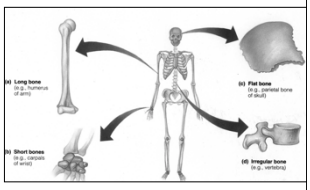
THE SKELETAL SYSTEM

I. Bone Functions

A. **Support**
B. **Protection-skull, vertebral column and ribs serve to protect**
C. **Movement-bones attach to muscles by tendons**
D. **Mineral storage- store many types of minerals, most important are calcium and phosphate.**
E. **Blood cell formation-called hematopoiesis and occurs inside marrow cavities.**

II. Classification of Bones

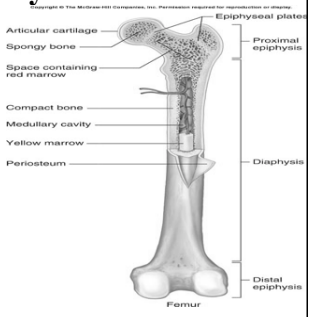
A. **Long bones-all limb bones but patella, wrist and ankle. Mostly compact bone.**
B. **Short bones-wrist and ankle bones, square shape.**
C. **Flat bones-sternum, skull, rib bones**
D. **Irregular bones- vertebrae, hips, mostly spongy bone.**



III. Anatomy of Bones

A. Long bones-

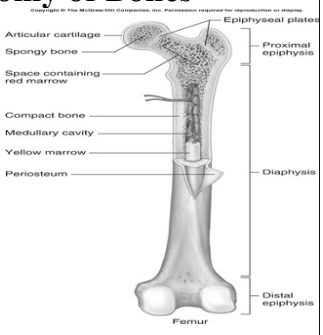
A. Consist of:
   A. Epiphysis - *End*
   B. Diaphysis - *Shaft*
   C. Membranes such as:
      A. Periosteum – *Covering of bone*
      B. Osteoblasts – *Cell*
      C. Osteoclasts - *Cell*
   D. Spongy bone and compact bone.



III. Anatomy of Bones

A. Long bones-

A. Periosteum –
- Anchors tendons and ligaments to bone
- Allows passage of blood vessels, lymphatics and nerves into and out of the bone.
- Participates in growth



III. Anatomy of Bones

A. Long bone: CELLS

- OSTEOCYTES = "bone" "cells"
  - OSTEOBLASTS
    - "bone builders"
  - OSTEOCLASTS
    - "bone crushers"
    - Repair
    - Maintain
    - Minerals release
- BONE IS NEVER AT REST = homeostasis!!!

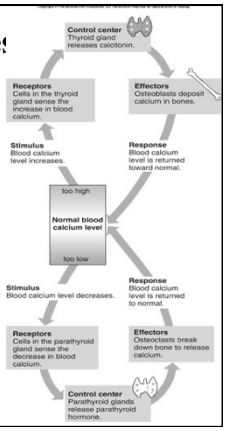
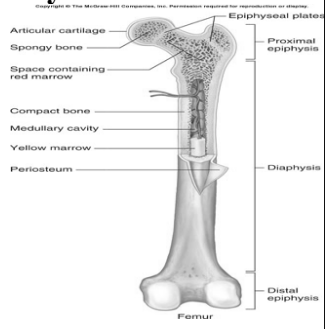


Fig. 7.8

III. Anatomy of Bones

B. <u>All other bones-</u>

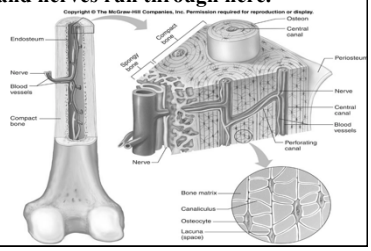
1. **Not cylindrical**
2. **Contain:**
   1. **Periosteum**
   2. **Compact Bone**
   3. **Spongy Bone.**

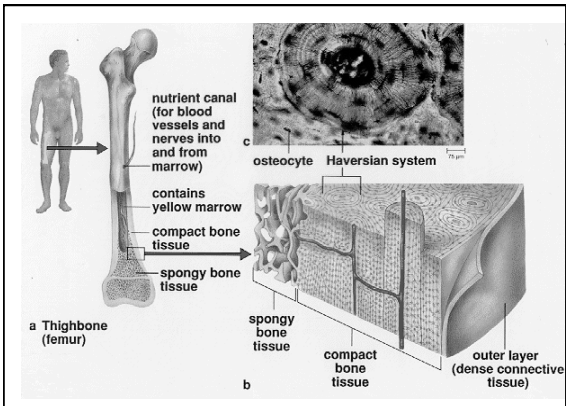


III. Anatomy of Bones

C. <u>Compact Bone-</u>

1. **Unit is called Haversian system.**
   1. **Tiny weight bearing pillars.**
   2. **Blood vessels and nerves run through here.**

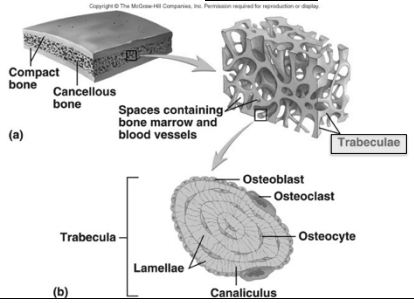




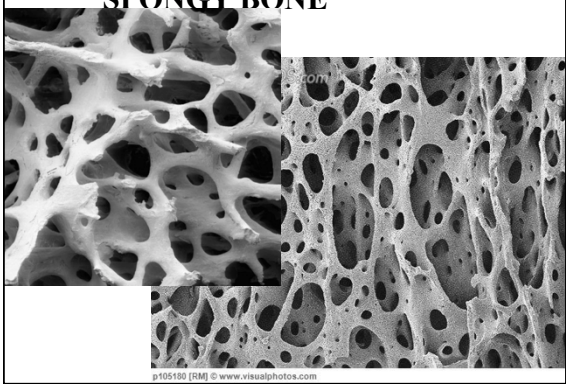
III. Anatomy of Bones

D. <u>Spongy bone</u>

1. **Contain structures called <u>trabeculae</u>**



SPONGY BONE



<u>Epiphyseal plate</u> -cartilage band indicates ossification is occurring and spongy bone is being deposited.