



Integrated Connective Tissue Proper



Objectives:

- Enumerate the general characteristics of C.T.
- Classify C.T.
- Classify C.T. proper (C.T.P.)
- Describe the structure (components) and distribution of different types of C.T.P.
- Discuss clinical applications related to C.T.P.





What is CONNECTIVE TISSUE (C.T.) ?

- It is a basic type of tissue, of mesodermal origin ,
Which provides structural and metabolic support for
tissues and organs. **(and it is called connective
because it is connect with other tissue and organ)**

What is GENERAL CHARACTERISTICS ?

Few cell

Formed of widely
separated

Most C.T are
vascular

Abundant
extracellular matrix



+ Type of connective tissue

- **C.T. Proper (C.T.P).** (when the extracellular matrix is soft)
- **Cartilage.** (when the extracellular matrix is rigid)
- **Bone.** (when the extracellular matrix is solid)
- **Blood.** (when the extracellular matrix fluid)



+ COMPONENTS OF C.T.P.

■ Cell.

■ **Fibers** (collagenous, elastic & reticular)

*Extracellular matrix
(Rigid, Solid, Soft or
Fluid)*

The major component of C.T



+ Type of C.T.P:

Loose (Areolar) C.T.:

- The most common type of C.T. proper.

L/M :

- Contains all the main components of C.T.P. :

all types of C.T. cells & fibers + abundant matrix.

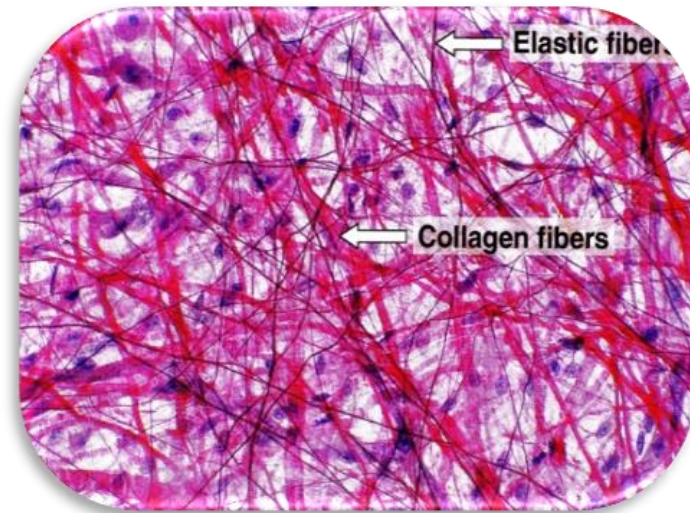
- No predominant element in loose C.T.

Dense Collagenous C.T.

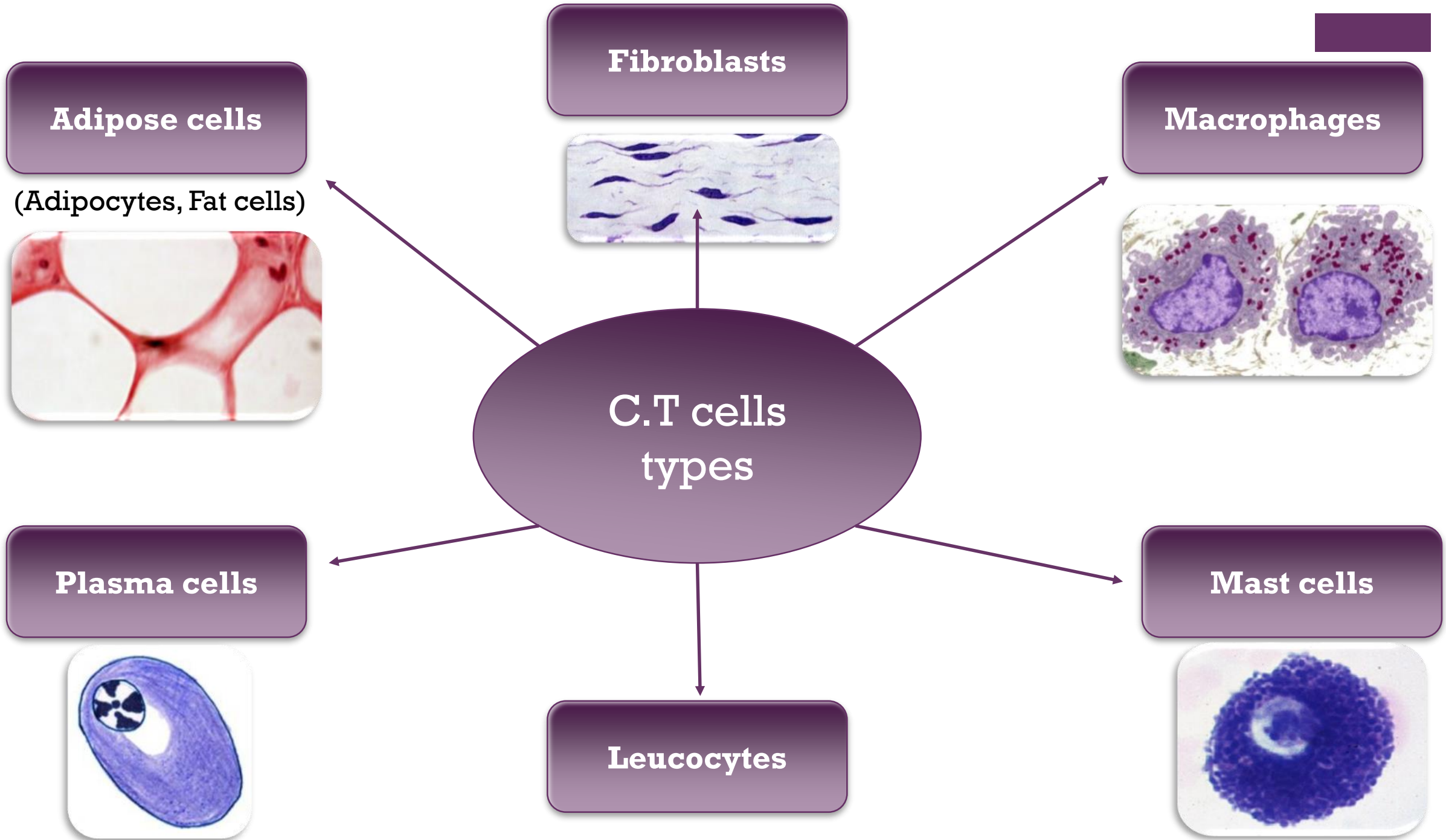
Elastic C.T.

Reticular C.T.

Adipose Tissue.



Sites: e.g. Dermis of the skin.





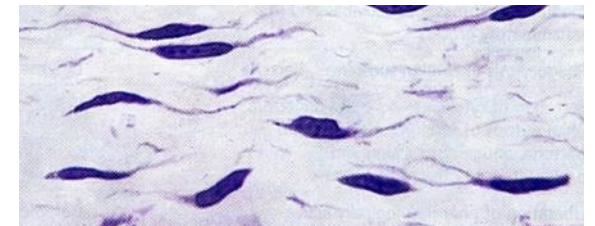
Fibroblasts

L/M:

- Most common cell; found nearly in all types of C.T. proper.
- Flat branched cells (spindle-shaped) with basophilic cytoplasm.
- They can divide.

Old fibroblasts are called fibrocytes

FUNCTION of The fibroblasts :
Formation of proteins of C.T. fibers.
Formation of C.T. matrix.
Healing of wounds.

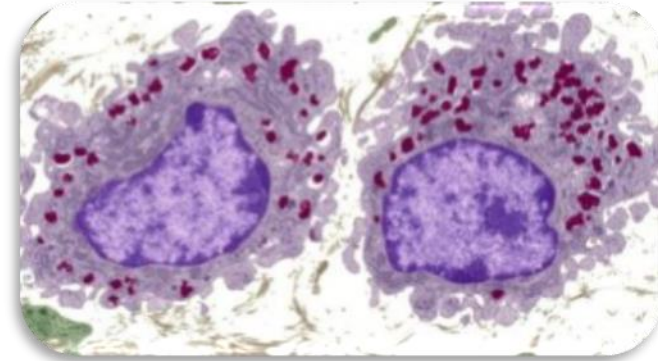


+ Macrophages

L/M:

- Basophilic cytoplasm, rich in lysosomes.
- Irregular outlines.
- They can divide.
- They originate from blood monocytes

FUNCTION of The macrophages :
Phagocytosis

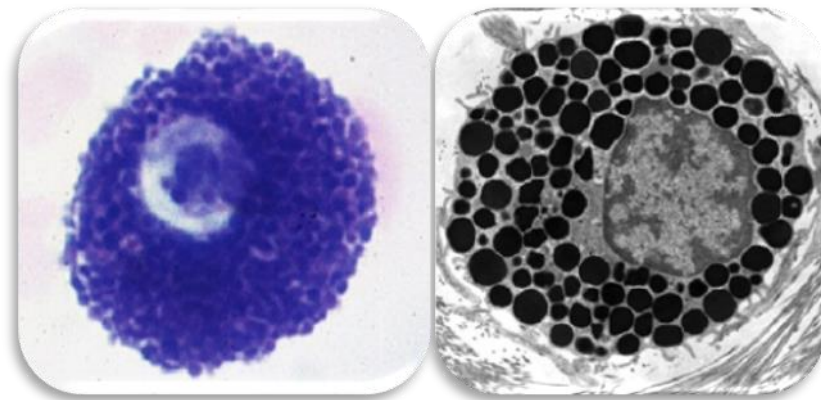


Mast cells

L/M:

- Cytoplasm contains numerous basophilic cytoplasmic granules.

FUNCTION of The meta cells :
Secrete heparin (anticoagulant).
Secrete histamine (allergic reactions).



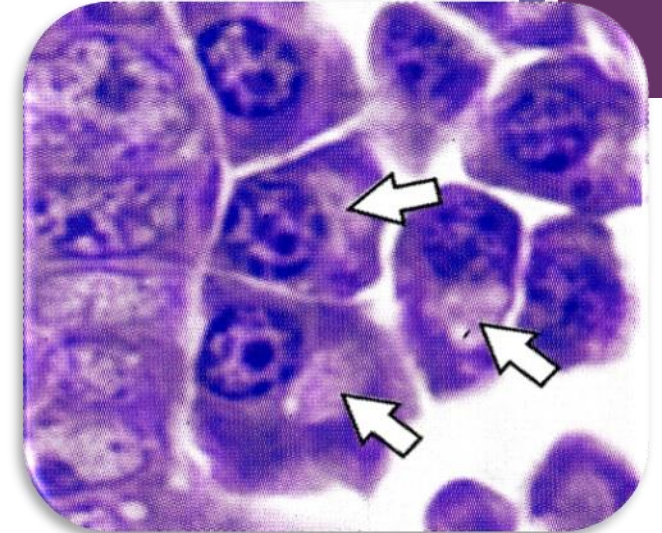
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Plasma cells

L/M:

- Basophilic cytoplasm with a negative Golgi image.
- Nucleus: spherical, eccentric with a clock-face appearance of chromatin.
- Derived from B-lymphocytes.

FUNCTION of The plasma cells:
Secretion of antibodies
(immunoglobulins).

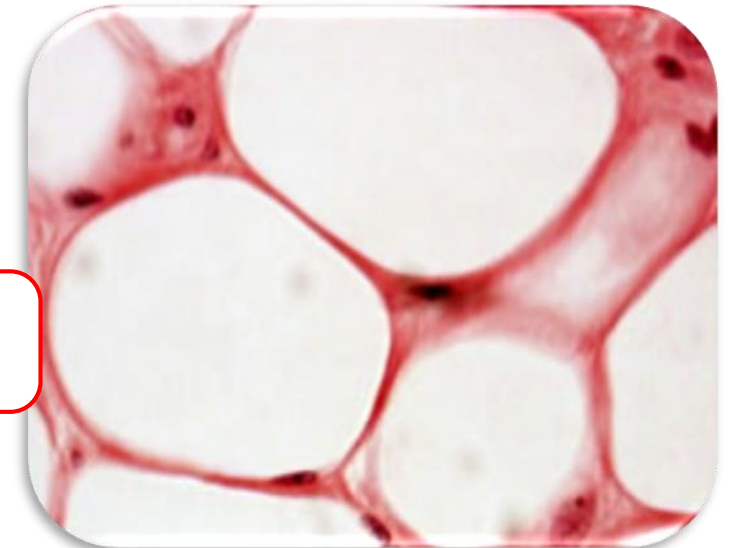


Adipose cells

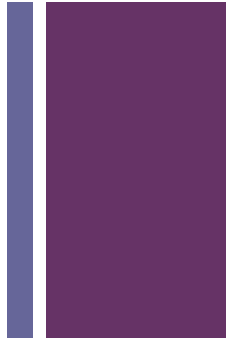
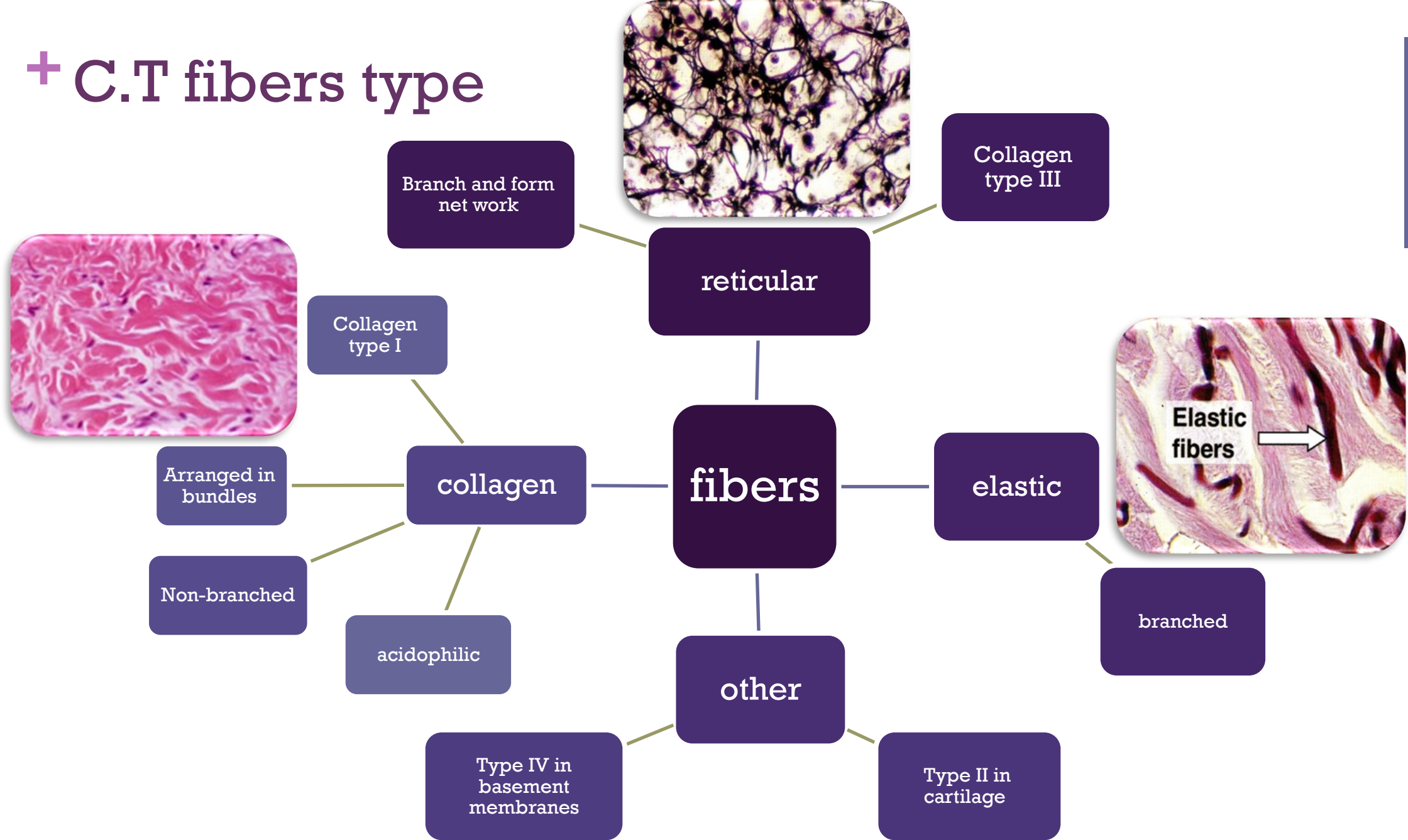
L/M of Unilocular Adipocytes (Fat cells):

- Large spherical, with a single large fat droplet.
- Thin rim of cytoplasm at the periphery.
- Flattened, peripheral Nucleus.
- May increase up to four times in size

FUNCTION of The adipose cells:
Storage of fat



+ C.T fibers type



+ II- Dense Collagenous C.T.

L/M:

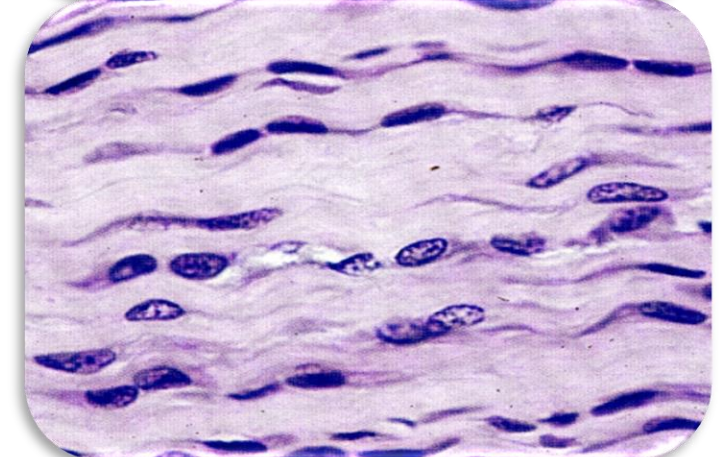
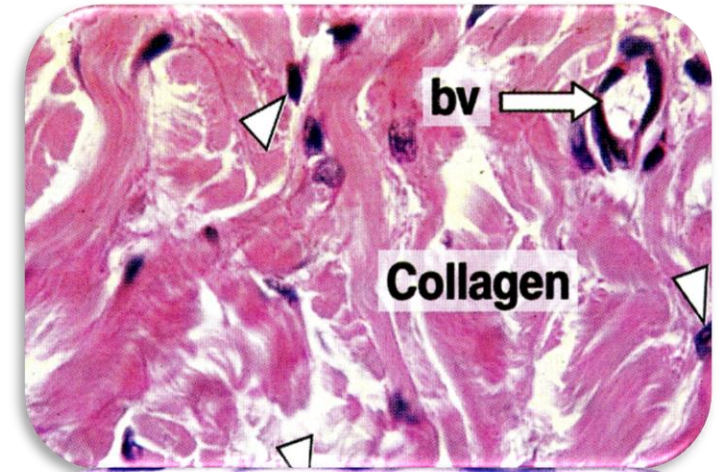
- Predominance of collagen fibers + fibroblasts.

Function :

- Tough tissue; resistant to stretch

site:

- Dense irregular: e.g. dermis of the skin, capsules.
- Dense regular: e.g. tendons, ligaments



+ III-ELASTIC TISSUE

L/M:

- Predominance of elastic fibers (sheets or membranes) + fibroblasts..

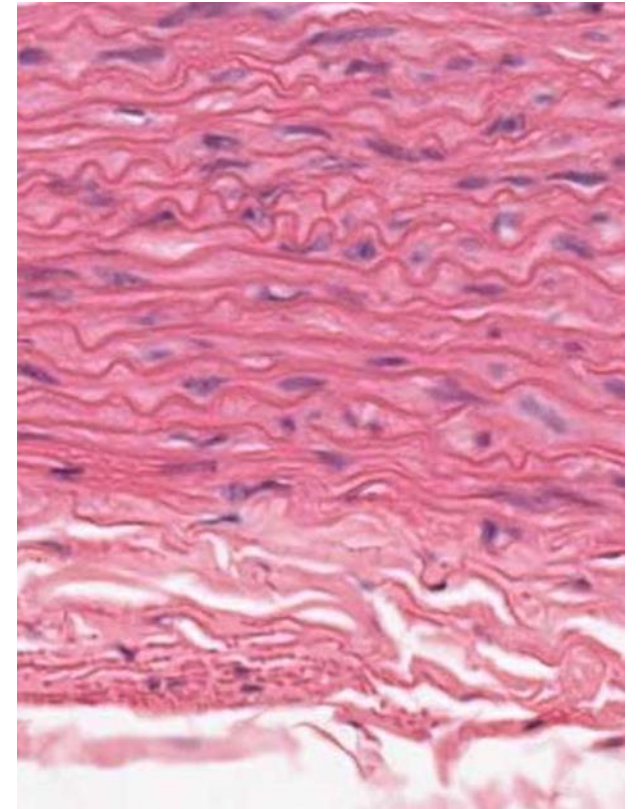
Function :

- elastic tissue; stretchable .

Elastic: stained brown with orcein

site:

- Large arteries, e.g. Aorta .



+ IV- RETICULAR TISSUE

L/M:

- Predominance of reticular fibers + reticular cells (specialized fibroblasts).

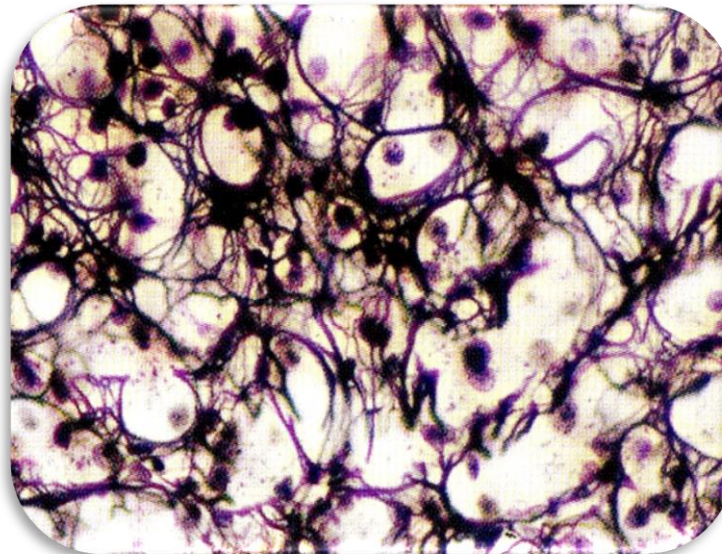
Function :

- structural support

site:

- Stroma of organs: e.g.
 - liver,
 - lymph node,
 - spleen

reticular: Stained black with silver



+ V- UNILOCULAR ADIPOSE TISSUE (WHITE ADIPOSE TISSUE)

L/M:

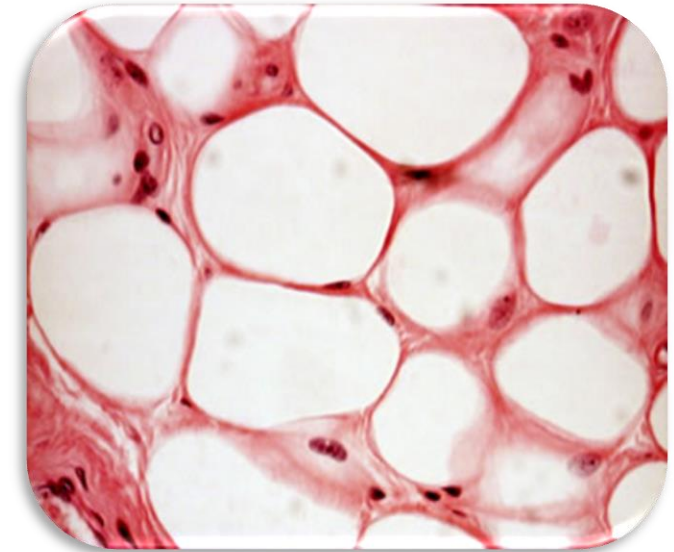
- Predominance of unilocular fat cells .

Function :

- Synthesis, storage & release of fat.
- Supports organs, e.g. kidney.
- Heat insulation.

site:

- Subcutaneous tissue, especially in buttocks & hips.
- Abdominal wall.
- Female breast.
- Around the kidney



Tissue type	Under light microscope	Site	Function
LOOSE (AREOLAR) C.T		Dermis of the skin	
DENSE COLLAGENOUS C.T.	Predominance of collagen fibers + fibroblasts	1- Dense irregular: e.g. dermis of the skin, capsules. 2- Dense regular: e.g. tendons, ligaments	<ul style="list-style-type: none"> • tough tissue • resistant to stretch
ELASTIC TISSUE	Branching Elastic fibers (sheets or membranes) and Fibroblasts	large arteries , e.g : <ul style="list-style-type: none"> • Aorta 	Stretchable
RETICULAR TISSUE	Reticular fibers + Reticular cells (specialized fibroblasts).	Stroma: e.g. <ul style="list-style-type: none"> • liver • lymph node • spleen 	Structural support
WHITE ADIPOSE TISSUE	Is formed of lobules of unilocular adipose cells.	<ul style="list-style-type: none"> • Subcutaneous tissue, especially in buttocks & hips. • Abdominal wall • . Female breast. • Around the kidney. 	<ul style="list-style-type: none"> • synthesis , storage, release fat. • Support organs. • Heat insulation.



Extra Links



Quiz:

<https://www.onlinequizcreator.com/histology-connective-tissue/quiz-117595>

**DO IT NOW. SOMETIMES
"LATER" BECOMES "NEVER"**



Credit



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**Thanks for checking our work,
Good luck.**

-Team histology.

