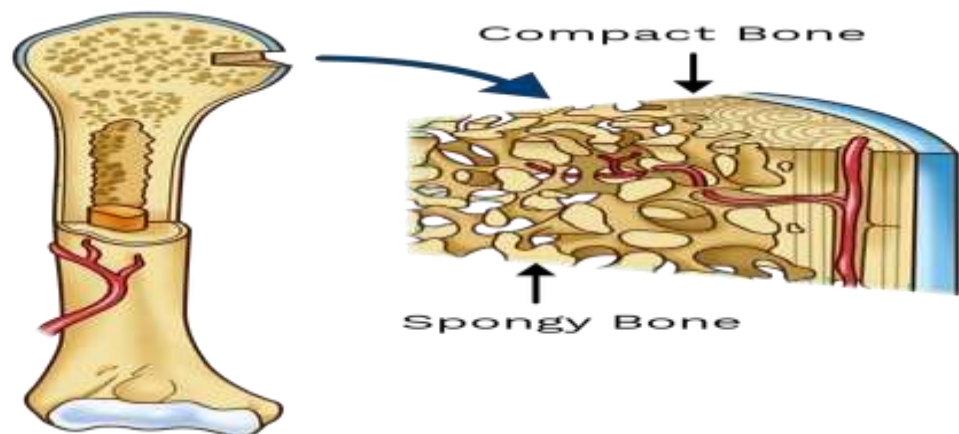
support of the body organs and soft tissues. (b

Facilitates the movement of the body. (c

Bone exists in two forms:

compact .1

spongy .2

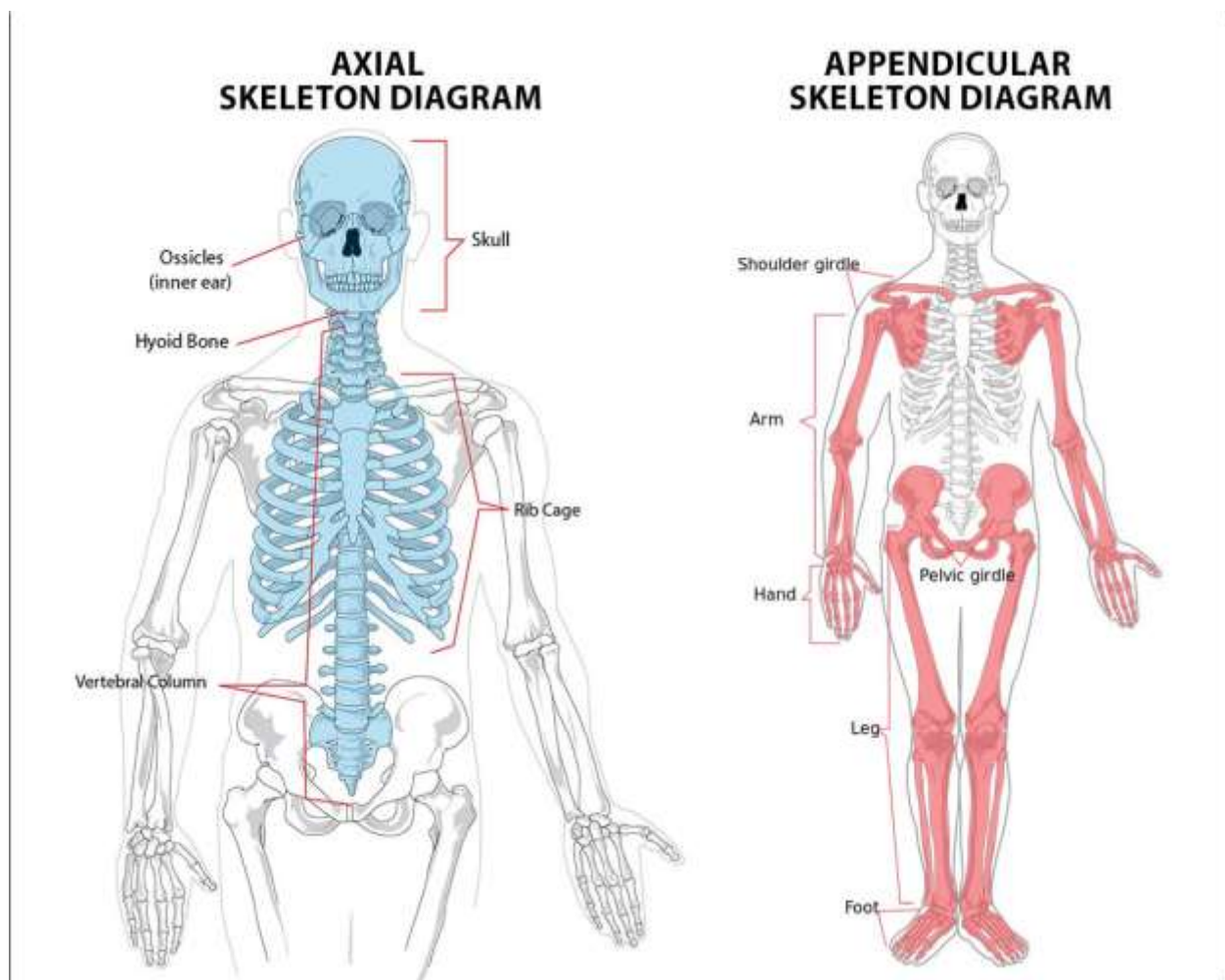


- **Bones** can be classified **regionally** or according to their **general shape**

A regional classification; the bones are organized into two main groups: the axial and appendicular skeletons.

The **axial skeleton** consists of the elements forming the central axis of the body (skull, vertebral column, and thoracic cage).

The **appendicular skeleton** consists of the bones forming the shoulder, pelvis, upper limb, and lower limb.



B. In the shape classification; bones are organized into five categories: Long, Short, Flat, Irregular, and Sesamoid

Long Bones: are found in the limbs (e.g., the humerus, femur and .1
phalanges). Their length is greater than their width

Short Bones: are found in the hand (carpal bones) and foot (tarsal .2
bones).

Flat Bones: are found in the vault of the skull (frontal, parietal .3
and occipital bones). They are composed of thin inner and outer
layers of compact bone,

Irregular Bones: include (e.g., the bones of the skull, the .4
vertebrae, and the pelvic bones).

Sesamoid Bones: is one formed within a tendon where the tendon .5
passes over a joint. The greater part of a sesamoid bone is **buried
in the tendon**. The largest sesamoid bone is the **patella** which is
located in the tendon of the quadriceps femoris. The function of a
sesamoid bone is to reduce friction on the tendon.

Types of Bones

