between cells and fibres and act as matrix (ground substance).

- Connective tissues are classified into three types: (i) Loose connective tissue, (ii) Dense connective tissue and (iii) Specialized connective tissue.

Loose Connective Tissue

- Loose connective tissue has cells & fibres loosely arranged in a semi-fluid ground substance, for example, areolar tissue present beneath the skin.
- Often it serves as a **support framework for epithelium**.
- It contains:
  - ✓ **fibroblasts** (cells that produce & secrete fibres),
  - ✓ **macrophages** (a **large phagocytic cell** found in stationary form in the tissues or as a mobile **white blood cell**, especially at sites of infection) &
  - ✓ **mast cells** (a cell found in connective tissue & releasing **histamine** & other substances during inflammatory & allergic reactions).
- **Adipose tissue** is a type of loose connective tissue located mainly beneath the skin.
- The cells of this tissue are specialized to **store fats**.
- The excess of nutrients which are not used immediately are converted into fats & are stored in this tissue.

Dense Connective Tissue

- **Fibres & fibroblasts** are compactly packed in the dense connective tissues.
- Orientation of fibres show a regular or irregular pattern & are called dense regular & dense irregular tissues. In the dense regular connective tissues, the collagen fibres are present in rows between many parallel bundles of fibres.
- **Tendons**, which attach skeletal muscles to bones & **ligaments** which attach one bone to another are examples of this tissue.
- Dense irregular connective tissue has fibroblasts & many fibres (mostly collagen) that are oriented differently. This tissue is present in the skin.

Specialized Connective Tissue – Cartilage, Bones, Blood, Areolar

- **Cartilage, bones & blood** are various types of specialized connective tissues.
- The intercellular material of cartilage is solid & pliable & resists compression.
- Cells of this tissue (**chondrocytes**) are enclosed in small cavities within the matrix secreted by them.
- Most of the cartilages in vertebrate embryos are replaced by bones in adults.
- **Cartilage** is present in the **tip of nose, outer ear joints, trachea, larynx, between adjacent bones of the vertebral column, limbs & hands in adults**.
- Bone cells are embedded in a hard matrix that is composed of **calcium & phosphorus compounds.**
- Bones have a hard & non-pliable ground substance rich in **calcium salts** & **collagen fibres** which give bone its strength.
- The bone cells (**osteocytes**) are present in the spaces called lacunae.
- The **bone marrow** in some bones is the **site of production of blood cells**.
- **Two bones can be connected to each other** by another type of connective tissue called the **ligament**.
- This tissue is very elastic. It has considerable strength. Ligaments contain very little matrix.
- **Tendons connect bones to muscles** & are another type of connective tissue.