

ANATOMY

DPT

1ST SEMESTER

DR DANISH

Osseous Tissue and Its Types

- **Definition:**
- Osseous tissue (bone tissue) is a specialized connective tissue
- **Composition:**
- Bone cells: osteocytes, osteoblasts, and osteoclasts.
- Calcified bone matrix (organic + inorganic components).

Types of Osseous Tissue

- 1.Compact Bone Tissue (Cortical Bone)
- 2.Spongy Bone Tissue (Cancellous Bone)

Compact Bone Tissue (Cortical Bone)

- Very hard and dense.
- Found mainly in the shafts (diaphyses) of long bones.
- Appears solid to the naked eye but microscopically contains **osteons** (Haversian systems)
- **Osteon:** the structural unit of compact bone
- **Example:** humerus, femur, flat bones of skull or sternum



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- Each **osteon** consists of:
- Osteonic (Haversian) canal in the center (contains blood vessels & nerves).
- Concentric lamellae (ring-like plates of bone matrix) surrounding the canal.

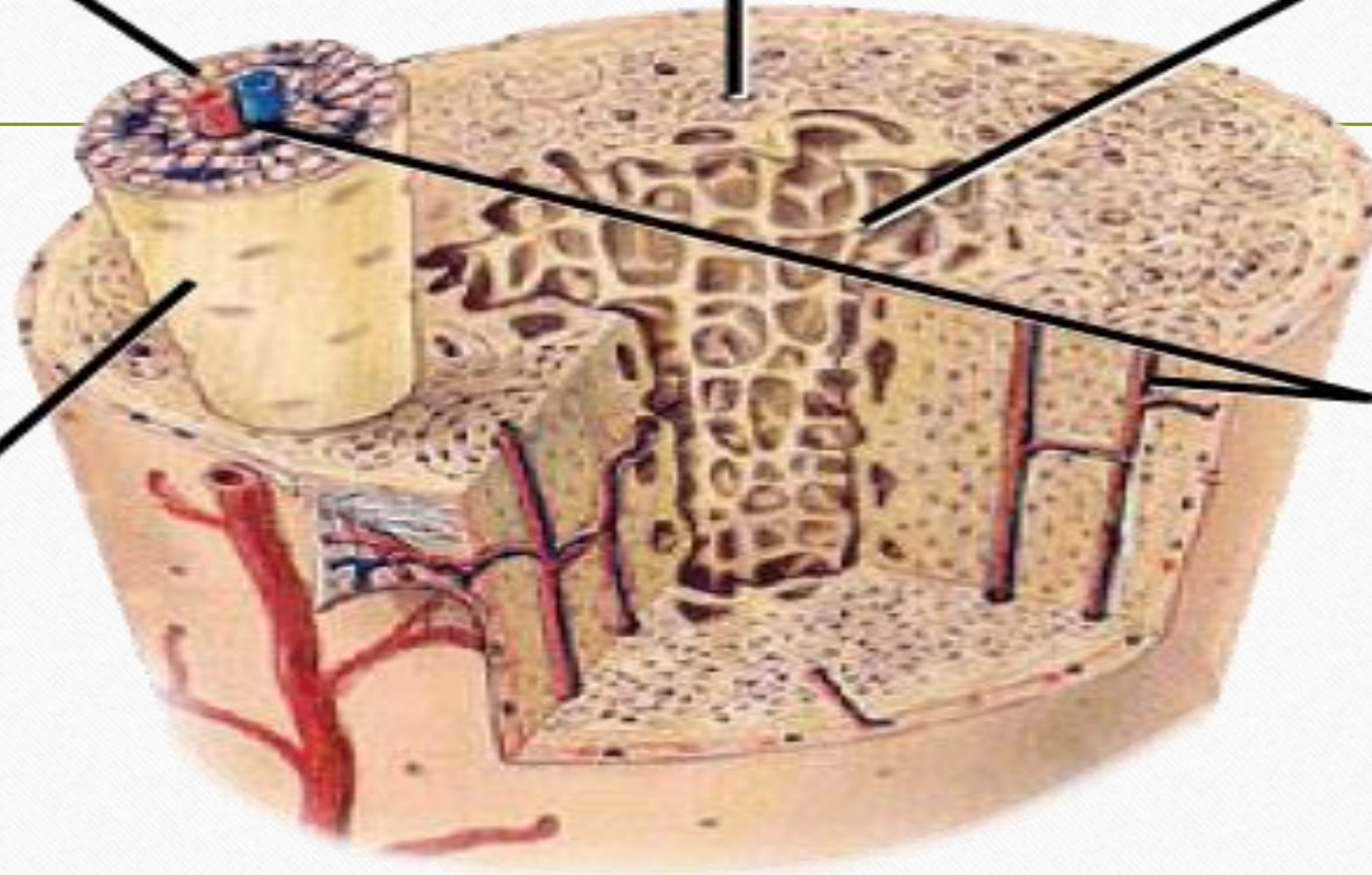
Lamellae

Osteon of
compact bone

Trabeculae of
spongy bone

Osteon

Haversian
canal



Spongy Bone Tissue (Cancellous Bone)

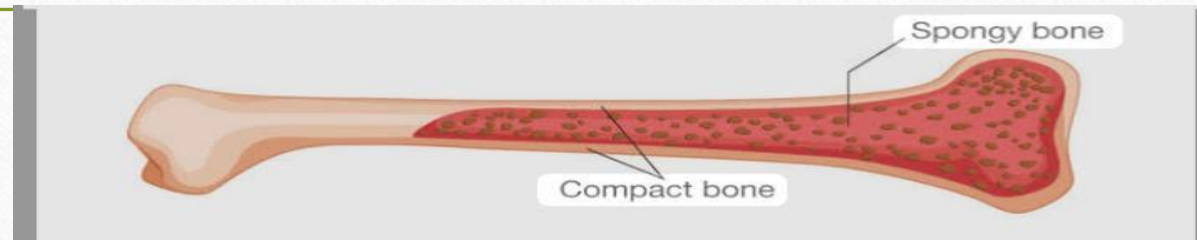
- **Definition:** A porous type of bone tissue giving a sponge-like or latticework appearance
- **Structure:**
 - Composed of trabeculae (plates) and bars of osseous tissue. Encloses many small, irregular, interconnecting spaces.
- **Examples:** long bones like femur, humerus etc



continued

- **Osteons:**
- Absent in spongy bone tissue
- **Weight and Strength:**
- Lighter in weight but weaker in strength than compact bone.
- **Location:**
- Found mainly at the ends of long bones. Also forms the bulk of short bones, flat bones, and irregular bones.

Difference B/W compact & spongy bone



Spongy Bone

.Found in long bones & surrounded by compact bone

Compact Bone

.Surrounds spongy bone
.Heavy tough and compact in nature





Thank You