

CHAPTER 6 - SKELETAL SYSTEM

COMPONENTS:

- *Bones*
- *Joints & Associated Cartilages*

SKELETAL

- Derived from Greek word meaning "*dried*"
- Consist of dynamic, living tissues that are able to grow, detect pain stimuli, adapt to stress & undergo repair after injury.
- FRAMEWORK to support the soft tissues of the body.

MAJOR FUNCTIONS:

1.) SUPPORT

- Major supporting tissues of the body
- **Cartilages** – provides firm yet flexible support (ex. Nose, external ear, thoracic cage & trachea)
- **Ligaments** – strong bands of fibrous connective tissue that attach to bones & hold them together.

2.) PROTECTION

- Protects the organ it surrounds
(Ex. Skull encloses and protects the brain)

3.) MOVEMENT

- **Tendons** – skeletal muscles attach to bones
- **Smooth Cartilages** – covers the ends of bones within some joints ; allowing the bones to move freely
- **Ligaments** – allow some movements between bones but prevent excessive movements

4.) STORAGE

- **Calcium & Phosphorus** – taken into bones and stored
- * **Adipose tissue** – stored w/in bone cavities (fats)
- **Lipids** – Released into the blood and used by other tissues as a *source of energy*

5.) BLOOD CELL PRODUCTION

- Cavities filled with red bone marrow
 - produces blood cells & platelets

EXTRACELLULAR MATRIX

- *Collagen (Tough rope-like proteins)*
- *Proteoglycans (Polysaccharides)*
- *Tendons (Collagen Fibers)*
- *Ligaments (Collagen Fibers)*
- *Cartilage (Collagen & Proteoglycans)*
- *Hydroxyapatite (Calcium Phosphate Crystals)*

GENERAL FEATURES OF BONE

1. LONG BONES

- Longer than they are wide

2. SHORT BONES

- Broad as they are long

3. FLAT BONES

- Relatively thin, flattened shape

4. IRREGULAR BONES

- Vertebrae & Facial Bones

STRUCTURE OF A LONG BONE



• DIAPHYSIS

- Central Shaft

• EPIPHYSIS

- Two ends

• ARTICULAR CARTILAGE

- covers the ends of the epiphyses where the bone articulates with other bones.

• EPIPHYSEAL PLATE

- Growth plate, where the bone grows in length.
- Composed of cartilage, between each epiphysis and the diaphysis

• EPIPHYSEAL LINE

- When the bone growth stops, this replaces the epiphyseal plate.

• MEDULLARY CAVITY

- Large cavity in the diaphysis

• MARROW

- A soft tissue that fills the spaces
- **Yellow Marrow** – consist of mostly adipose tissues; **Red Marrow** – consist of blood-forming cell and is the only site of blood formation in adults.

• PERIOSTEUM

- Covers most of the outer surface of the bones
- Encloses the diaphysis
- Contains blood vessels and nerves

• ENDOSTEUM

- Thinner connective tissue membrane that lines the surface of the medullary cavity

Bones And Skeletal Tissues Review Guide Answers

Yijin Wang



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