TISSUE REVIEW - connective tissues

• The following slides are from your text or other sources. This will allow you to study tissues at home.
• You are also responsible for tissue slides that we view with the microscope in class.
• Always study the Histology Atlas available online from the textbook’s website – PAL; or your PAL CD
• know:
  – name of the tissue
  – the cells ; the matrix ; other structures
  – the function of the tissue
  – where it is found
procedure to identify connective tissues

- if it’s connective:
- is the matrix loose or dense arrangement of fibers?
  - loose
  - loose, with many cells
  - large cells with nucleus at edge
  - under epithelial tissue
  - dense, parallel fibers
  - dense, dark, parallel
  - dense, not parallel

- what are the cells called?
- what function matches this structure?
• other connective tissues:
  – chondrocytes in lacuna
    • smooth matrix
    • dark lines in matrix
    • cells in rows
  – osteons
  – blood cells

cartilage
hyaline cartilage
elastic cartilage
fibrocartilage
compact bone
blood
areolar ct

high power

fibroblast

Mast cell
Areolar connective tissue,

- Elastic fibers
- Collagen fibers
- Fibroblast nuclei
- Mast cell
- Space occupied by ground substance
tissue?
functions?
fibers?
cells?
If it’s under epithelia, it’s probably areolar c.t. in low power, areolar looks like this.
Adipose connective tissue

This is not an empty space. The entire cytoplasm is filled with fats/lipids.

Capillary
Adipocyte
Nucleus
adipose in skin
reticular c.t.  dark fibers + many cells
(f) Connective tissue proper: dense connective tissue, dense regular

**Description:** Primarily parallel collagen fibers; a few elastin fibers; major cell type is the fibroblast.

**Function:** Attaches muscles to bones or to muscles; attaches bones to bones; withstands great tensile stress when pulling force is applied in one direction.

**Location:** Tendons, most ligaments, aponeuroses.

**Photomicrograph:** Dense regular connective tissue from a tendon (1000x).
dense regular c.t.; found where?
elastic c.t.  elastin fibers always stain dark
(e) Connective tissue proper: dense connective tissue, dense irregular

**Description:** Primarily irregularly arranged collagen fibers; some elastic fibers; major cell type is the fibroblast.

**Function:** Able to withstand tension exerted in many directions; provides structural strength.

**Location:** Dermis of the skin; submucosa of digestive tract; fibrous capsules of organs and of joints.

**Photomicrograph:** Dense irregular connective tissue from the dermis of the skin (400×).
Dense fibrous irregular c.t.

- Collagen fibers
- Fibroblast nuclei
- Dense fibrous irregular connective tissue
dermis

dense irregular ct
hyaline cartilage

chondrocytes in lacuna
hyaline cartilage

Free edge of epithelium
Lamina propria
Seromucous glands
Chondrocytes in lacunae
Hyaline cartilage matrix
Elastic Cartilage Extracellular matrix contains elastic fibers that confer elastic recoil to this tissue. (×250)
compact bone

osteon = haversian system

haversian canal

lacuna w/osteocyte

lamella = rings of matrix
erythrocytes

leukocytes

thrombocytes
We are built with several tissues in the same organ, area:
dense irregular c.t.   adipose c.t.   gland
We are built in layers of tissues – working together to perform the functions of an organ.

- trachea:
  - ciliated epithelium
  - areolar c.t.
  - glands
  - hyaline cartilage

- fibrous ct

- adipose