Connective Tissue Proper Cell Populations

- **Fibroblasts**
 - most abundant cell type; in all connective tissue proper
 - secrete proteins and hyaluronan (cellular cement)
- **Fibrocytes**
 - 2nd most abundant cell type; in all connective tissue proper
 - maintain the fibers of connective tissue proper
- Adipocytes (fat cells)
 - each cell stores a single, large fat droplet
- Mesenchymal cells
 - stem cells that respond to infection or injury
 - differentiate into fibroblasts, macrophages, or other connective tissue cells
- **Macrophages**
 - large immune cells that that eat pathogens and damaged cells
- Mast cells
 - stimulate inflammation after injury or infection (histamine and heparin)
- **Lymphocytes**
- specialized immune cells in lymphatic (lymphoid) symbol
 icrophages (neutrophils and eosinophils)
 phagocytic blood cells
- Microphages (neutrophils and eosinophils
 - phagocytic blood cells
 - ophages and must c • respond to signals for
 - Melanocytes s whesize and store gment melanin

Connective tissues

3types of fibers occur in connective tissues *collagen, reticular, and elastic* fibers.

Collagen fibers: most common in connective tissue proper. *Stronger than steel* (tendons consist almost entirely of collagen fibers) (tendons connect 1 bone to another bone)

Reticular fibers: tough yet flexible. (parenchyme) functional cells)

Elastic fibers: contain the protein *elastin*. After stretching they return to their original length. Elastic ligaments which dominated by elastic fibers, are rare but have important functions, such as interconnecting vertebrae.

Ground substance fills the spaces between cells and surrounds connective tissue fibers.

Embryonic Connective Tissue

Are not found in adults

Mesenchyme: (embryonic stem cells) star shaped stem cells. GIVES RISE TO ALL OTHER CONNECTIVE TISSUES.

Mucus connective tissue: (or *Wharton's jelly*) is a loose connective tissue found in many parts of the embryo, including the umbilical cord.

Loose Connective Tissues

Are the "packing materials" of the body. They fill spaces between organs, cushion and stabilize specialized cells in many organs, and support epithelia. Includes *areolar tissue, adipose tissue*, and *reticular tissue*.

Areolar tissue: forms a layer that separates the skin from deeper structures. It is the common site for injections due to high blood supply.

Adipose tissue: account for most of volume of adipose tissue. It provides padding, absorbs shocks, acts as an insulator to slow heat loss, and serves as pacene iller around structures. Most adipose tissue in the body is called white fat because it has a pale yellow-white color.

Reticular tissue: organs such as the spleen and liver contam this tissue. The *stroma* formed supports functional cells or parenchyma of these organs.

Dense Connective Tissue

Often called **collagenous tissues** because collagen fibers are the dominant type of fiber in them.

There are 2 types of dense connective tissue

1. **Dense regular connective tissue-** the collagen fibers are parallel to each other, packed tightly, and aligned with the force applied to the tissues.

Tendons- are cords of dense regular connective tissue that attach skeletal muscles to bones. **Ligaments-** resemble tendons, but connect 1 bone to another or stabilize the position of internal organs.

Aponeurosis- is a tendinous sheet that attaches a broad, flat muscle to another muscle or to several bones of the skeleton.

IN CONTRAST

2. **Dense irregular tissue-** strengthen and support areas subjected to stresses from many directions. Giving skin its strength.

Capsule- dense, thick fibrous connective tissue which surrounds organs such as the liver, kidneys, and spleen, and encloses the cavities of joints.

Elastic tissue- is a dense regular connective tissue they help stabilize the position of the vertebrae in the spinal column.