

# Connective tissue -1

## Four primary tissues of body—

- Epithelial tissue
- Connective tissue
- Muscle tissue
- Nervous tissue
- connective tissue is one of most abundant and widely distributed tissue of body.
- its merely supportive, but binds tissues of body.
- its types are----  
general,  
haematopoietic,  
specialized like bone and cartilage,  
embryonic mesoderm.

- it consists of two basic elements ---cells, matrix.
- matrix consists of ---collagen/elastic/reticular fibers and ground substance.

### **ordinary connective tissue—**

A) **irregular** connective tissue—loose, dense and adipose tissue.

**b) dense regular** tissue—fascia , ligaments,tendons, apponeurosis.

### **specialized connective tissue**

Mucoid tissue,

Elastic

Bone

Cartilage

Pigmented .

# Loose connective tissue

- most extensive,
- consist of network of thin collagen fibers embedded in semifluid ground substance.
- sites—
- in subcutaneous tissues specially where fat is absent, **e.g** -----eyelid, penis , scrotum, labia minora.  
-----investing sheaths of muscles, vessels and nerves  
-----subserous and submucous coat of alimentary tract  
-----interior of viscera , support of compound glands

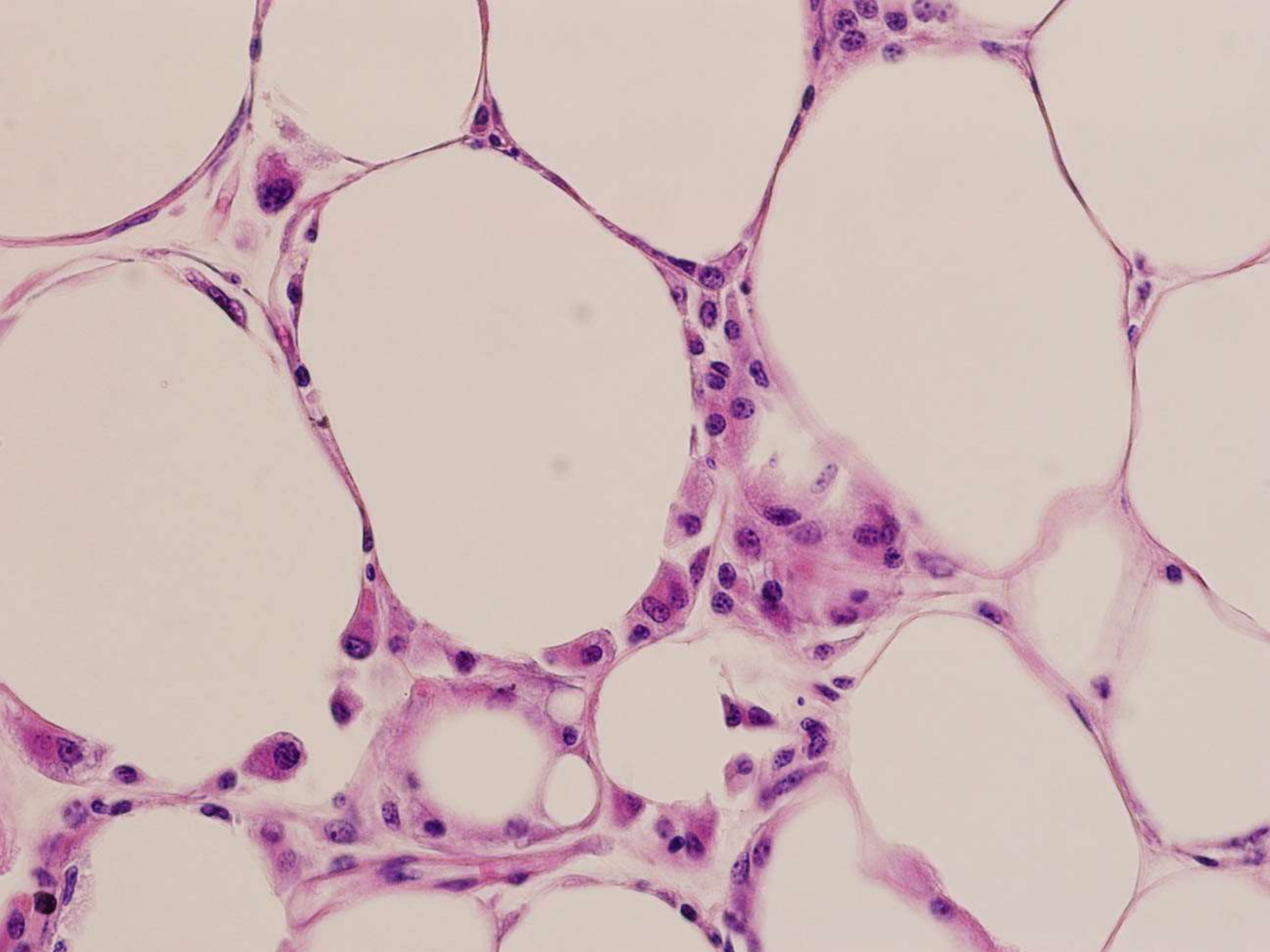
It **permits movements** between the parts it binds.  
this tissue .

# Dense connective tissue

- found in those parts of the body which are subjected to mechanical stress.
- tissue contains a high proportion of collagen fibers with fibroblasts.
- has poor blood supply.
- Sites—
  - reticular layer of dermis,
  - connective tissue sheaths of muscles, vessels and nerves.
  - adventitia of large vessels,
  - capsules of various glands
  - sclera of the eye,
  - periosteum and perichondrium.

# Adipose tissue

- made of large group of fat cells arranged in loculi .
- sites—
- superficial fascia of buttocks,
- loins, nape of neck, breast, lower part of anterior abdominal wall, front of thigh.
- fatty capsule of kidneys, localized pad of fat occur in synovial membrane of many joints.



# Dense regular tissue

- predominantly collagenous, with few elastic fibers,
- regular arrangement of collagen fibers form sheets or thicker bundles ,form tendon or ligaments.

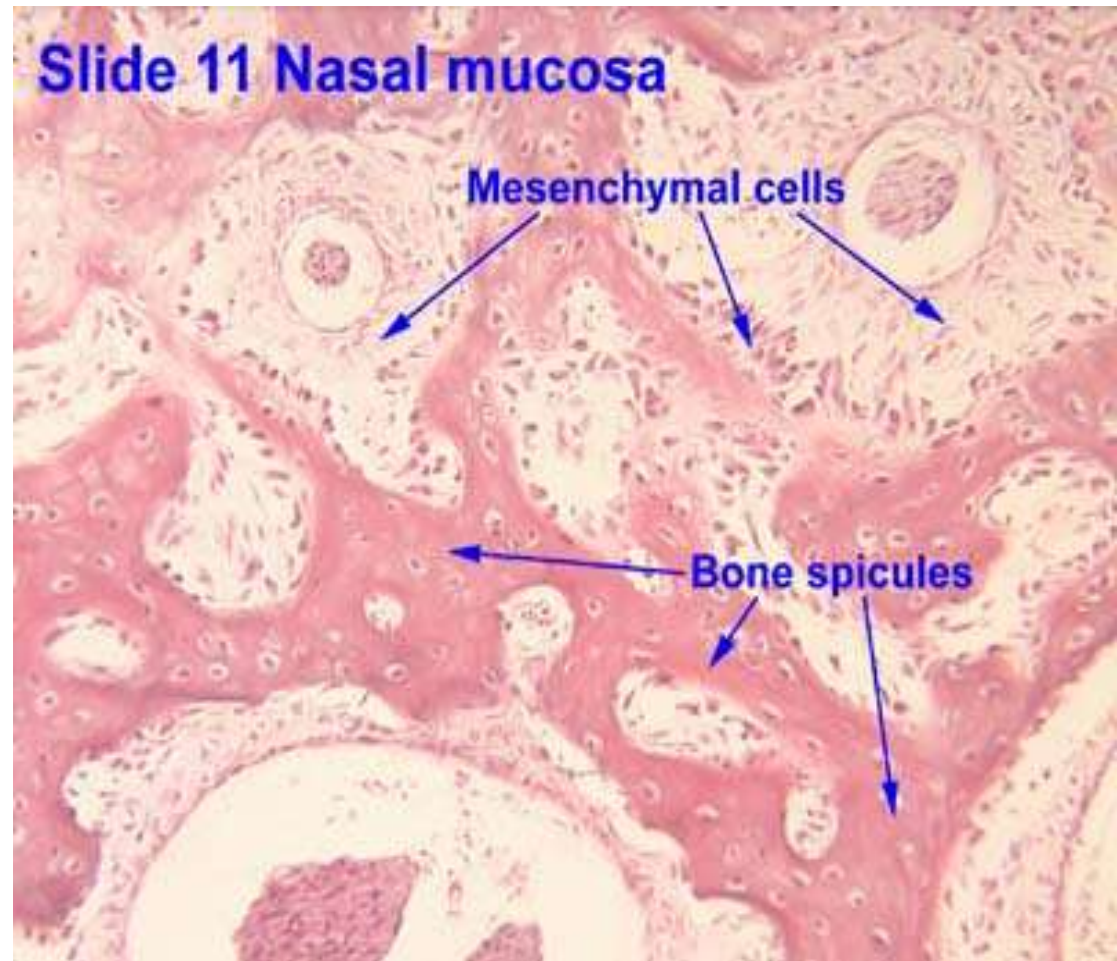


# special connective tissue

- **muroid tissue**
- embryonic type of connective tissue
- has copious matrix with fine network of collagen fibers with fibroblasts.
- site---wharton's jelly of umbilical cord,  
--- vitreous body of eye.

# Mesenchymal cells

- Located along capillaries
- Irregular flat cells
- Deeply basophilic cytoplasm with light staining nucleus & multiple processes



# Pigmented c.t

- seen in—choroid and lamina fusca of sclera of eye.

## **Elastic c.t.**

- Has branching elastic fibers, predominately in elastic connective tissue giving the unstained tissue a yellow colour.
- fibroblasts are present in spaces between the fibers.
- sites---lungs,elastic/large arteries .

# Collagen fibers

- collagen fibers widely distributed in connective tissue, ligament, tendons and apponeurosis.
- types---
- **Type 1**—tendon, ligament, fascia, bone , apponeurosis,,also in skin and meninges.
- **Type 2**—cartilage (hyaline), vitreous body
- **type 3**—c.t ( reticular fibers.
- **type 4**-in basement membranes
- **type 5**-bone (**1+5** )
- **type 6**-*cartilage (2+6)*

# applied

a) diseases **or inflammations or injuries** ( pulls or sprains ) ---very painful ( rich blood supply),or due to muscle spasm.

-----healing is delayed due to poor blood supply.

- B) **collagen fibers** diseases—rheumatic arthritis,
- -----disseminated lupus erythematosus
- -----scleroderma.

- **c) marfan's syndrome**
- inherited disorder( defective fibrillin gene )
- abnormal development of elastic fibers.,tissues are rich in elastic fibers are malformed or weakened.
- structures affected –covering layers of bones, ligaments which suspend the lens of eye and walls of large arteries.
- Disproportionately long arms,legs, fingers toes and tall individuals
- blurred vision is very common due to displacement of lens of eye.
- weakening of aorta.

# mcq

- 1) Elastic fibers present in walls of arteries are formed by-
  - A) fibroblasts
  - B) smooth muscle cells
  - C) fibrocytes
  - D) mesenchymal cells
- 2) wharton's jelly is an example of—
  - a) mucoid tissue
  - b) dense regular connective tissue
  - c) loose connective tissue
  - d) pigmented connective tissue

3) Elastic fibers formation is abnormal in –

A)rickets

b) scurvy

C) marfan's syndrome

D) none of above

4) which type of collagen is seen in bone—

A) type 2

B) type 3

C) type 4

D) type 5



5) mucoid tissue is seen in ---

A) stomach

B) lungs

c) artery

D) umbilical cord

6) Example of dense regular connective tissue—

a) Ligament

b) Muscle

c) Nerve

d) eye