BIOLOGY

II-Fibers:

- **Collagen fibers (white fibers):**
- They are the most numerous and strongest fibers in the body derived from connective tissue cells called fibroblasts.
- colorless
- they give the tissue white color when grouped in great no. e.g. in tendon.
- These fibers are straight or wavy, unbranched consist of protein called collagen.
- Collagen fibers always run parallel to each other forming bundles, which branched and anastomose.
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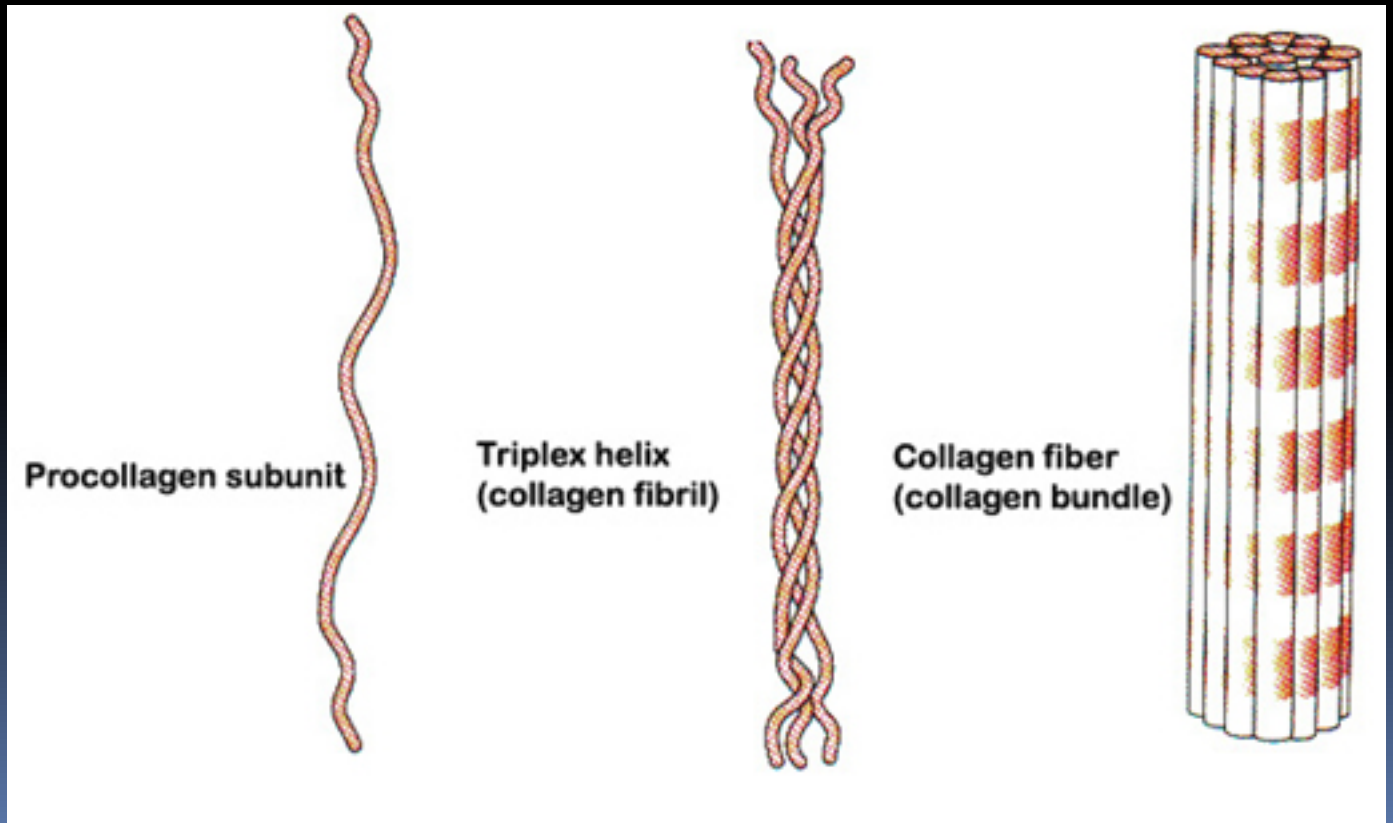
- there are several types of collagen fibers (currently named type I to XXI)

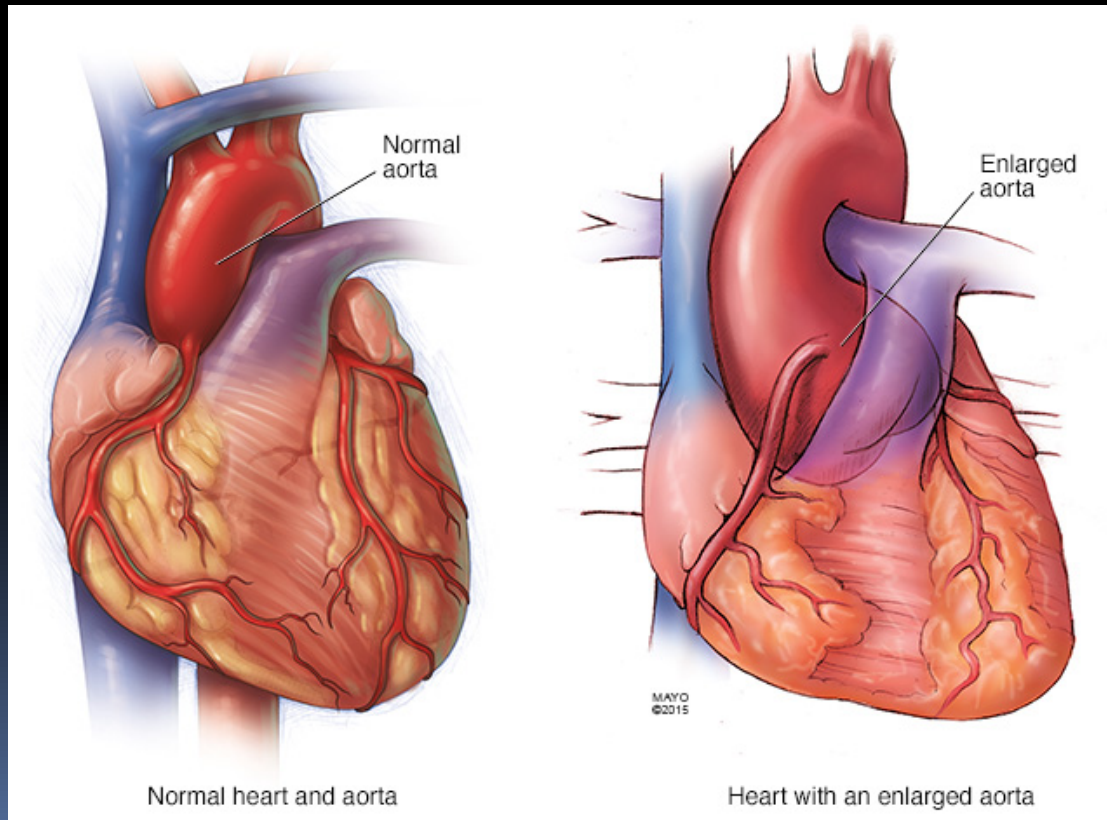


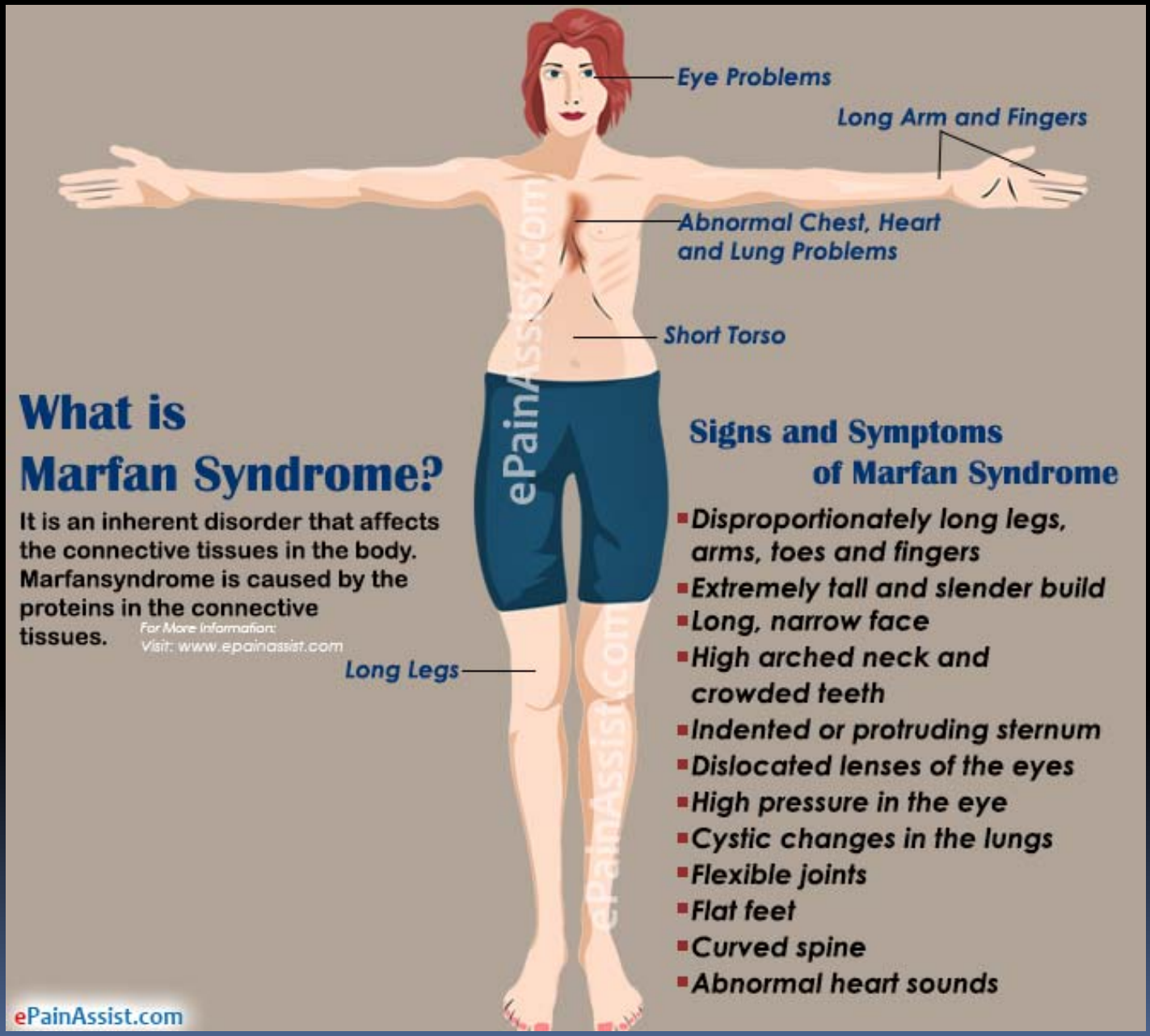
MEDICAL APPLICATION
Keloid

Vitamin C (ascorbic acid) deficiency

Elastic fibers (yellow fibers):

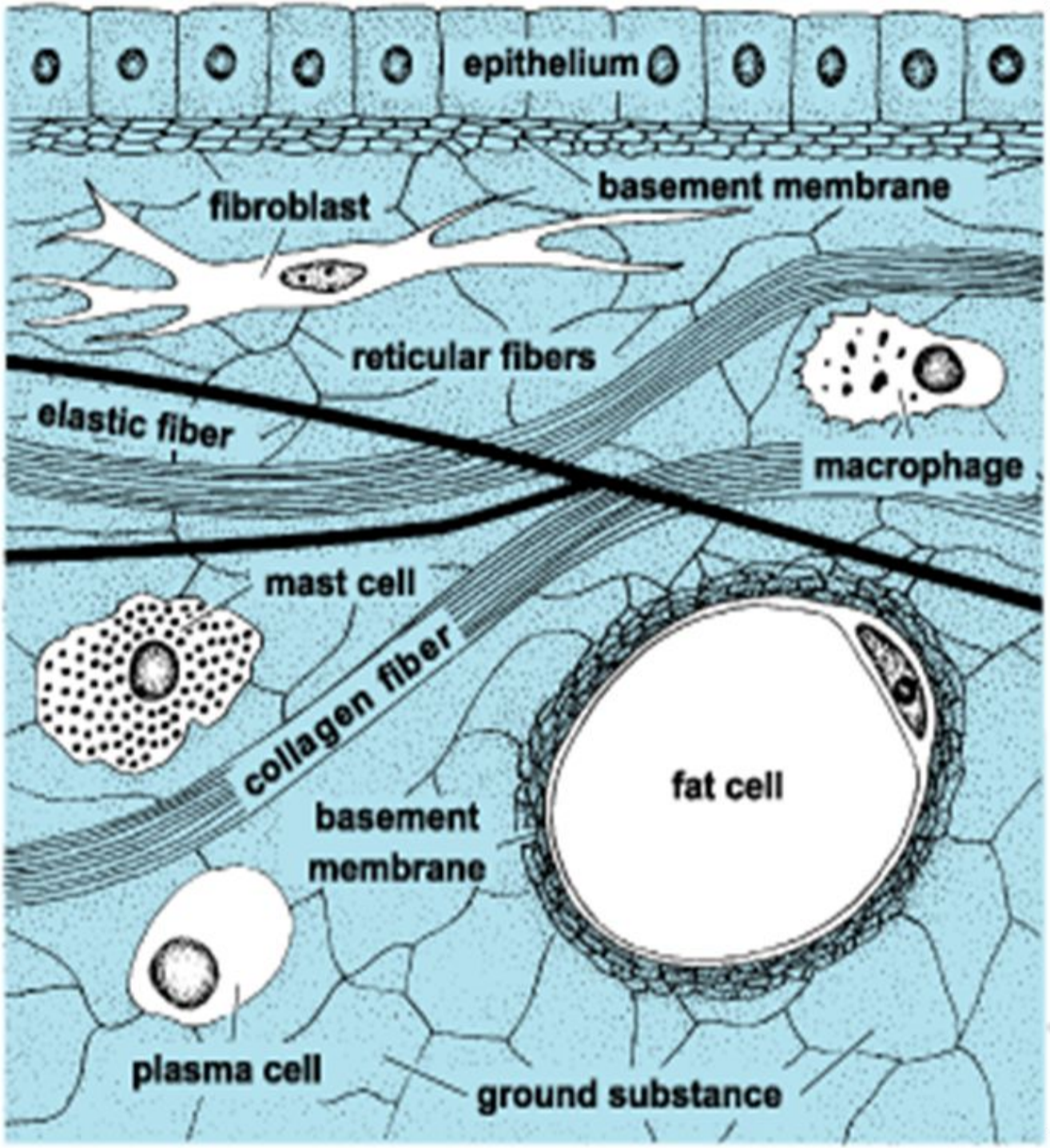
- abundant in organs that regularly stretch and then return to their original shape .
- composed principally of a protein called elastin
- **Medical application:**
- **Marfan syndrome**




Eye Problems
Long Arm and Fingers
Abnormal Chest, Heart and Lung Problems
Short Torso
Long Legs
What is Marfan Syndrome?
It is an inherent disorder that affects the connective tissues in the body. Marfansyndrome is caused by the proteins in the connective tissues.
For More Information: Visit: www.epainassist.com
Signs and Symptoms of Marfan Syndrome
Disproportionately long legs, arms, toes and fingers
Extremely tall and slender build
Long, narrow face
High arched neck and crowded teeth
Indented or protruding sternum
Dislocated lenses of the eyes
High pressure in the eye
Cystic changes in the lungs
Flexible joints
Flat feet
Curved spine
Abnormal heart sounds
ePainAssist.com

Reticular fibers:

- Reticular fibers are another form of collagen (Type III).
- they are associated with special cells called reticular cells.


epithelium
basement membrane
fibroblast
reticular fibers
elastic fiber
macrophage
mast cell
collagen fiber
fat cell
basement membrane
plasma cell
ground substance

Clinical Correlation:

- **Sun Exposure and Molecular Changes in PhotoageAd Skin**

Chronological aging of the skin

photoaging.

Ehlar-Danlos Syndrom:

Connective tissue classification

- Connective tissue proper

1. Dense
   - Regular
   - Irregular
2. Loose

- Connective tissue with special properties

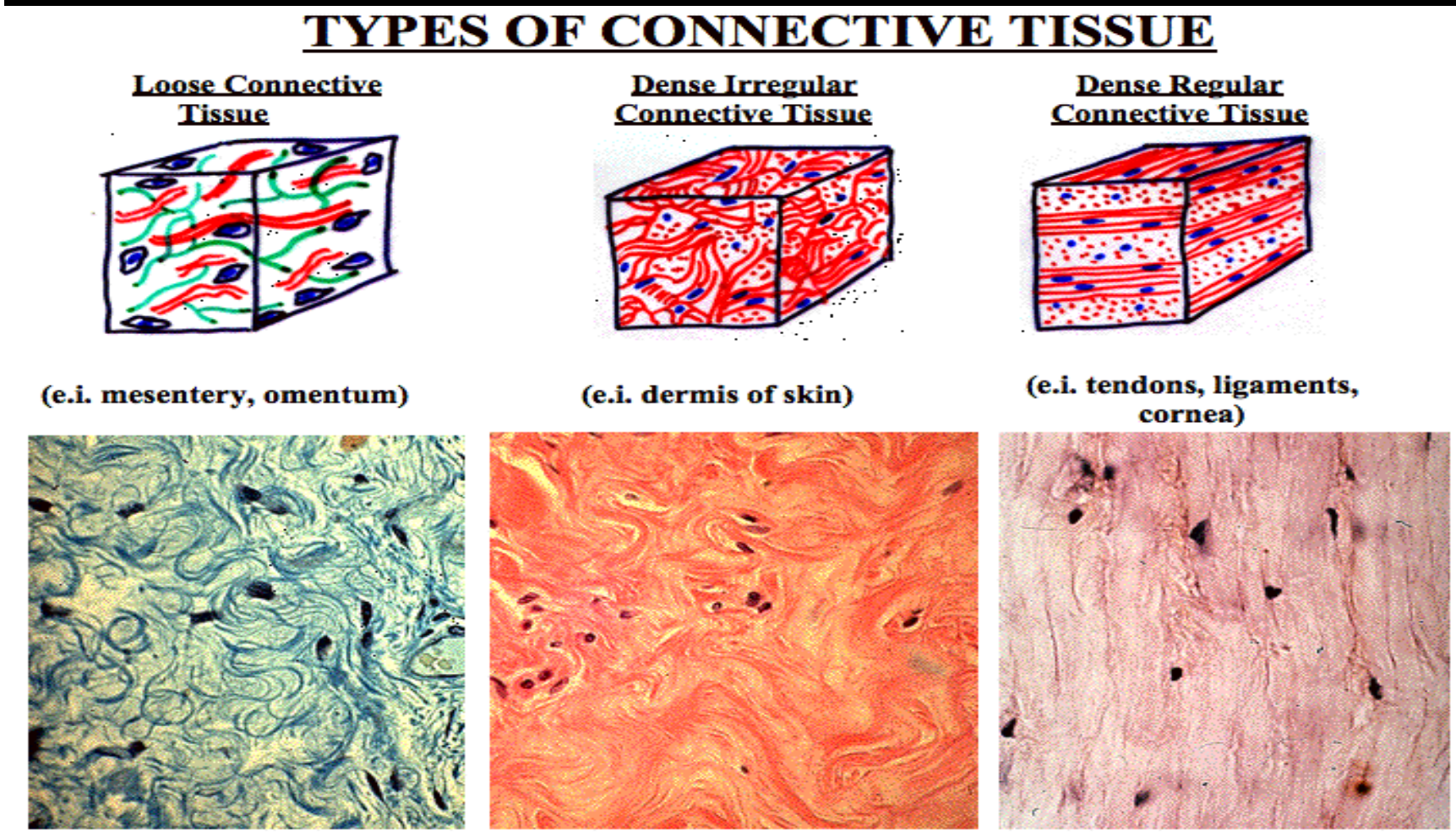
1. Adipose tissue
2. Mucous tissue
3. Hematopoietic (lymphatic and myeloid)
4. Elastic tissue

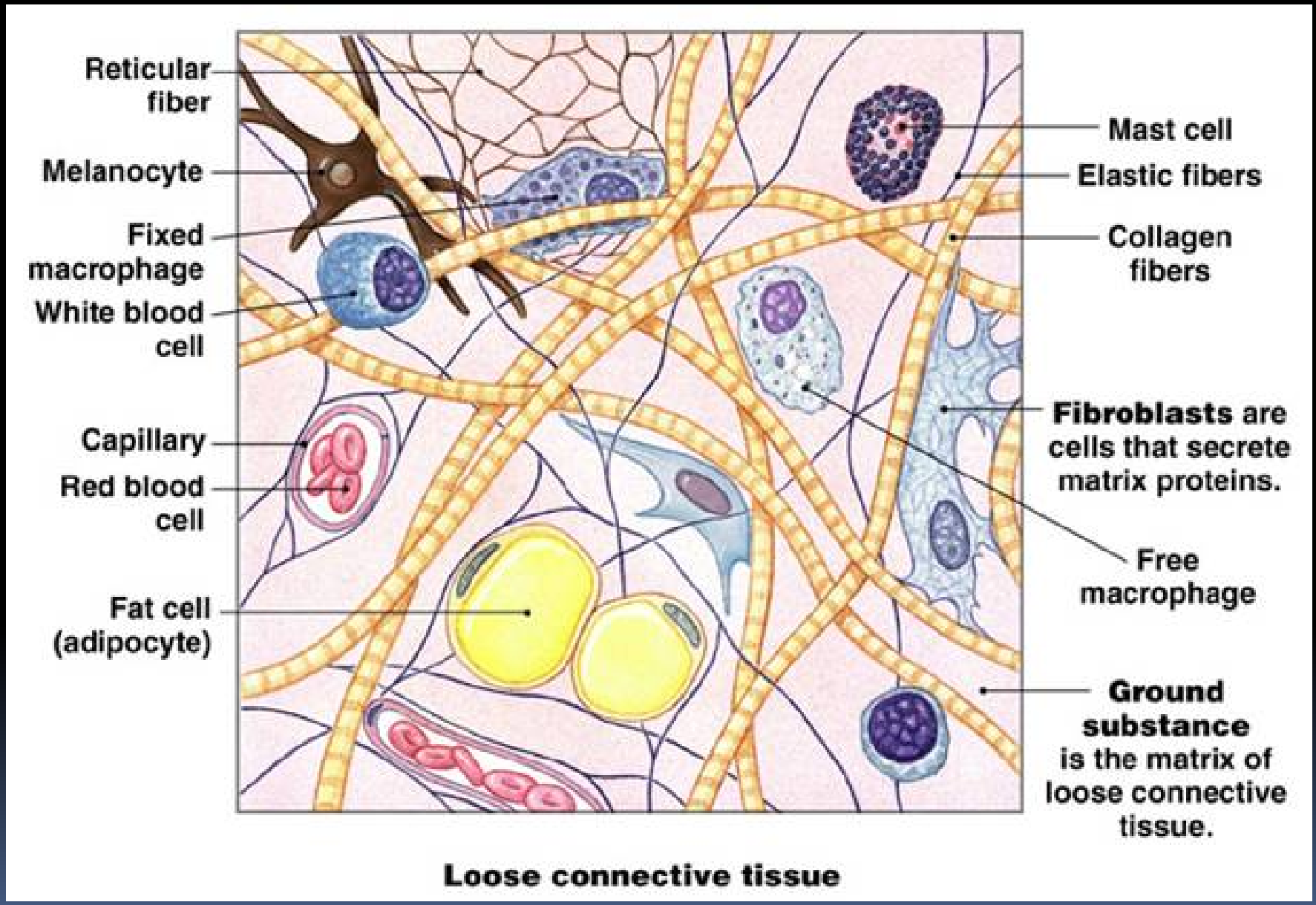
- Supporting connective tissues

1. Cartilage
2. Bone

I-connective tissue proper:

a-Loose Connective Tissue:





Loose connective tissue

- Dense regular connective tissue has closely-packed densely-arranged fiber bundles with clear orientation (cord like structure or bands) and relatively few cells (such as in tendons). This type include:

1. white regular dense connective tissue :

- Tendons : connect muscle to bone.

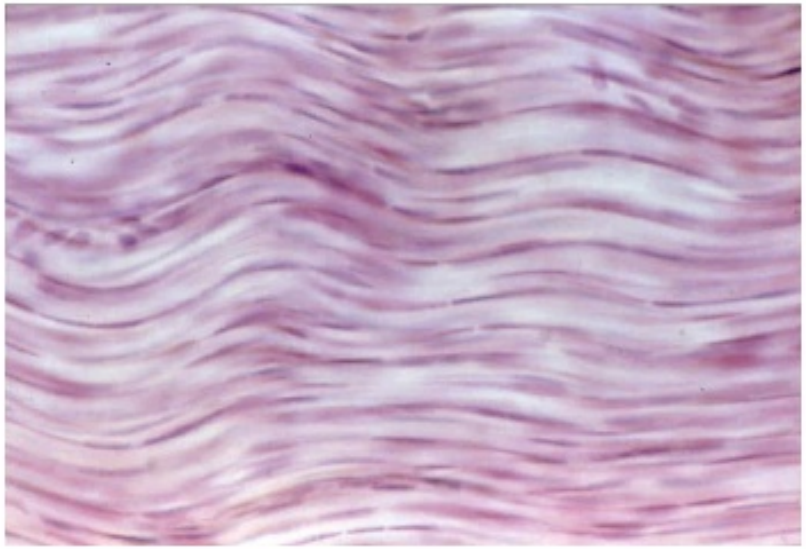

Slide 72 Tendon
Collagen fibers
Fibroblast nuclei

2. yellow elastic dense regular connective tissue e.g. ligaments:

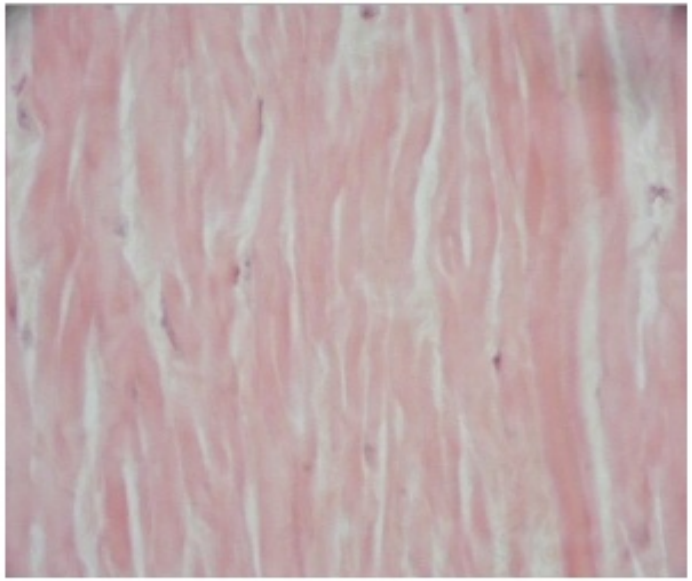
- Ligaments connects bones to bones.

Fibrous Connective Tissue

Tendon



Ligament



II- Connective tissue with special properties:

- **Elastic tissue:**

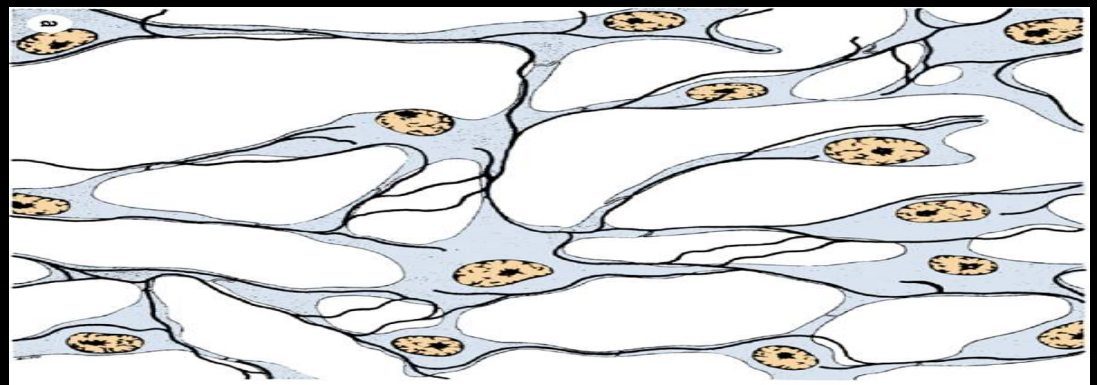
  Elastic tissue is composed of bundles of thick, parallel elastic fibers. The space between these fibers is occupied by thin collagen fibers and flattened fibroblasts.

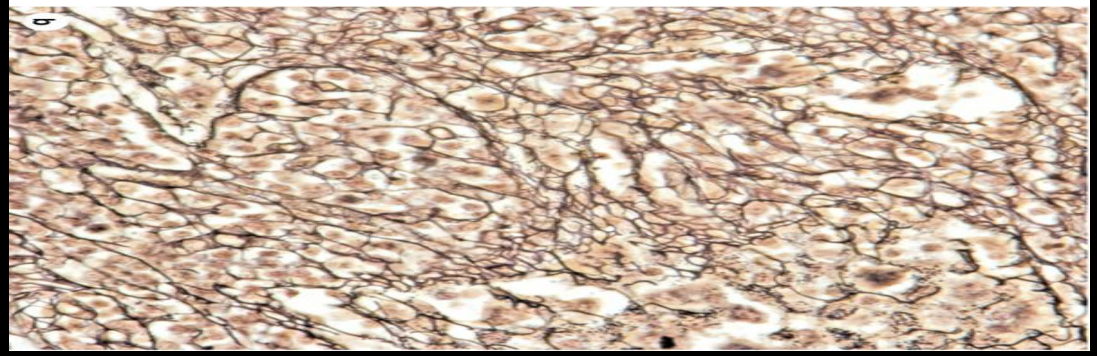
- **Mucous tissue:**

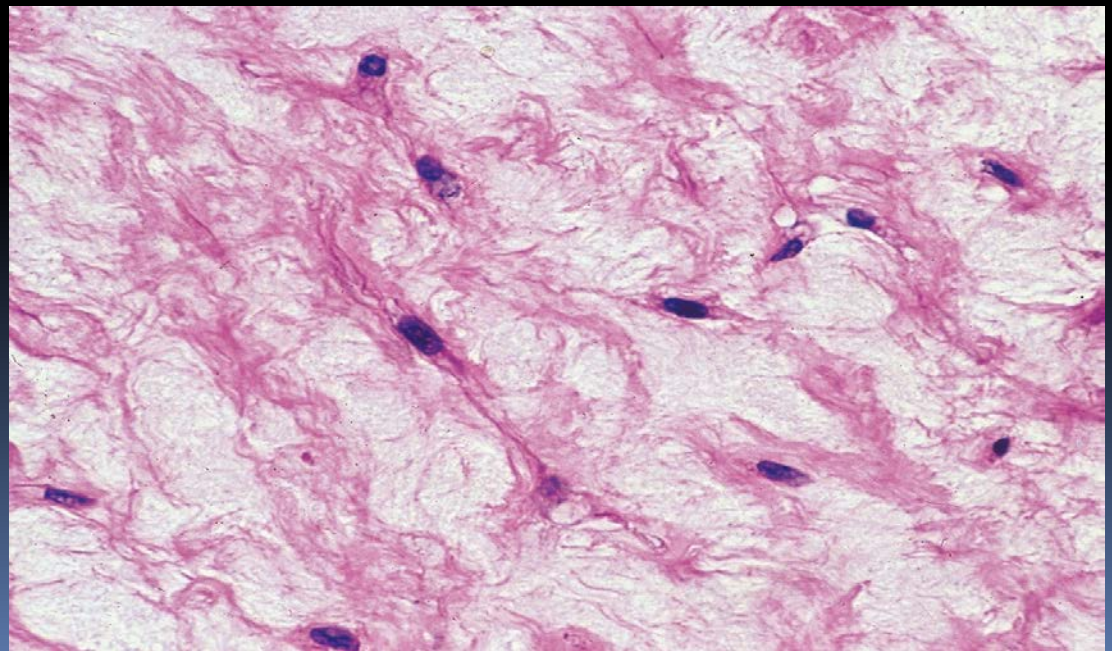
  This is found in the umbilical cord (Wharton's jelly). It is a loose connective tissue composed of fibroblasts

- **Reticular tissue:**

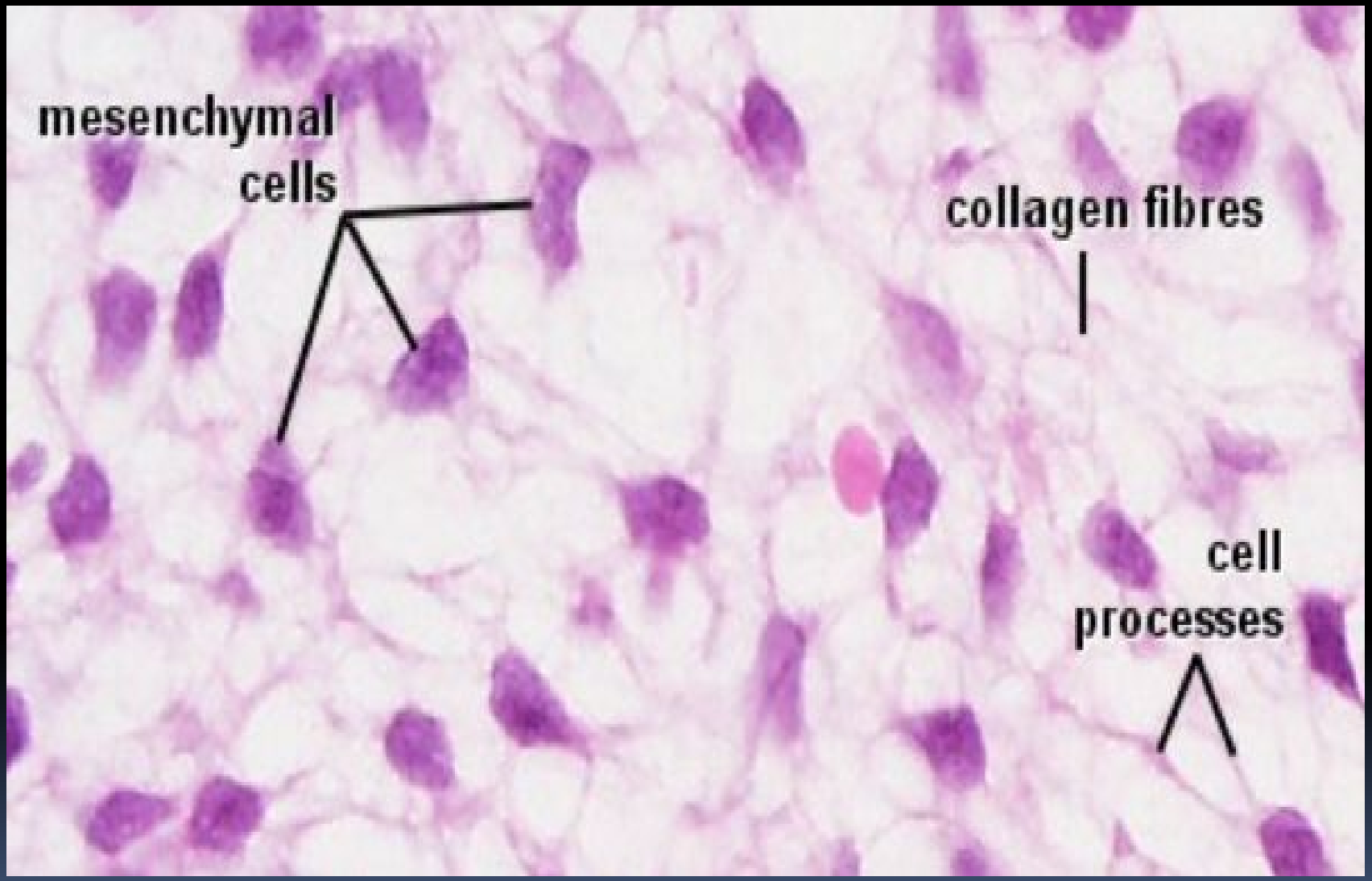
  The very delicate reticular tissue forms three dimensional net-works that support cells. Reticular tissue is a specialized loose connective tissue consisting of reticular fibers initially associated with specialized fibroblast called reticular cells.







- **Mesenchymal tissue:**
- Is the connective tissue of embryo, consists of mesenchymal cells in a gel like amorphous ground substance containing scattered reticular fibers.


mesenchymal cells
collagen fibres
cell processes

Thank you