



المحاضرة السادسة

**Connective and Supportive Tissue: Embryonic and adult C.T.
Connective Tissue proper (General C.T.)**

المادة : علم الانسجة

المرحلة : الثانية

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Classification of connective tissue

1- General or proper connective tissues:

A- Loose connective tissue.

1. Areolar connective tissue.
2. Adipose connective tissue.
3. Mesenchymal connective tissue.
4. Muroid connective tissue.
5. Reticular connective tissue.

B- Dense connective tissue.

1. Irregular dense connective tissue.
2. Regular dense connective tissue.
 - I. Elastic regular dense connective tissue.
 - II. White fibrous regular dense connective tissue.

2- Special connective tissues:

1- Skeletal connective tissue.

a- Cartilages.

Hyaline cartilage.

Elastic cartilage.

White fibro-cartilage.

b- Bones.

Compact bones.

Spongy bones.

2- Blood.

3- Lymph.

4- Haemopoietic tissue.

Myeloid tissue.

Lymphoid tissue.

General or proper connective tissue:

A- Loose connective tissue:

1- Areolar connective tissue :

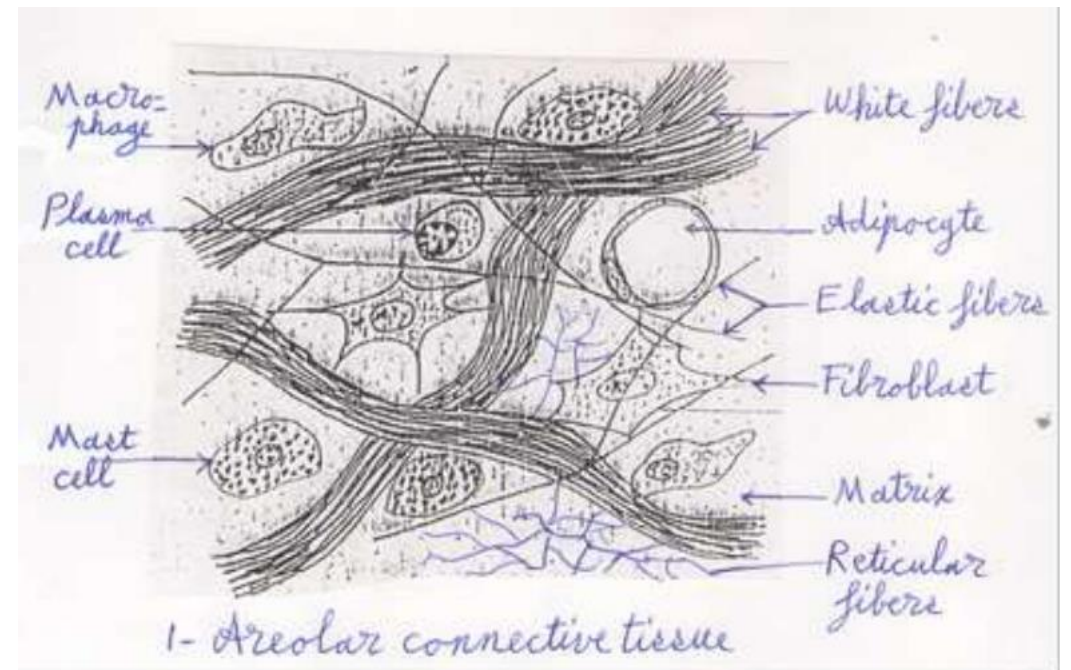
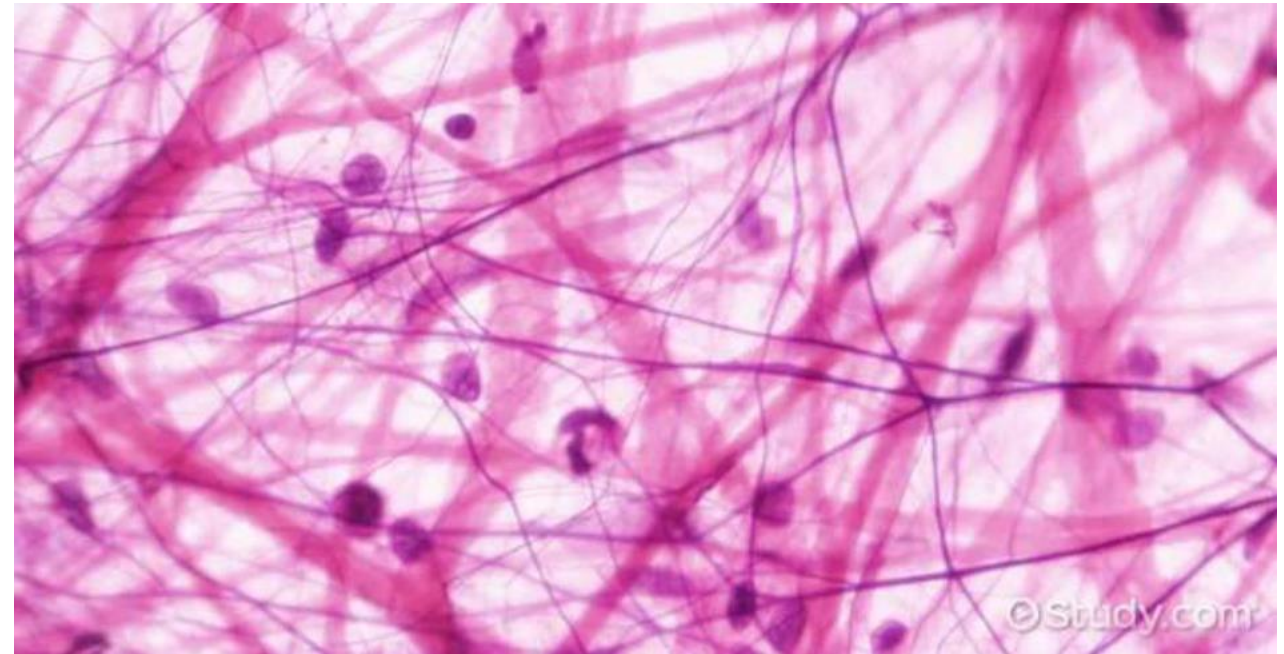
Location: Surrounding blood vessels and nerves and sometimes penetrates into the small spaces of muscles and adipocytes.

Characterization: abundant ground substances and extracellular fluid housing the fixed connective tissue cells.

Composition:

Cells: Fibroblasts, adipocytes, macrophages and mast cells, as well as undifferentiated cells.

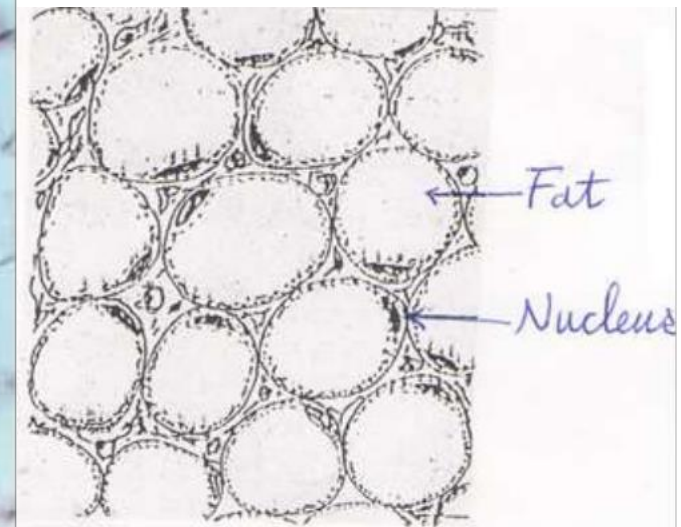
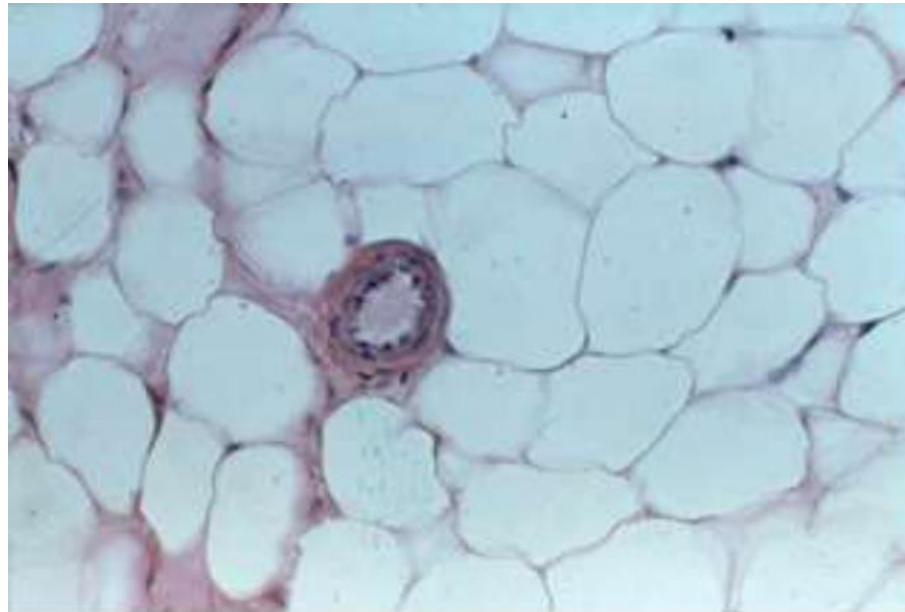
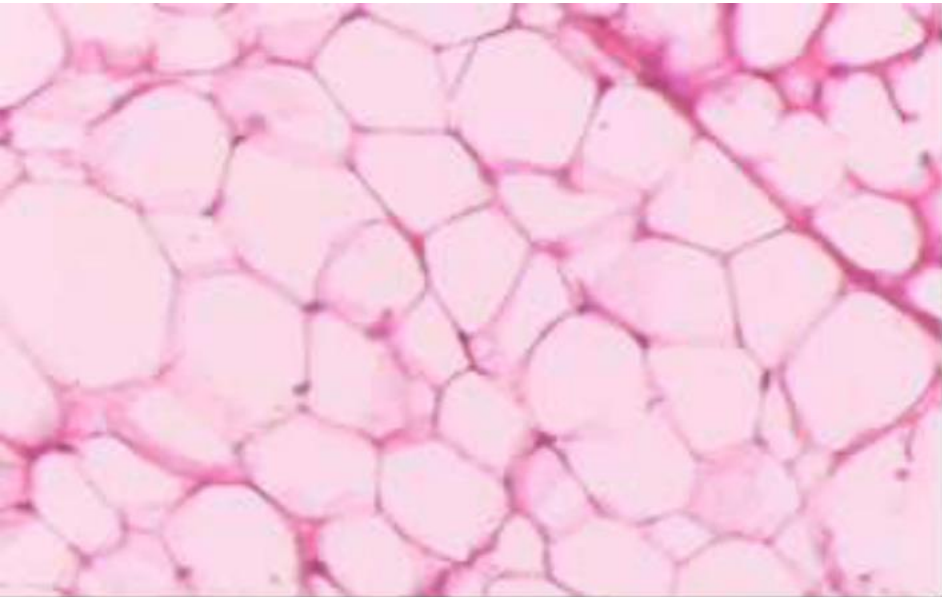
Fibers: collagen, reticular and elastic fibers.



2- Adipose connective tissue.

Location: within the skin and muscles in layer called (subcutaneous fat).

Composition: It's composed of **fat cells (adipocytes)** contain a single lipid droplet, blood vessels and some **reticular fibers**.



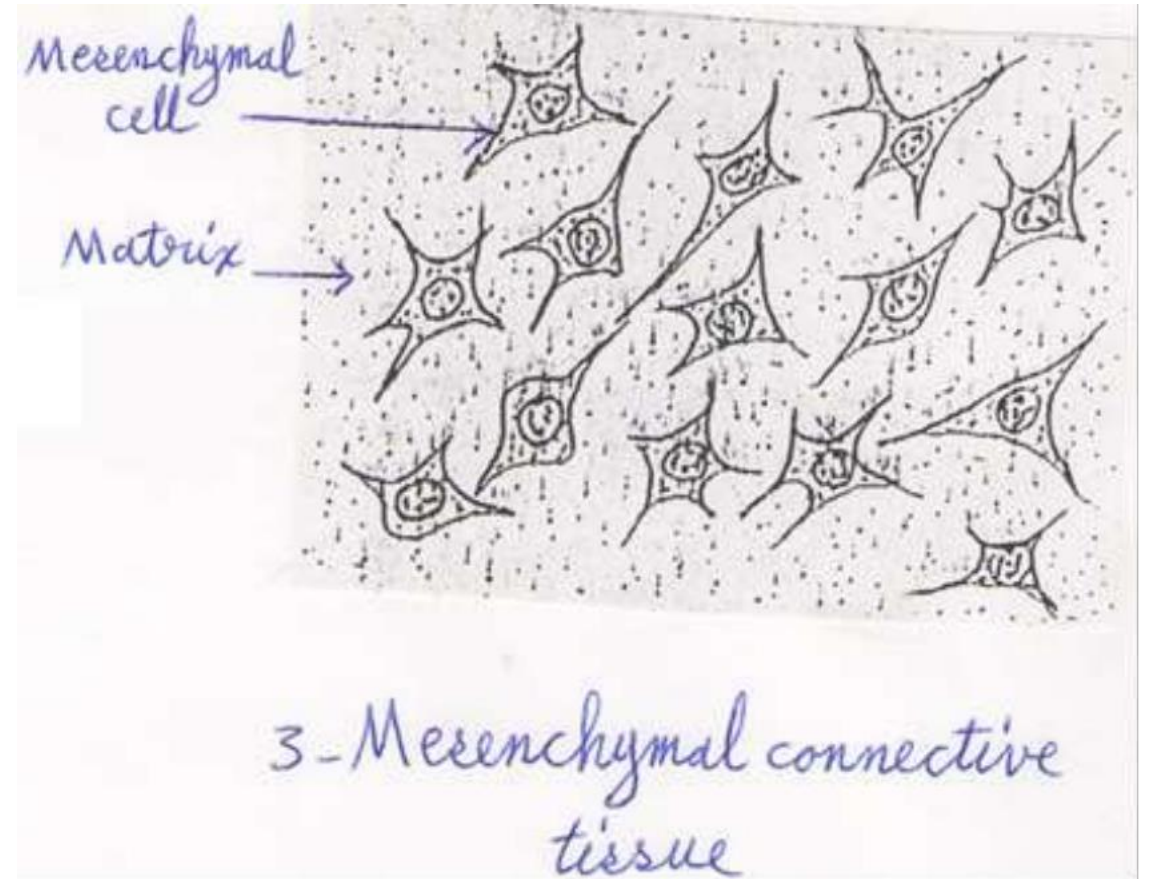
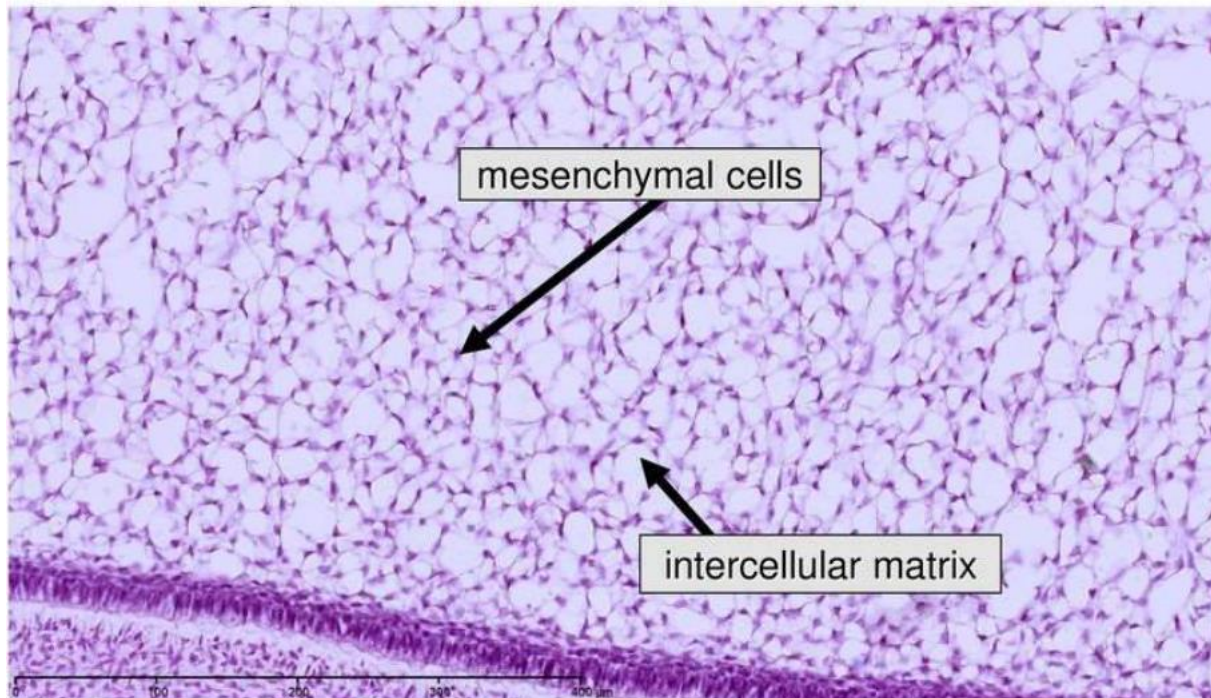
-2-
Adipose connective tissue

3-Mesenchymal connective tissue.

Origin & location: The embryonic mesoderm gives rise to an embryonic connective tissue (mesenchymal connective tissue) which produces all prominent connective tissue.

Composition: consists of **mesenchymal cells** in a jelly-like matrix.

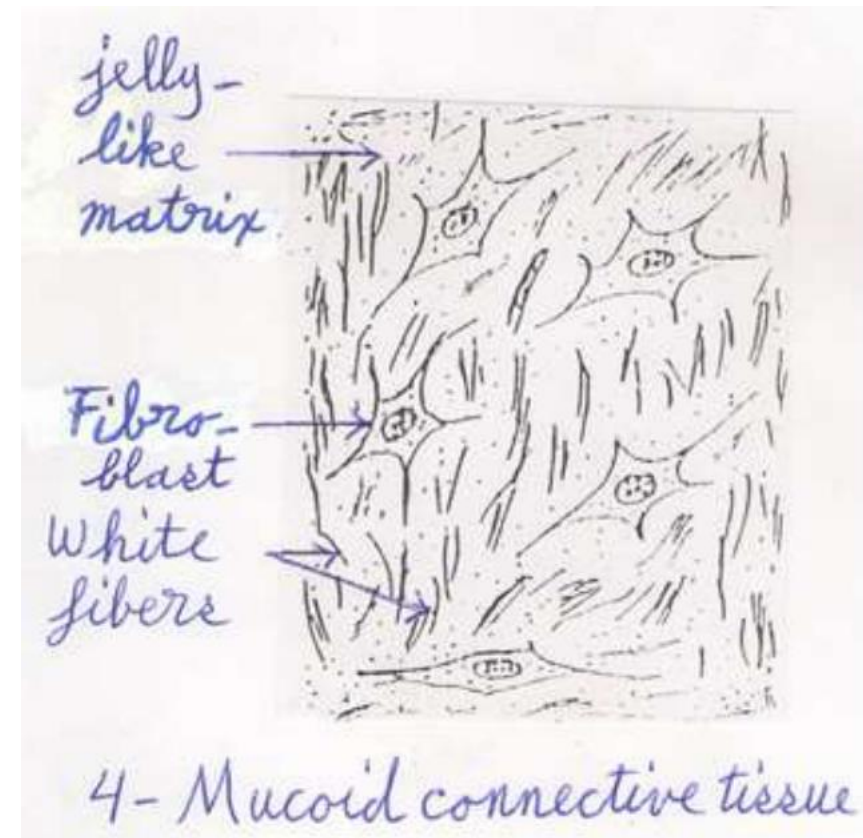
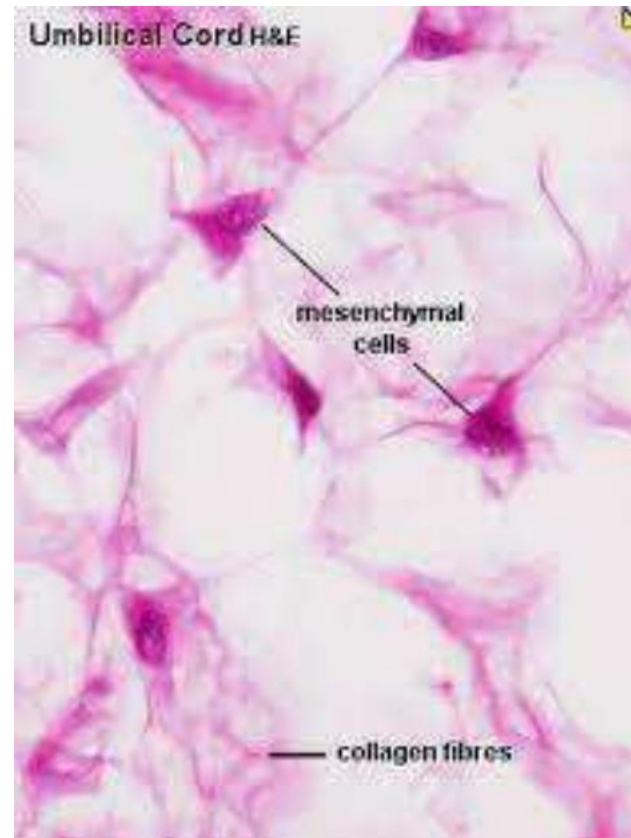
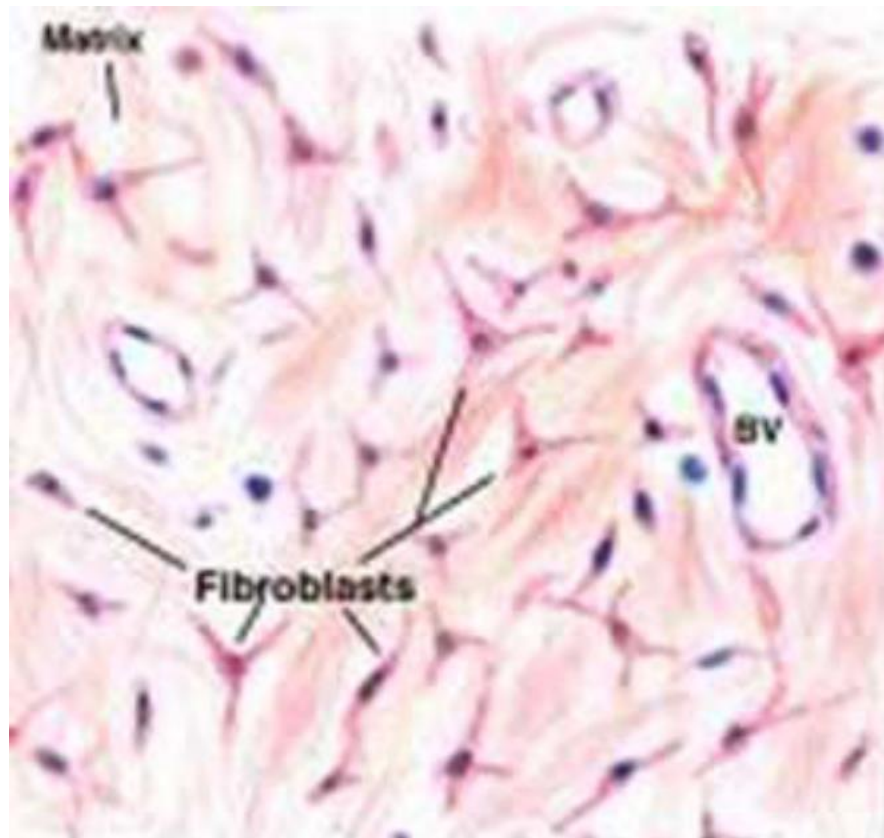
MESENCHYMAL connective tissue



4- Muroid connective tissue.

location: Like mesenchymal connective tissue found in the embryo (in the umbilical cord and subdermal connective tissue of the embryo), but muroid is temporary it exist only in the fetus and never gives arise to prominent tissue.

Composition: It consists of jelly-like matrix with **white fibers** and **fibroblasts**.

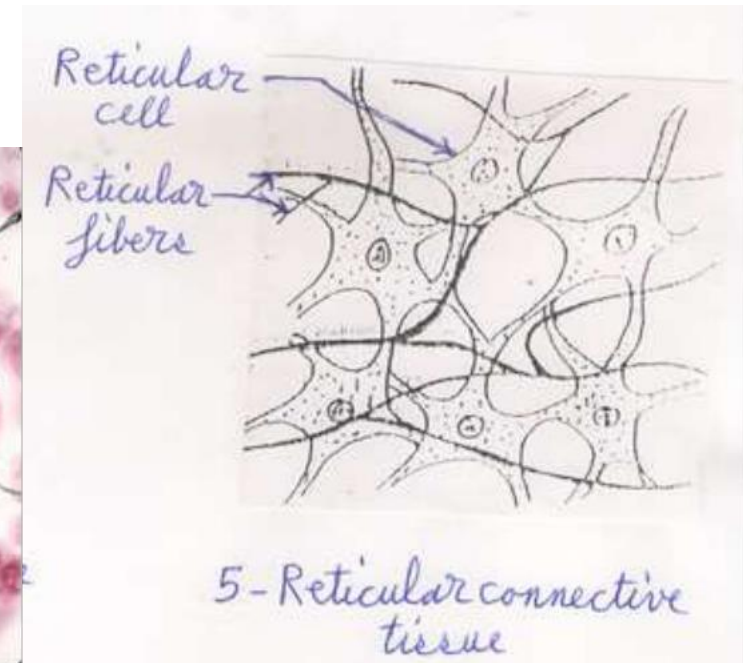
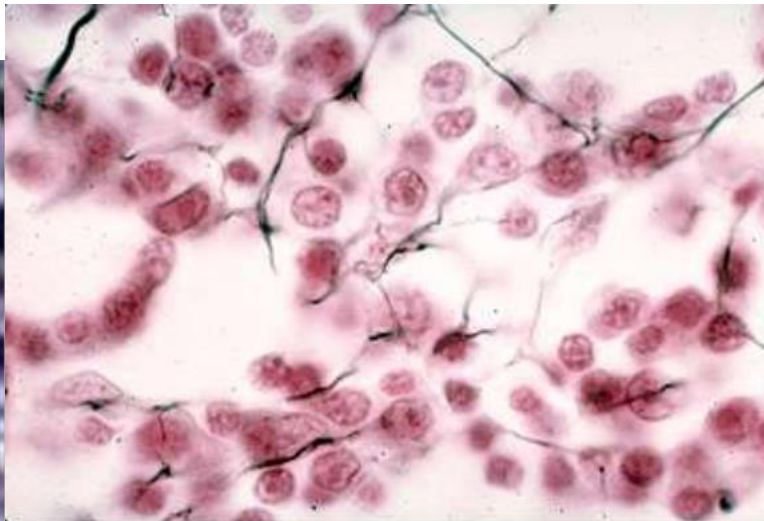
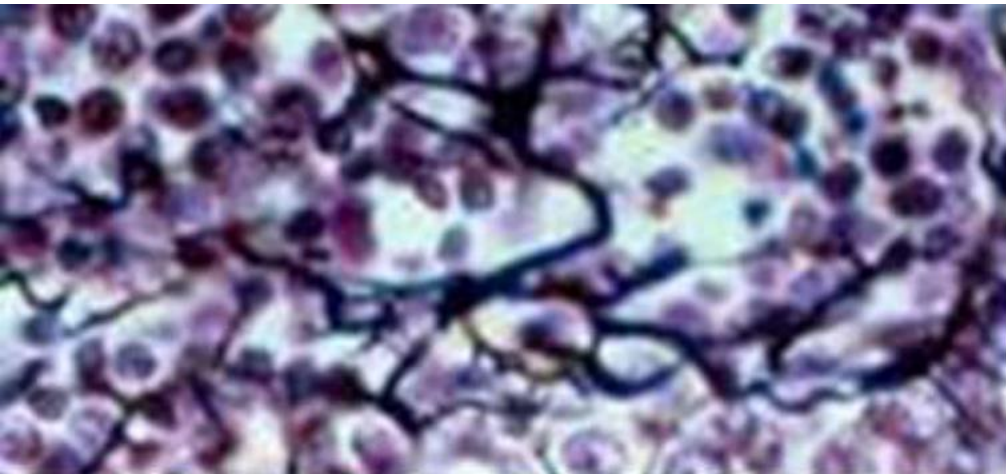


5- Reticular connective tissue.

Location: forms the architectural framework of liver sinusoids, adipose tissue, bone marrow, lymph node, spleen, smooth muscles and the islets of Langerhans.

Composition:

In a section in lymph node we can see: **Reticular fibers** are the major fibers component of the tissue, so that the **reticular cells**. The spaces amid the fibers are filled with blood cells (lymphocytes in lymph node).

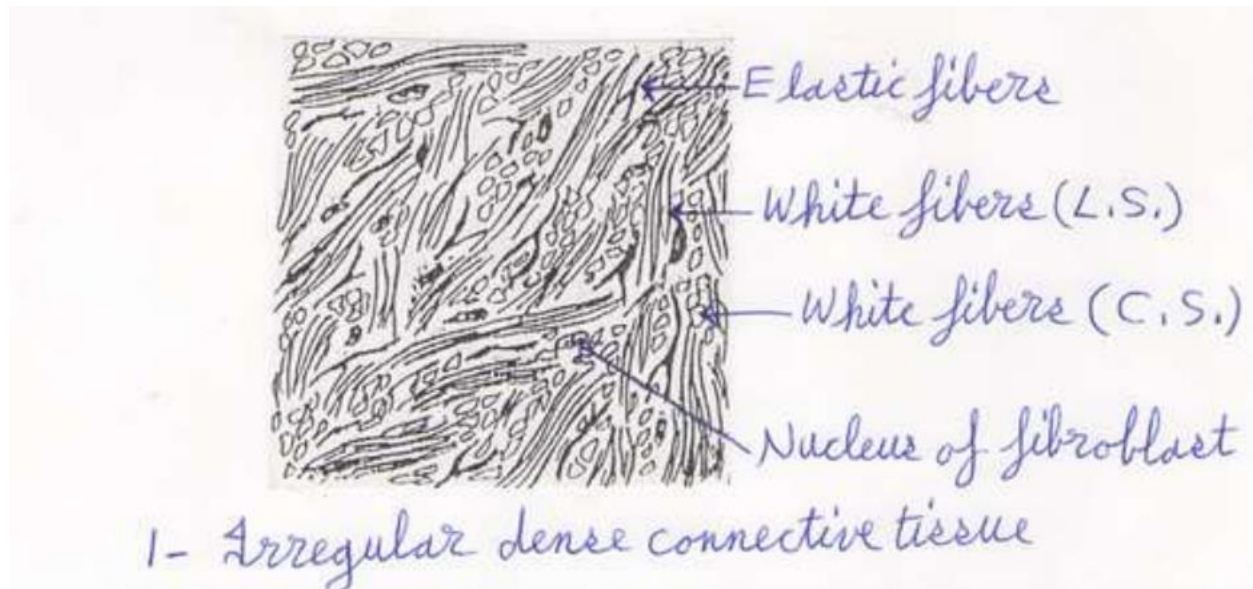
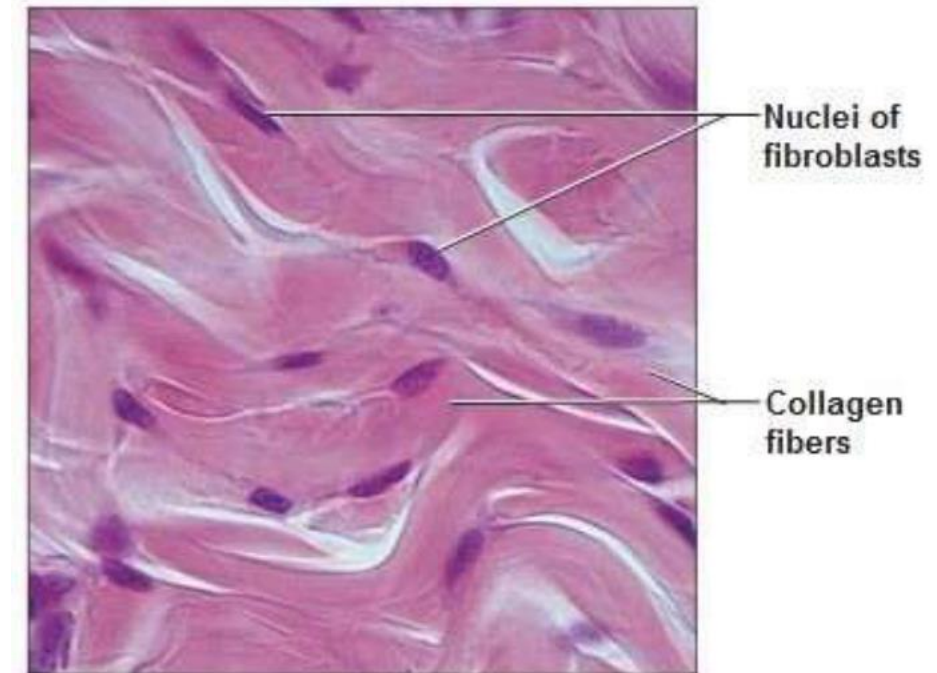
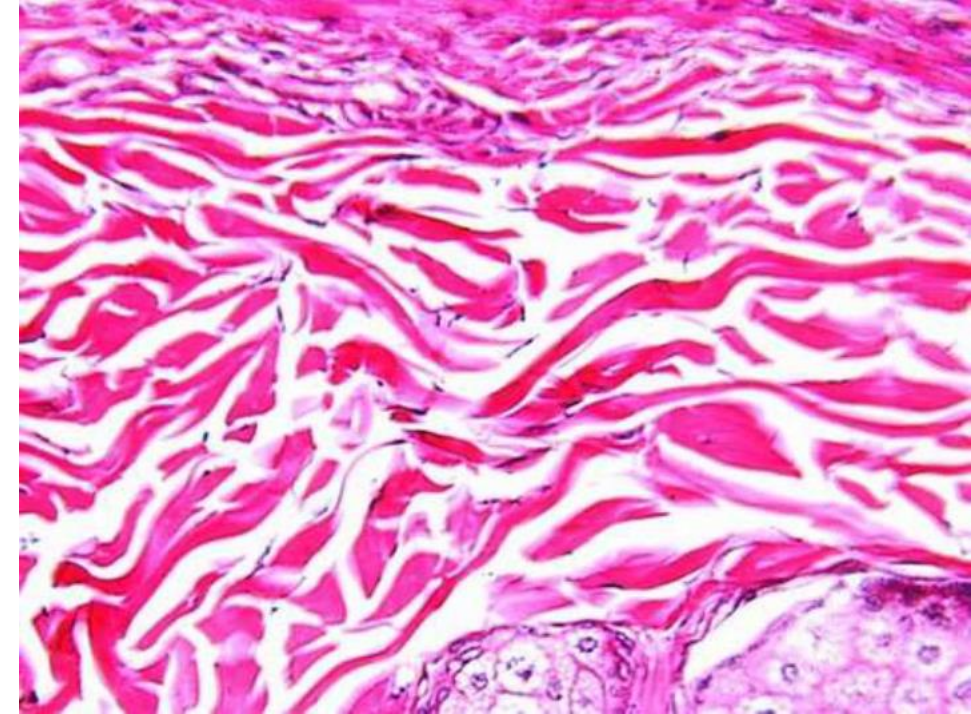


B- Dense connective tissue:

1- Irregular dense connective tissue:

Location: Found in dermis of skin, the sheaths of nerves, and the capsules of spleen, ovary, kidney, and lymph nodes.

Composition: Thick bundles of collagen fibers with little cells (fibroblasts), elastic fibers and ground substance. Collagen bundles run in a random directions which enable to resist stress.

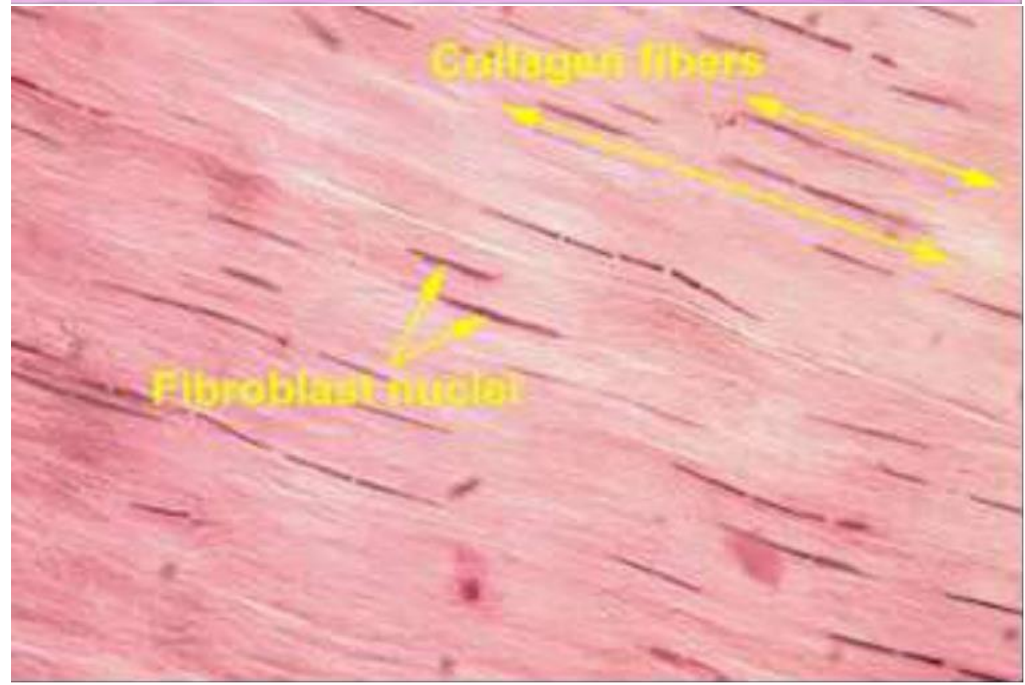
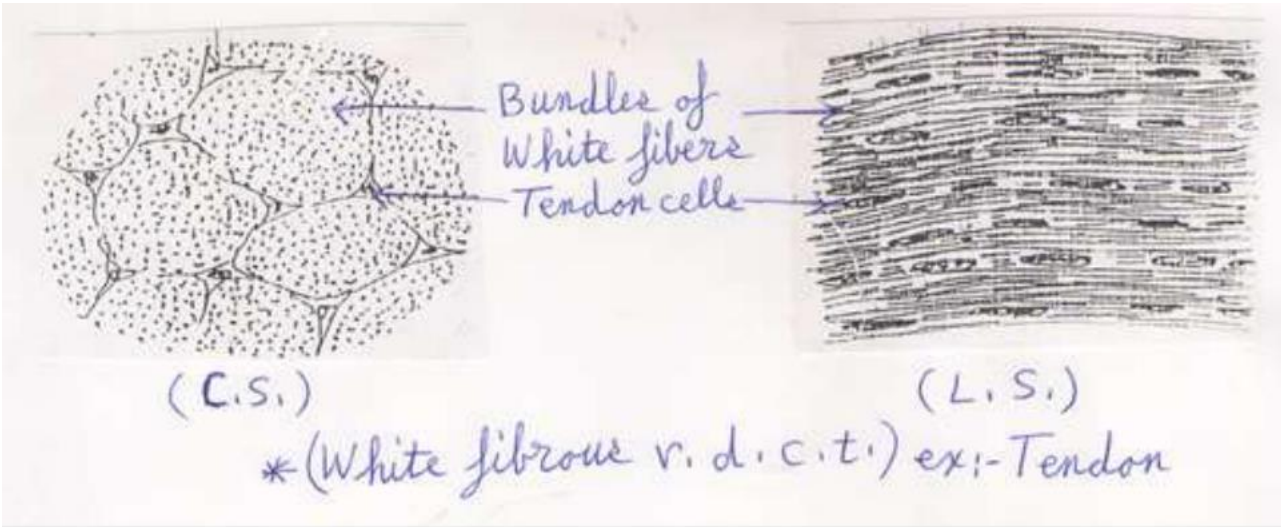


2- Regular dense connective tissue:

- All fibers in one direction, parallel to each other. The cells are only fibroblasts.

a. White fibrous regular dense connective tissue :

This is found in tendon, the collagen fibers in it are parallel to each other, thin, sheet-like. Fibroblasts are located between bundles of collagen.



b. Elastic regular dense connective tissue:

Location: This is found in true vocal cord and ligaments.

Composition: Composed from branched **elastic fibers** arranged parallel to each other and form either thin sheets or fenestrated membrane.

There are a few fibroblasts and white fibers.

