

Skeletal System

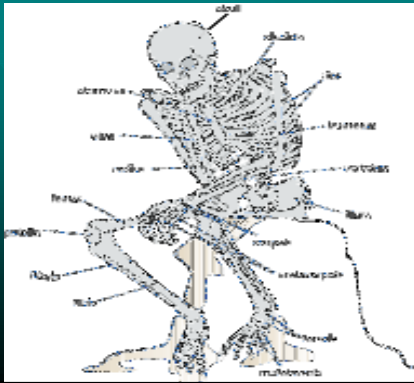
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I. Introduction:

- A. The skeletal system consists of:
 - 206 bones (in adults)
 - joints
 - cartilage
 - ligaments
- B. **Newborn has 300 bones**, but many of them are still cartilaginous and harden by puberty.
- C. Each bone is an organ made up of several different tissues.

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Adult Bones



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C. Functions of the skeleton

- Supports body
- Protects soft body parts
- Produces blood cells (in red marrow)
- Stores minerals
- Stores fat (in yellow marrow)
- Permits flexible body movement.

D. Bone classification according to shape:

- **Long bones:** longer than they are wide
- **Short bones:** cube shaped, so their lengths and widths are about equal.



D. Bone classification (continued)

- **Flat bones:** platelike with broad surfaces
- **Irregular bones:** varied shapes that permit connections with other bones

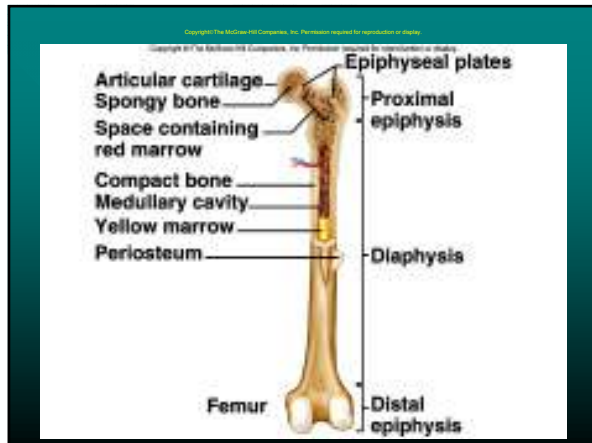


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II. Anatomy of a long bone

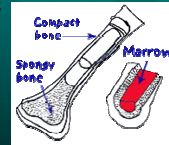
- A. **Periosteum:** a tough, fibrous, connective tissue covering that surrounds the bone; continuous with ligaments and tendons; contains blood vessels and osteoblasts.
- B. **Epiphysis:** an expanded end of the bone filled with spongy bone; forms joints with adjacent bones.
- C. **Articular cartilage:** a layer of hyaline cartilage that covers the epiphyses.
- D. **Diaphysis:** a shaft or the portion between the epiphyses of a long bone, composed mainly of compact bone
- E. **Epiphyseal plate, or growth plate**—composed of cartilage, between each epiphysis and diaphysis; the site of growth in bone length.

- F. **Medullary Cavity:** hollow chamber inside diaphysis; houses a yellow marrow.
- G. **Endosteum:** thin layer of cells that lines medullary cavity; contains osteoblasts.
- H. **Compact bone:** dense bone that contains many cylinder-shaped units (osteons).
- I. **Spongy bone:** also known as cancellous bone; contains numerous bony bars and plates (trabeculae); houses red marrow.



J. Bone Marrow:

- **Yellow bone marrow**
 - soft adipose tissue
 - In adult, mostly found in medullary cavity of long bones
- **Red bone marrow**
 - Soft netlike connective tissue
 - In adult, found in spongy bone of the epiphyses of the long bones or inside large bones



- Stores fat; important as an energy source
- Responsible for blood cell formation (**hematopoiesis**)

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