

Connective Tissues



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Histology

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Connective tissue functions:



Establishing a structural framework ❧

Transporting fluids and dissolved materials ❧

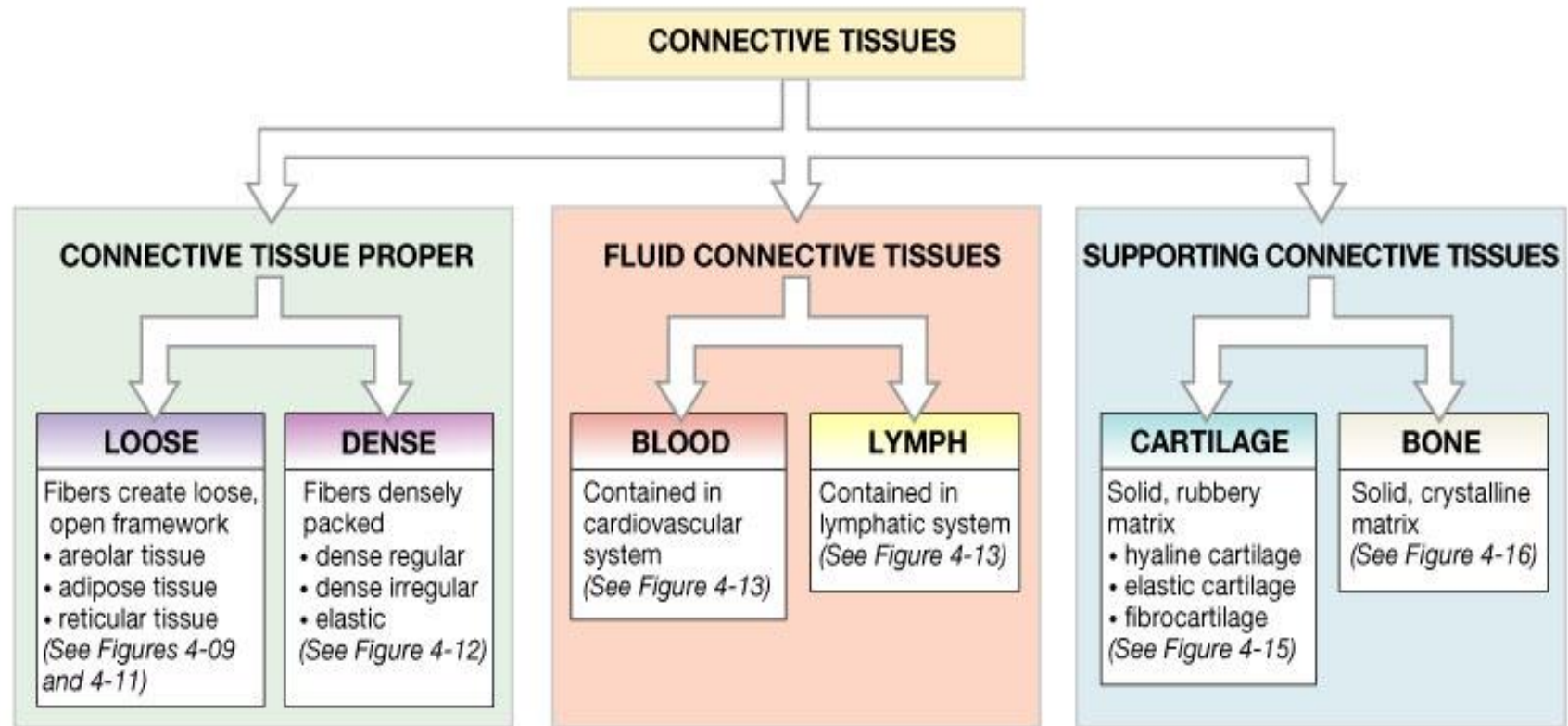
Protecting delicate organs ❧

Supporting, surrounding and interconnecting tissues ❧

Storing energy reserves ❧

Defending the body from microorganisms ❧

A Classification of Connective Tissues



Connective tissues contain



Specialized cells 

Matrix 

Composed of extracellular protein fibers and 
ground substance

Fluid connective tissue



Contains a distinctive cell population ❧

Watery ground substance with dissolved proteins ❧

Two types ❧

Blood ❧

Lymph ❧

Supporting connective tissues



Less diverse cell population ❧

Dense ground substance ❧

Closely packed fibers ❧

Two types ❧

Cartilage ❧

Bone ❧

Connective tissue proper



Contains fibers, a viscous ground substance, and a varied cell population

Fibroblasts

Macrophage

Adipocytes

Mesenchymal cells

Melanocytes

Mast cells

Lymphocytes

Microphages


Connective tissue proper




Three types of fiber 

Collagen fibers are most abundant type of connective tissue fibers. 

With the light microscope collagen fibers are seen in bundles .The bundles may be straight or wavy depending upon how much they are stretched the bundles often branched.

Reticular fibers are much finer and have uneven thickness, form a  network (or reticulum) by branching. They do not run in bundles.

They can be stained specifically by silver stain, which renders them black.

Elastic fibers are much fewer than those of collagen. They run  singly (not in bundles), branch and anastomose with other fibers.

Elastic fibers are thinner than those of collagen.

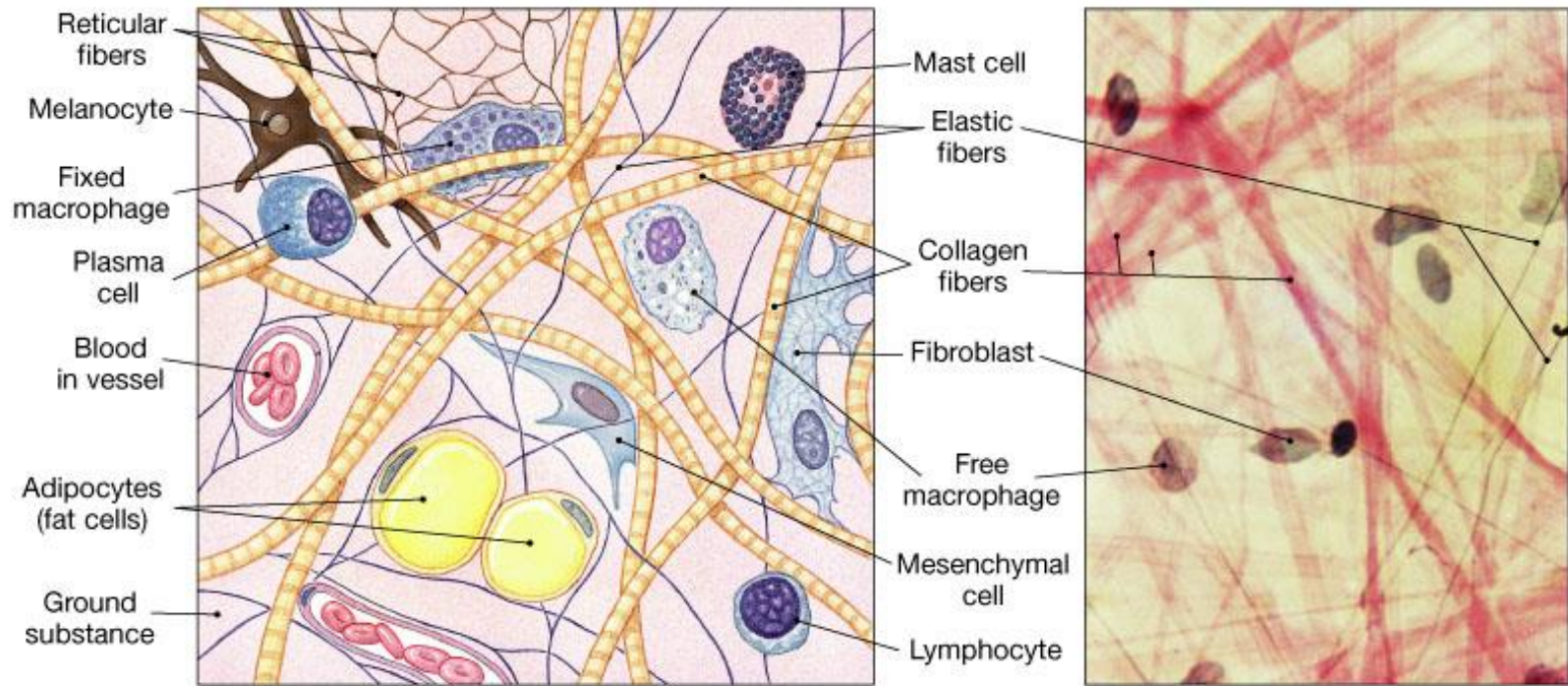
Connective tissue proper divided in to :



Loose connective tissue ❧
(areolar, adipose, reticular)

Dense connective tissue ❧
(regular, irregular)

The Cells and Fibers of Connective Tissue Proper (areolar)



Connective tissue proper (areolar tissue)

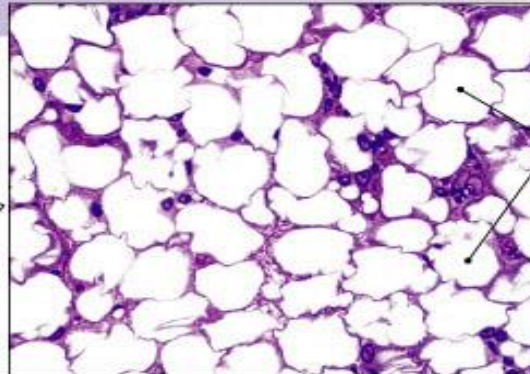
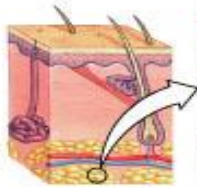
LM × 384

Adipose and Reticular Tissues

ADIPOSE TISSUE

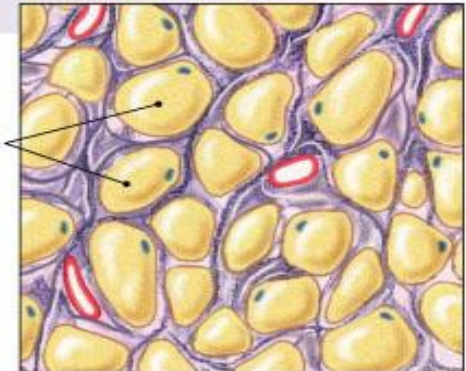
LOCATIONS: Deep to the skin, especially at sides, buttocks, breasts; padding around eyeballs and kidneys

FUNCTIONS: Provides padding and cushions shocks; insulates (reduces heat loss); stores energy reserves



LM \times 133

Adipocytes

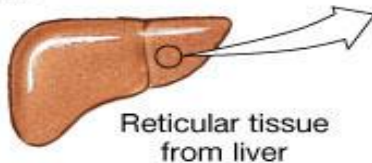


(a) Adipose tissue

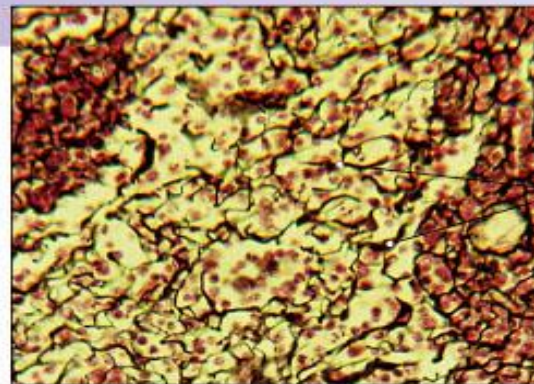
RETICULAR TISSUE

LOCATIONS: Liver, kidney, spleen, lymph nodes, and bone marrow

FUNCTIONS: Provides supporting framework

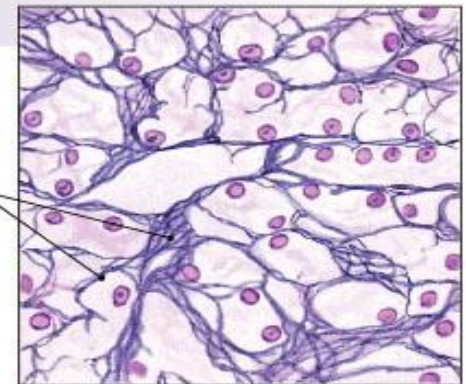


Reticular tissue from liver



LM \times 375

Reticular fibers



(b) Reticular tissue

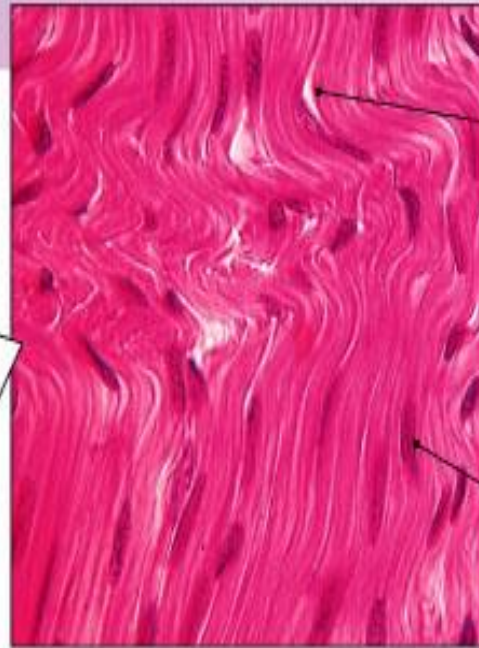
Dense Connective Tissues



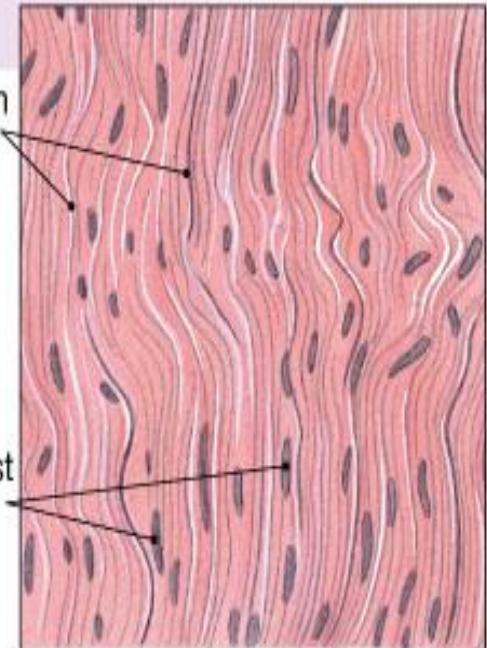
DENSE REGULAR CONNECTIVE TISSUE

LOCATIONS: Between skeletal muscles and skeleton (tendons and aponeuroses); between bones or stabilizing positions of internal organs (ligaments); covering skeletal muscles; deep fasciae

FUNCTIONS: Provides firm attachment; conducts pull of muscles; reduces friction between muscles; stabilizes relative positions of bones



LM \times 440



(a) Tendon

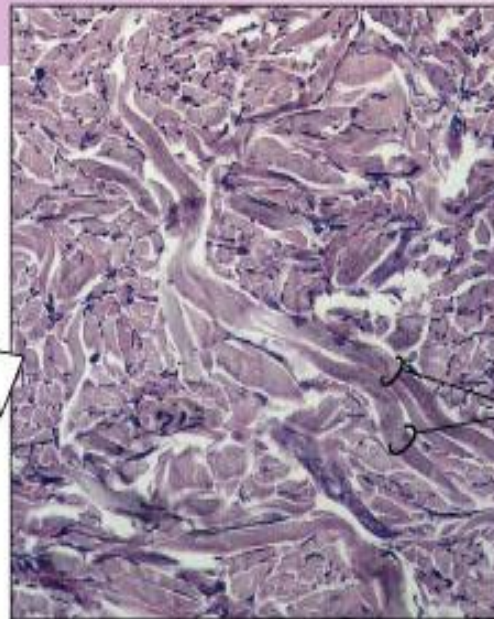
Dense Connective Tissues



DENSE IRREGULAR CONNECTIVE TISSUE

LOCATIONS: Capsules of visceral organs; periosteum and perichondria; nerve and muscle sheaths; dermis

FUNCTIONS: Provides strength to resist forces applied from many directions; helps prevent overexpansion of organs such as the urinary bladder



LM \times 111



(b) Deep dermis

*Thank you for
listening*