

Overview of Connective Tissue

General Characteristics of CT

- **Major Cells**

1. Fibroblasts: secrete collagen and elastic fibers as well as gel-like ground substance
2. Macrophages
3. Mast cells

- **Major Fibers**

1. Collagen Fibers
“white”
2. Elastic Fibers
“yellow”
3. Reticular Fibers: fine collagenous fibers forming delicate networks

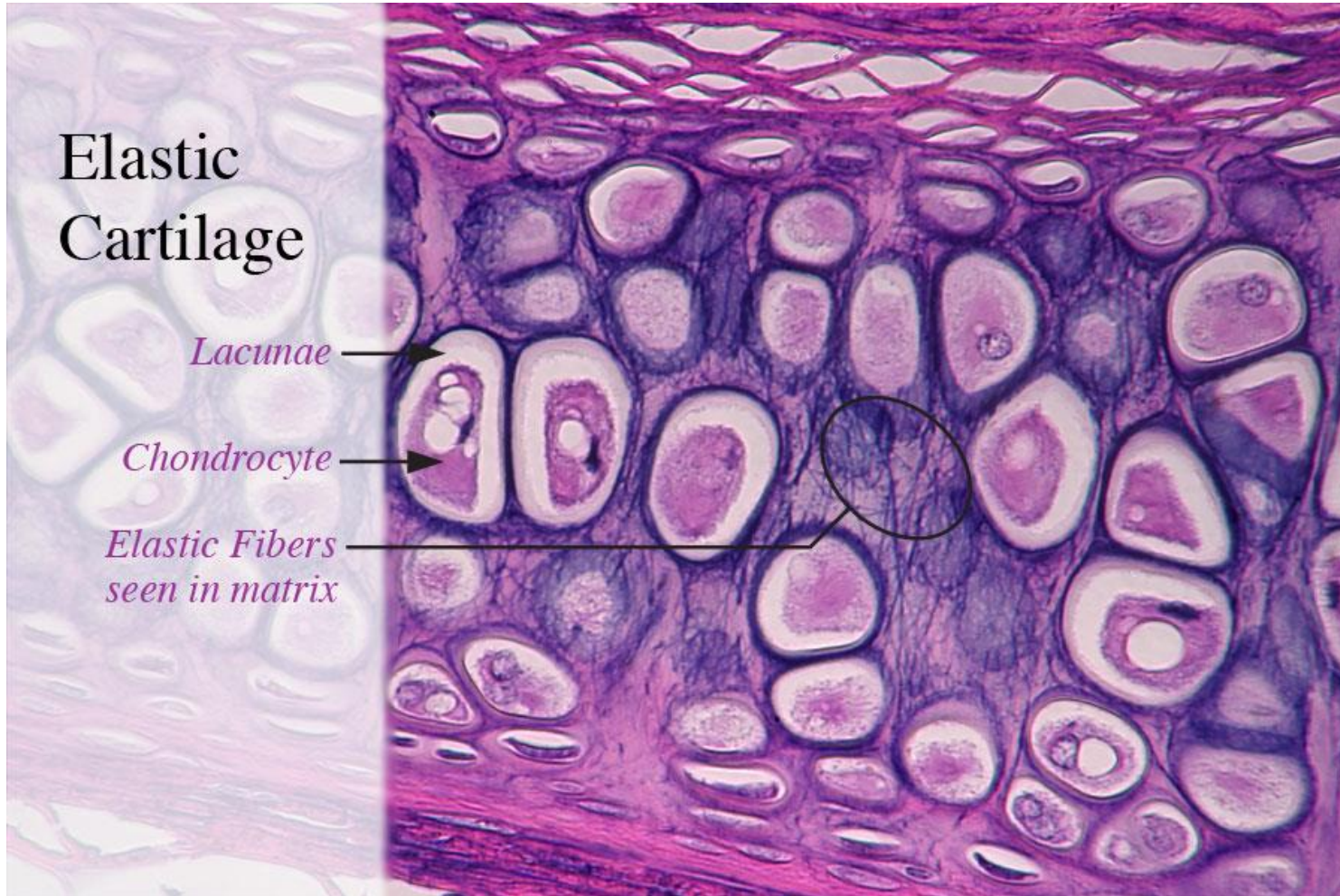
Cartilage

- Avascular
- Contain Chondrocytes (cartilage cells)
- Rigid to resist compression and stay resilient

3 Types of Cartilage

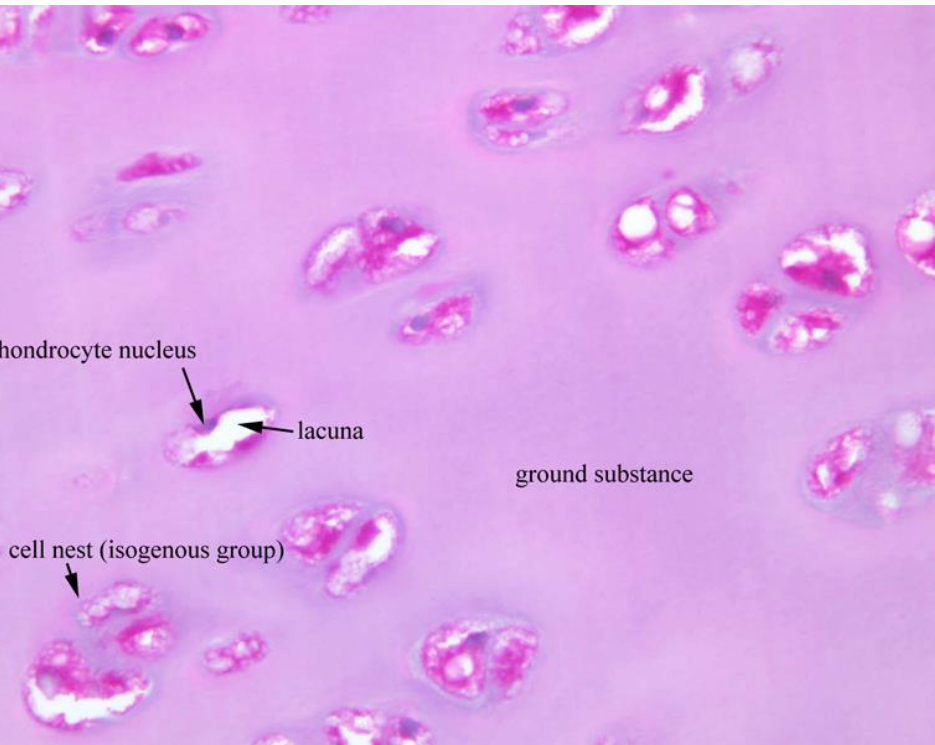
1. Elastic
2. Hyaline
3. Fibrocartilage

Elastic Cartilage

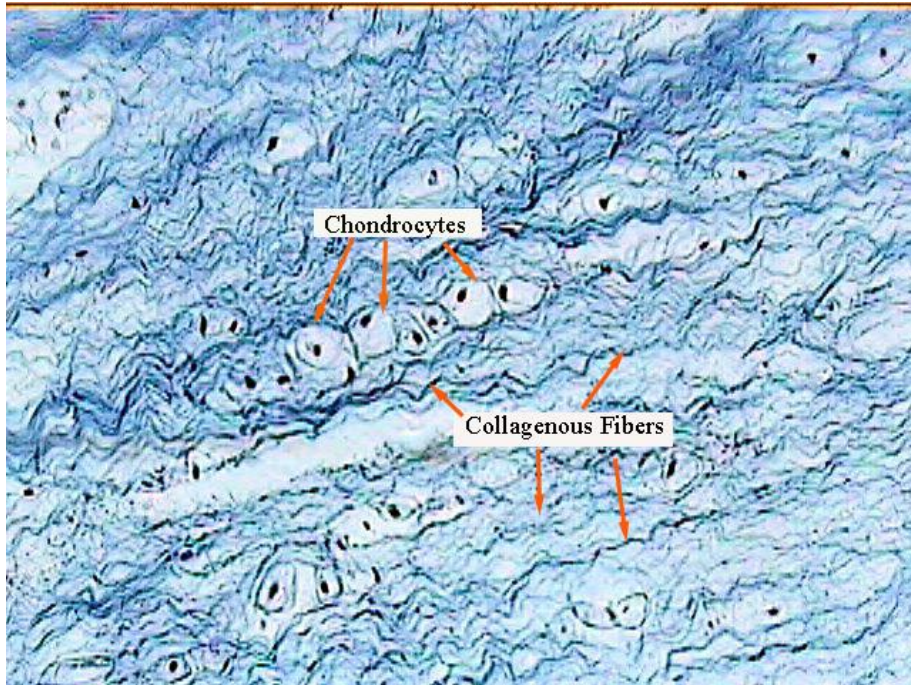


Hyaline Cartilage

- Glass-like in appearance - many fine collagen fibers
- provides cover at the ends of movable mature bones
- nose, trachea, and ribs



Fibrocartilage



Notice chondrocytes
within lacunae

-thick/strong bundles of
collagen fibers-

-Found in knee joint and
in disks that separate
the vertebrae

Loose Connective Tissue

- Areolar
- Adipose
- Reticular

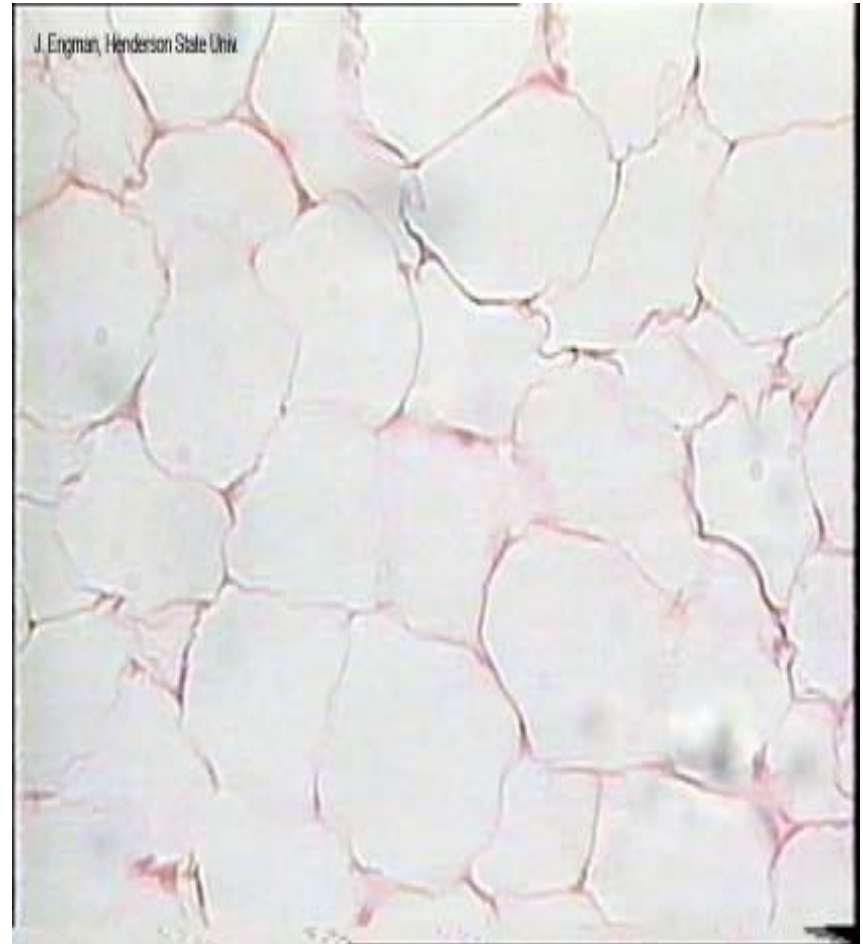
Loose Areolar CT

- Loosely arranged collagen and elastic fibers and delicate reticular fibers
- 3 cells types
- Supports epithelia and many organs, surrounds blood vessels and nerves



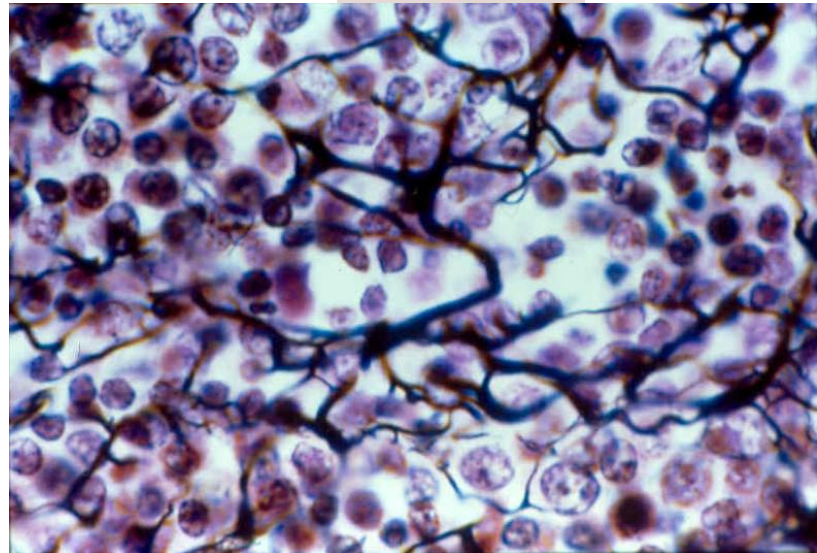
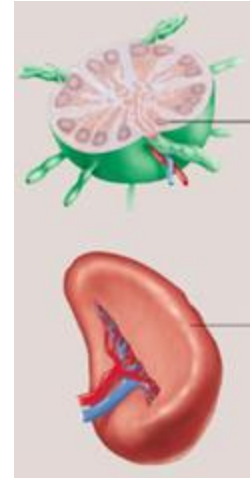
Adipose Tissue

- Large densely clustered cells specialized for fat storage
- Fuel reserves (energy), insulator, and shock absorber
- Highly vascular



Reticular

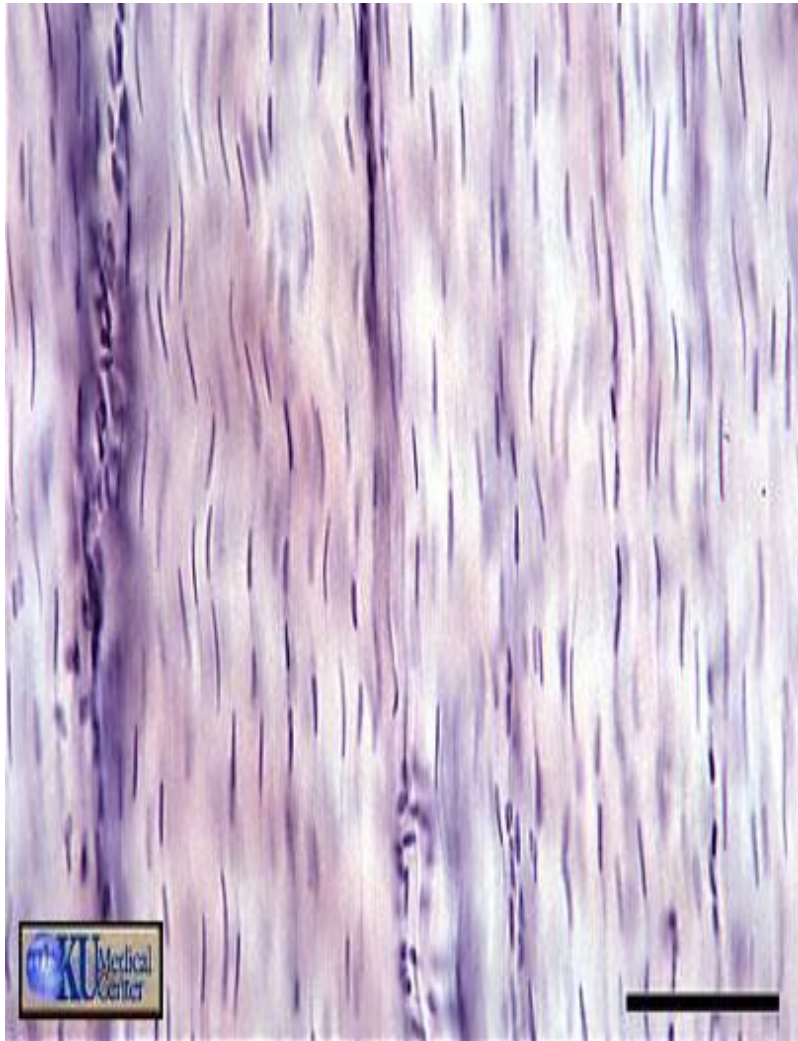
- Has “bending branches” (reticular fibers)
- Found in spleen and lymph nodes



Connective Tissue Proper

- Dense Regular
Connective Tissue
- Dense Irregular
Collagenous CT
- Dense Irregular
Elastic CT

Dense Regular Connective Tissue



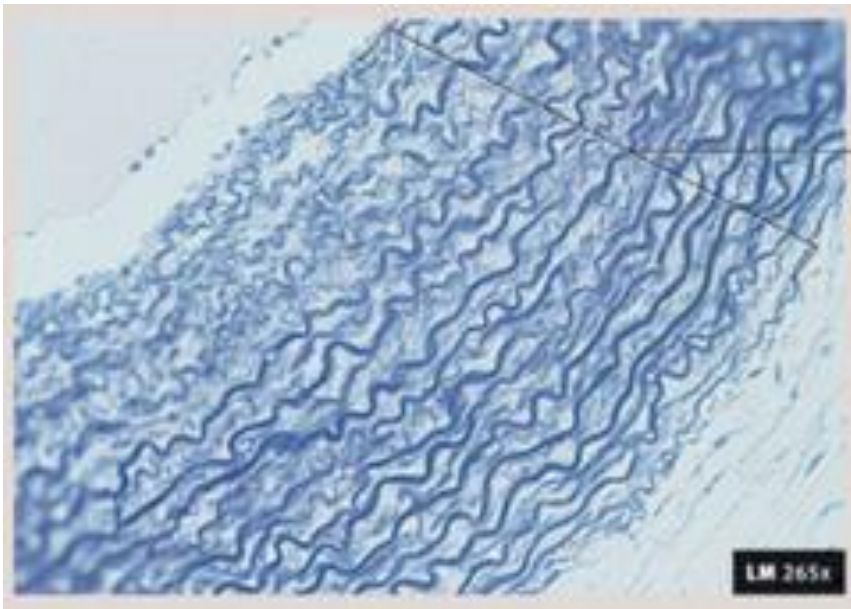
- Parallel bundles of fibers with rows of fibroblasts between them
 - Very strong and dense
 - Poor blood supply
 - Tendons (M-B) and Ligaments (B-B)
- *Tendon

Dense Irregular Collagenous Connective Tissue

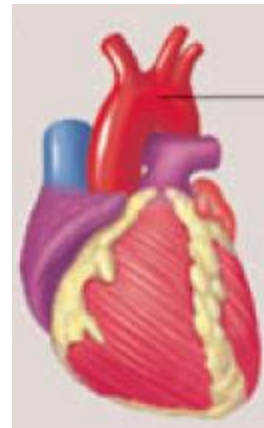


- Mostly collagenous fibers and fibroblasts interweaved with one another in an “irregular” pattern
- Found in the dermis of the skin
- Forms protective capsules around organs that are not stretched much

Dense Irregular Elastic Connective Tissue



- Found in elastic arteries – like the aorta
- Many elastic fibers



Others

- Bone
- Blood

Bone (Osseus)

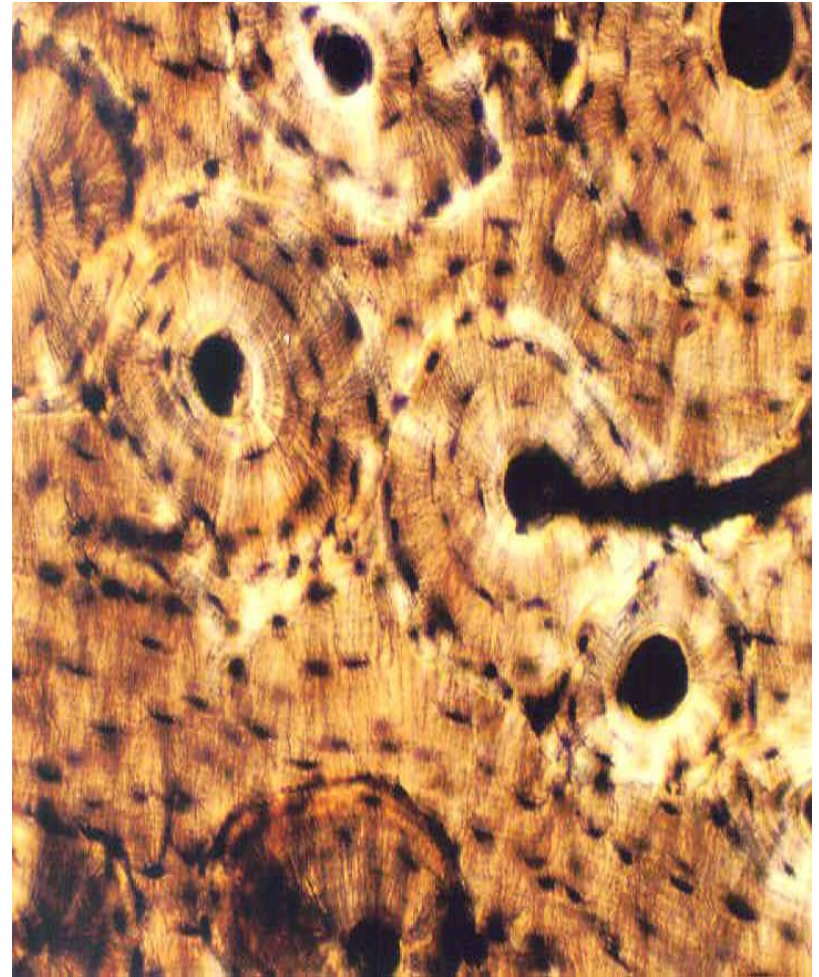
- Weight-bearing tissue in the skeleton
- Store calcium and produce some red blood cells
- Its collagen fibers and ground substance are loaded with calcium salts
- Vascular
- Contain osteocytes within lacunae (bone cells)

2 Types

1. **Compact Bone**
2. **Spongy bone**

Compact bone

- shafts of long bones and outer region of all bones
- Contain blood vessels and nerves
- Provides structural support



Blood

- Derived mainly from CT
- Transports Oxygen, nutrients, waste, hormones, enzymes
- Consists of:
 1. Plasma
 2. Formed elements
 - a. White blood cells: immunity
 - b. Platelets: blood clotting
 - c. Red blood cells: transport Oxygen

