Skin and bones anatomy

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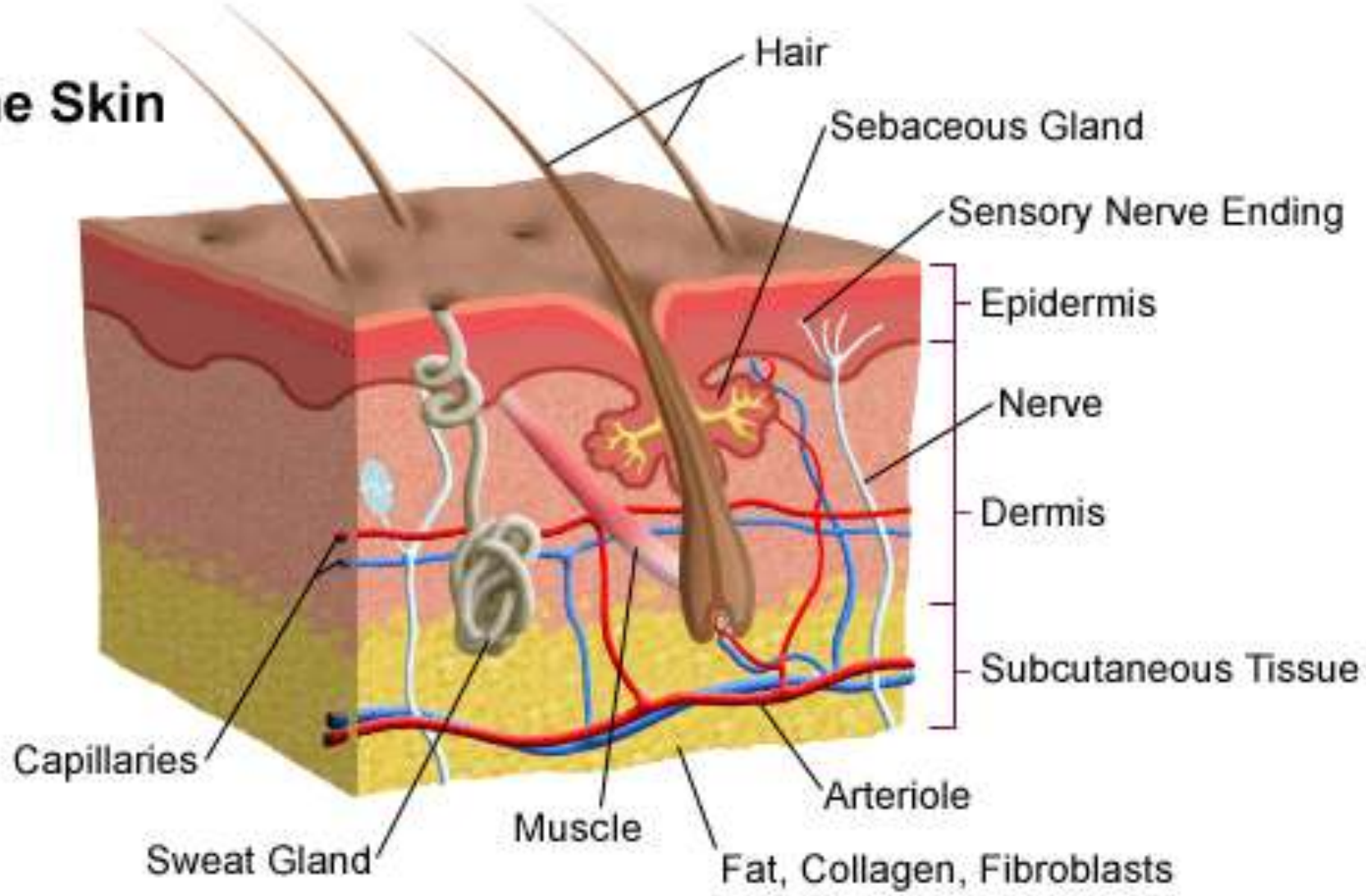
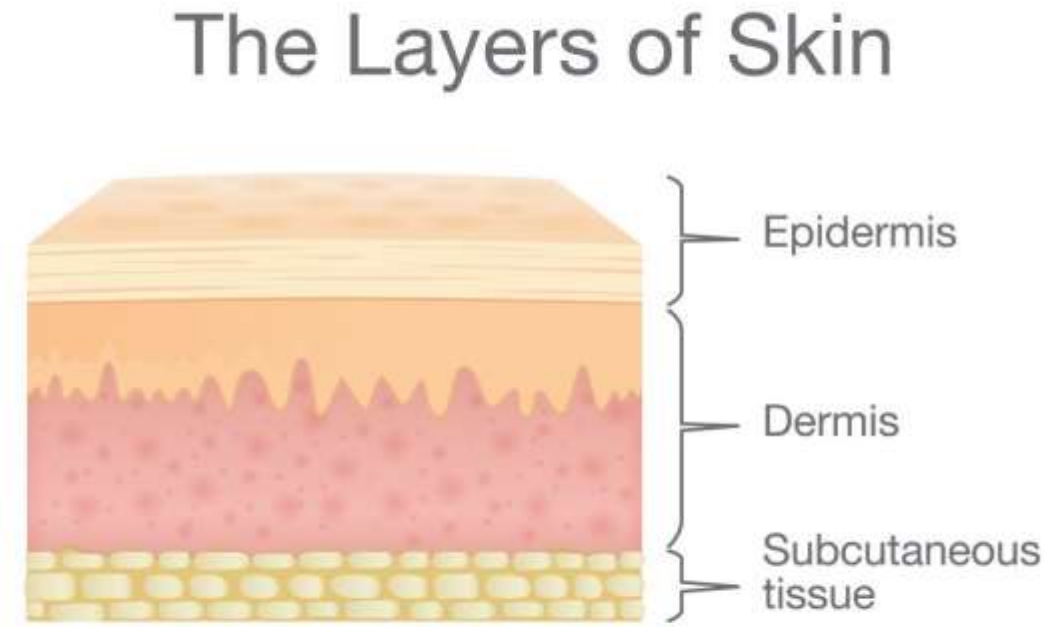
The Skin


Hair
Sebaceous Gland
Sensory Nerve Ending
Epidermis
Nerve
Dermis
Subcutaneous Tissue
Capillaries
Sweat Gland
Muscle
Arteriole
Fat, Collagen, Fibroblasts

Layers of skin

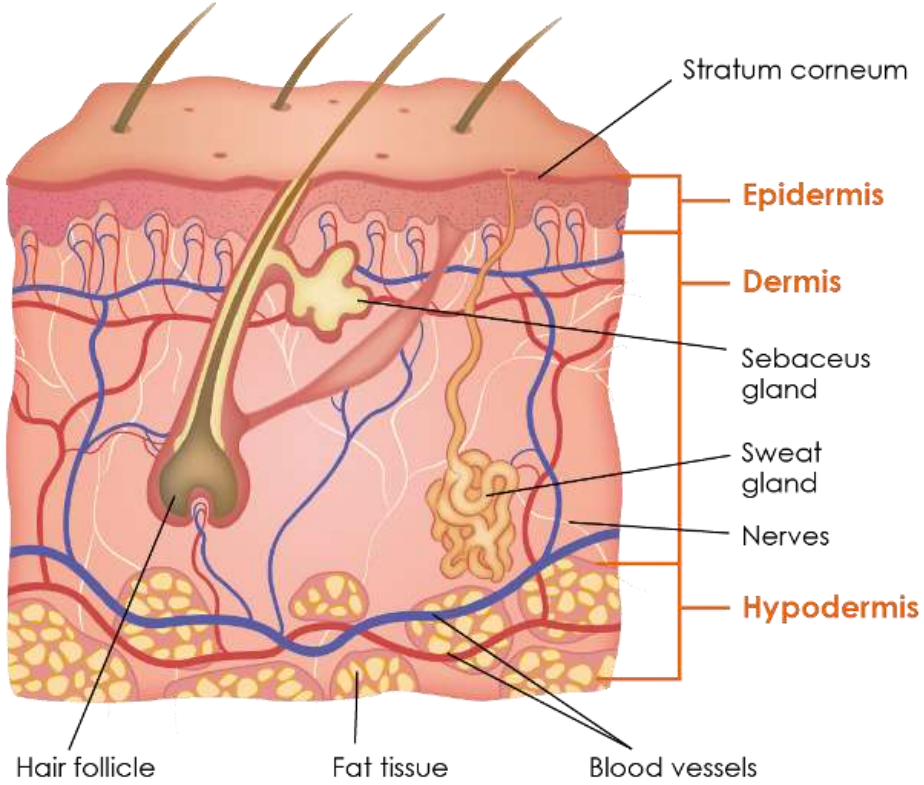
Epidermis :

- Superficial
- Avascular
- Thicker in palms and soles



Dermis

- Thicker
- Vascular
- Sensory nerves
- Papillary & reticular layers
- Epidermal appendages (except nails)



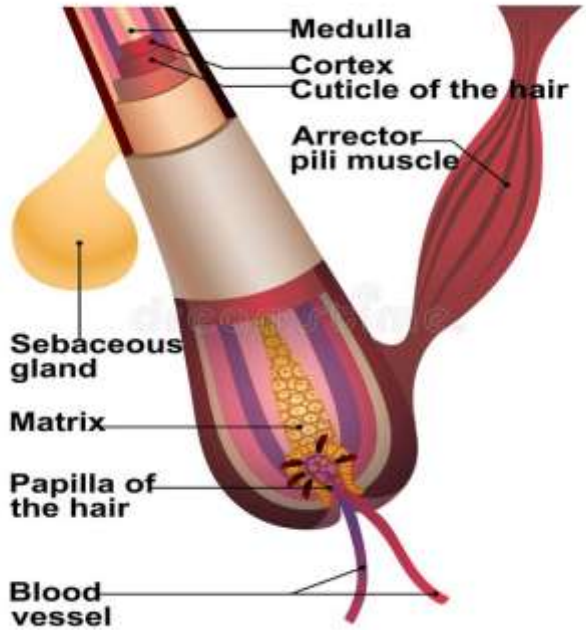
Appendages of skin

- Nail :

Keratinized plates on the dorsal surface of the tips of fingers .

- Hair :

grow out of the follicles which are invaginations of the epidermis into the dermis .

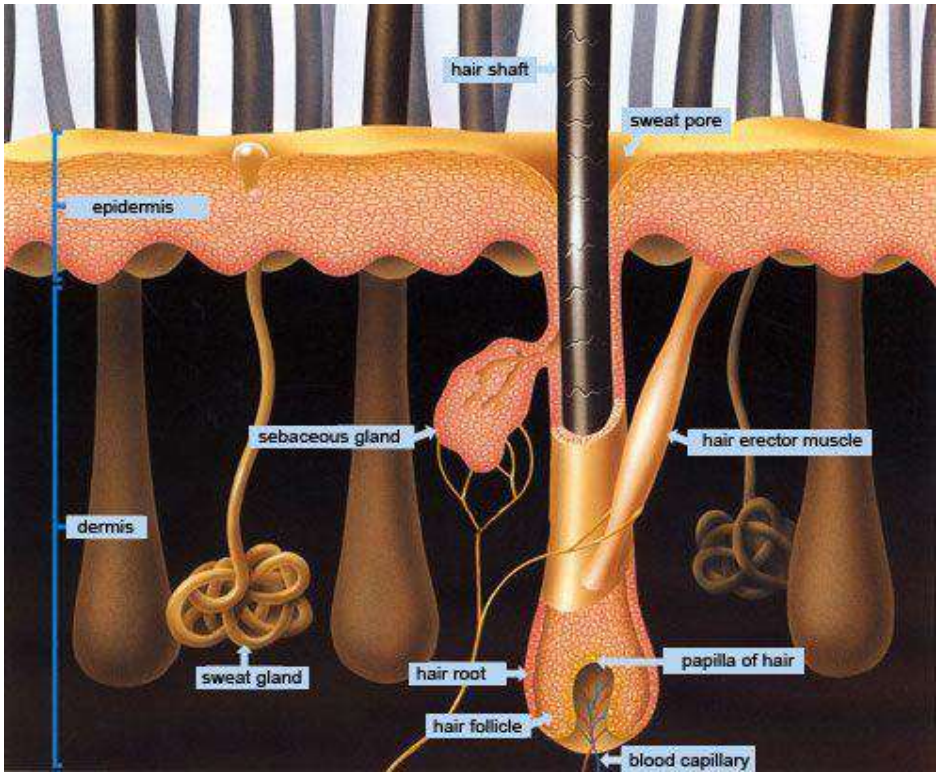


❑ Sebaceous gland

- Open into the hair follicle
- within the dermis
- Secrete sebum

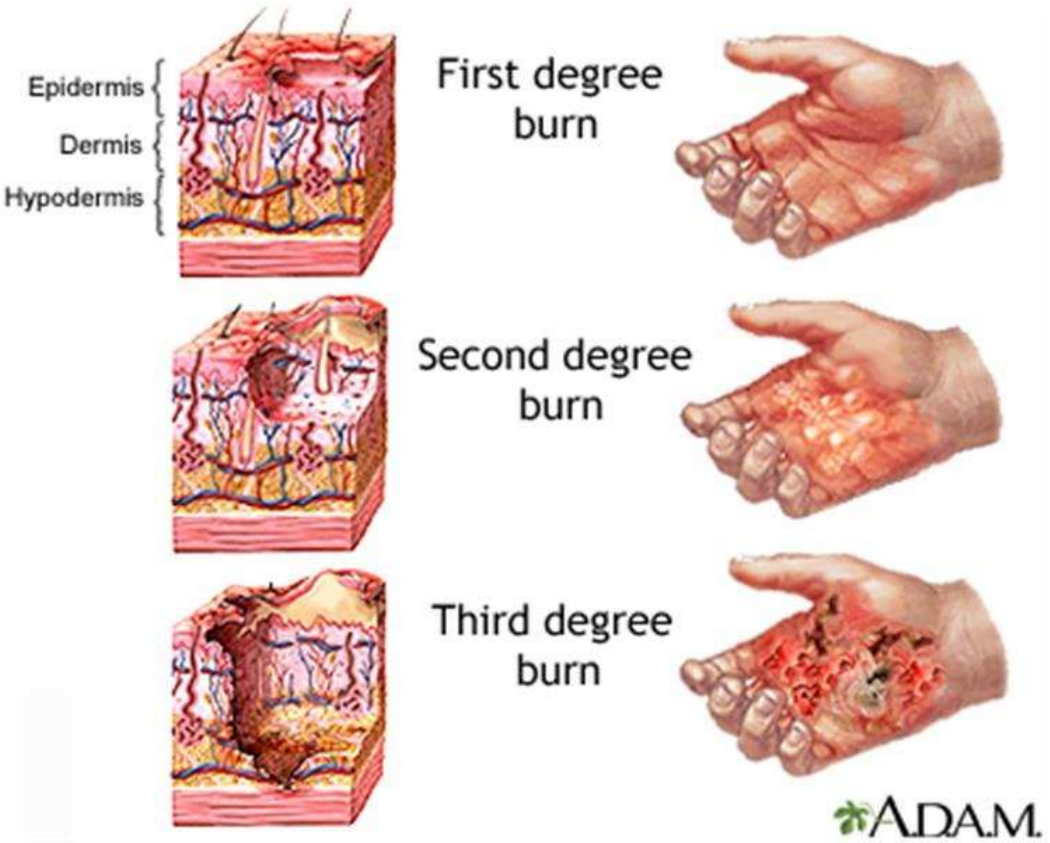
❑ Sweat gland

- Are long, spiral, tubular
- Absent in some regions (Ex.: nail beds)
- May reach the superficial fascia



Skin burn

- The depth of burn determine the rate and method of healing.
- The deep burn need skin graft

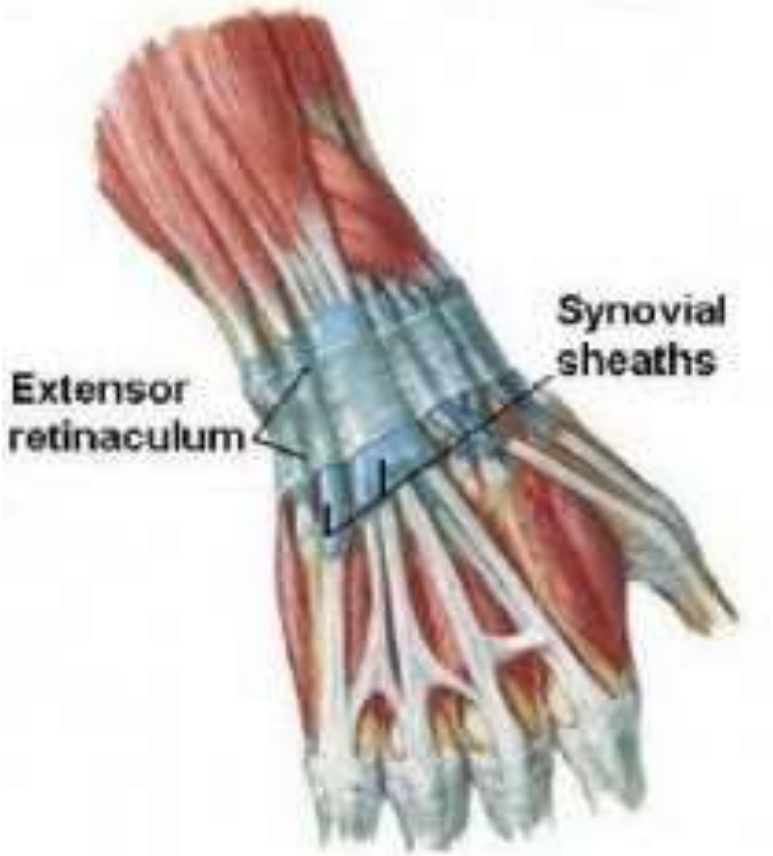


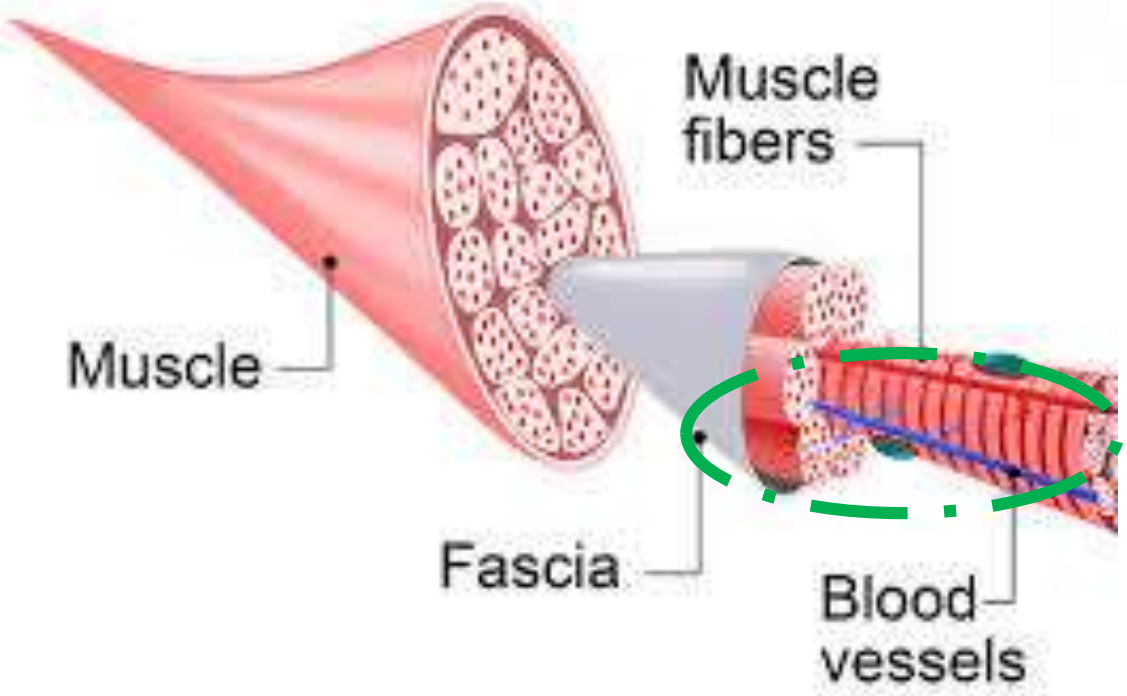
FASCIA

Is the connective that enclose the body deep to the skin and also envelops and separates muscle and groups of muscles as well as deeper organs .

- **Superficial**

- **Deep**

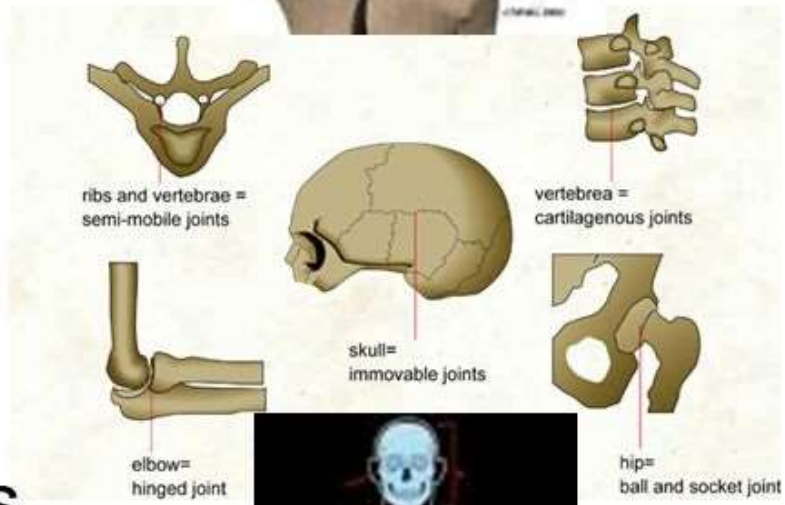

Synovial
sheaths
Extensor
retinaculum


Muscle fibers
Muscle
Fascia
Blood
vessels

The Skeletal System

Parts of the skeletal system

- Bones (skeleton)
- Joints
- Cartilages
- Ligaments



Divided into 2 divisions

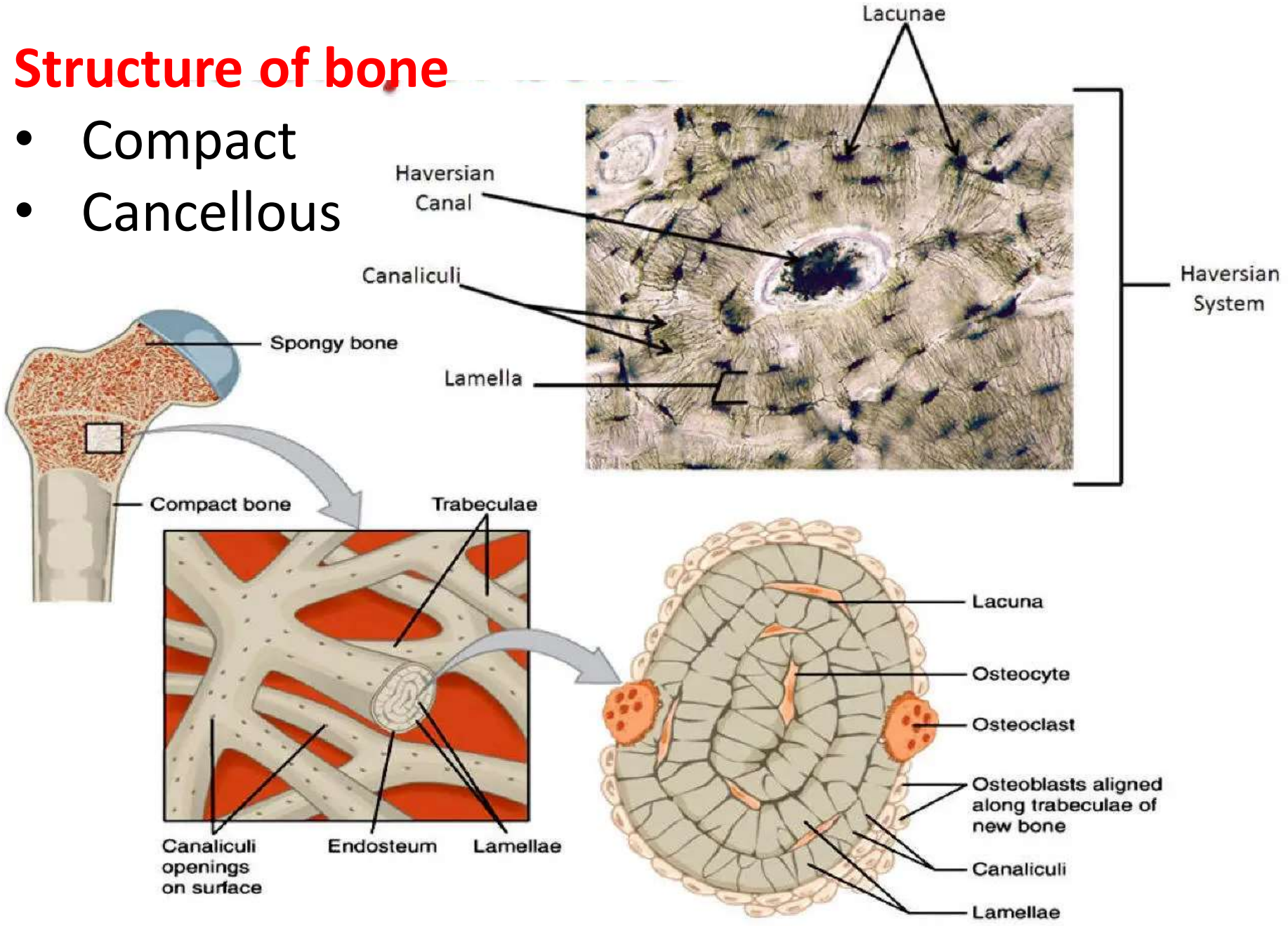
- Axial skeleton
- Appendicular skeleton

Function of bones

- Support the body
- Protect the internal organs
- Levers for movement
- Storage of calcium and phosphorus
- Formation of blood cells

Structure of bone

- Compact
- Cancellous

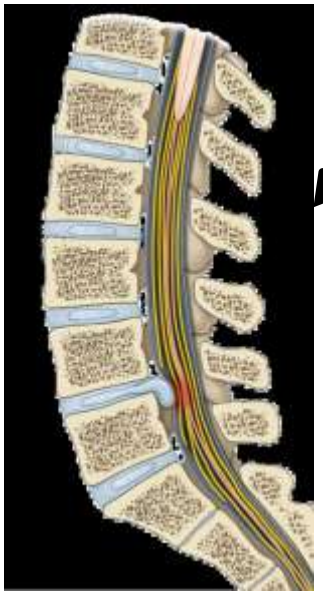


- Proportion of compact to cancellous bones vary according to function

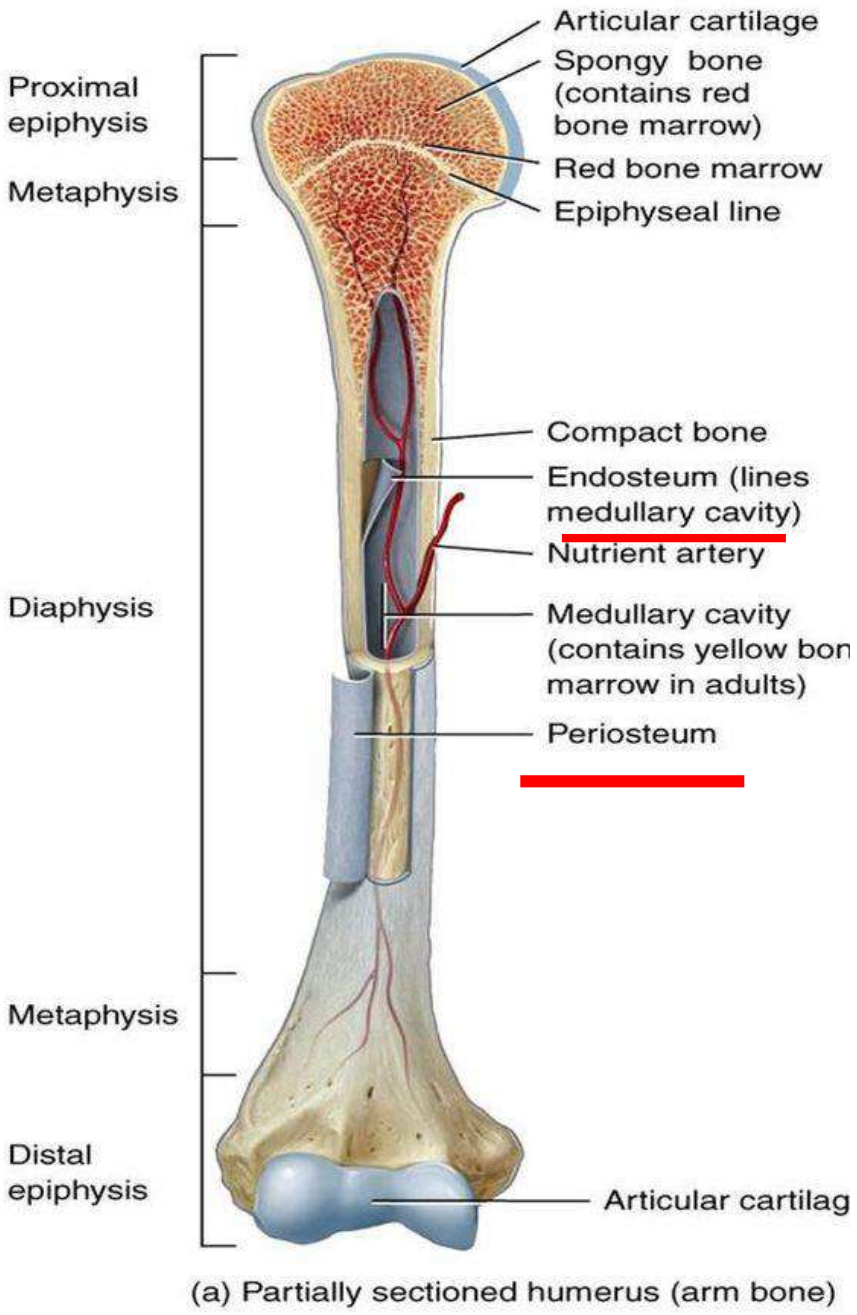
- Compact gives strength in bending

(shaft of long bone)

- Spongy gives strength in compression (body of vertebra)



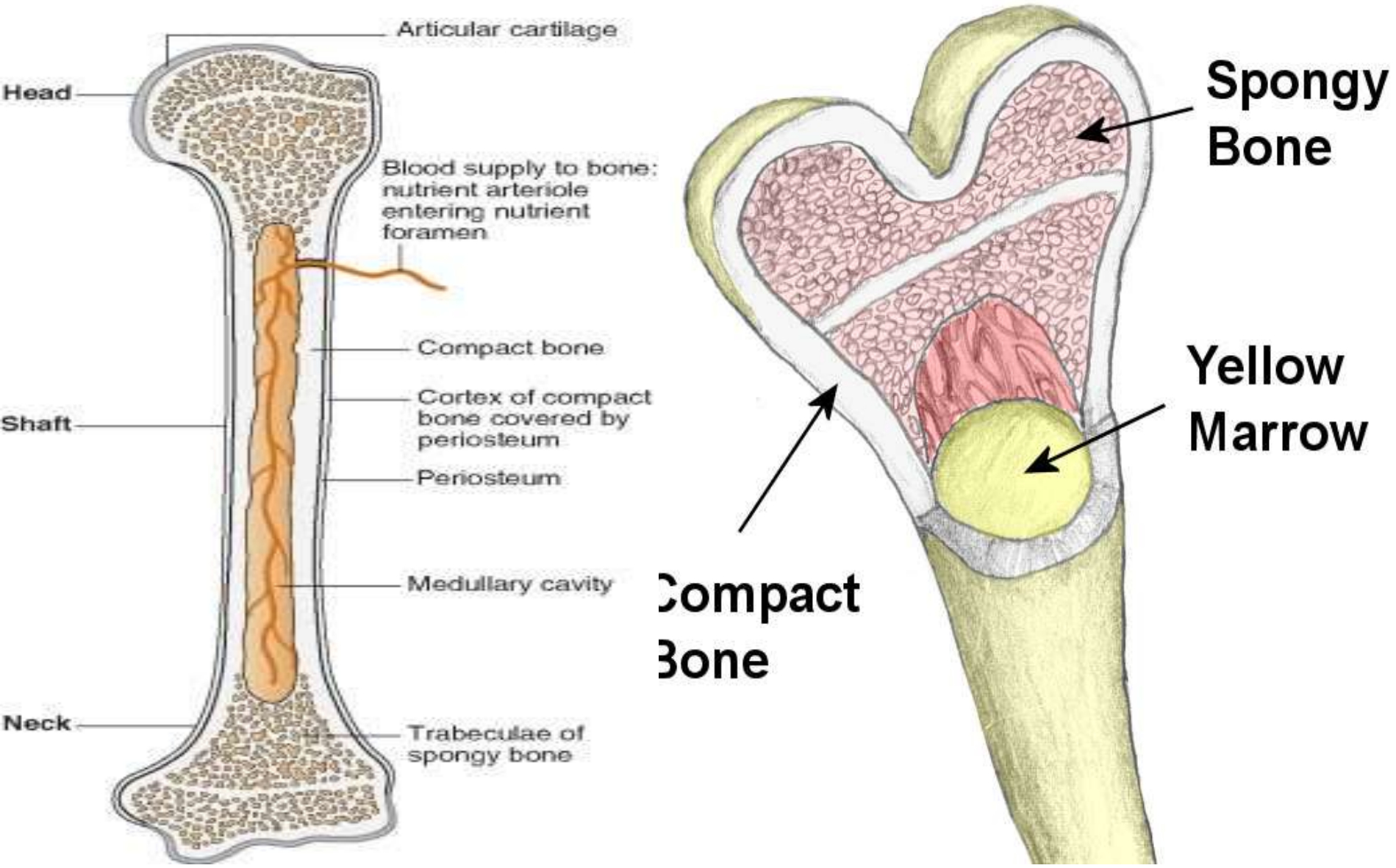
- Periosteum covers …..
- Endosteum lines ……



(a) Partially sectioned humerus (arm bone)

BONE MARROW

- Lies within the medullary cavity and inter-trabecular spaces
- All bones contain red marrow at birth
- Yellow marrow gradually replaces red marrow starting from the distal bones of the limbs then proximally
- In adults, red marrow is restricted to axial bones, girdle bones, and the heads of humerus and femur


Articular cartilage
Head
Blood supply to bone: nutrient arteriole entering nutrient foramen
Compact bone
Cortex of compact bone covered by periosteum
Shaft
Periosteum
Medullary cavity
Neck
Trabeculae of spongy bone
Spongy Bone
Yellow Marrow
Compact Bone

Five Types of Bones

- Long
  - Found in arms and legs
- Short
  - Found in wrists and ankles
- Flat
  - Bones of the skull
- Irregular
  - Bones of the vertebrae
- Sesamoid
  - Wrapped within tendons (patella)

- Long bone → length more than breadth
  → Shaft with two ends

- Short bone → Cuboidal
  → Cancellous bone enclosed by a thin layer of compact bone

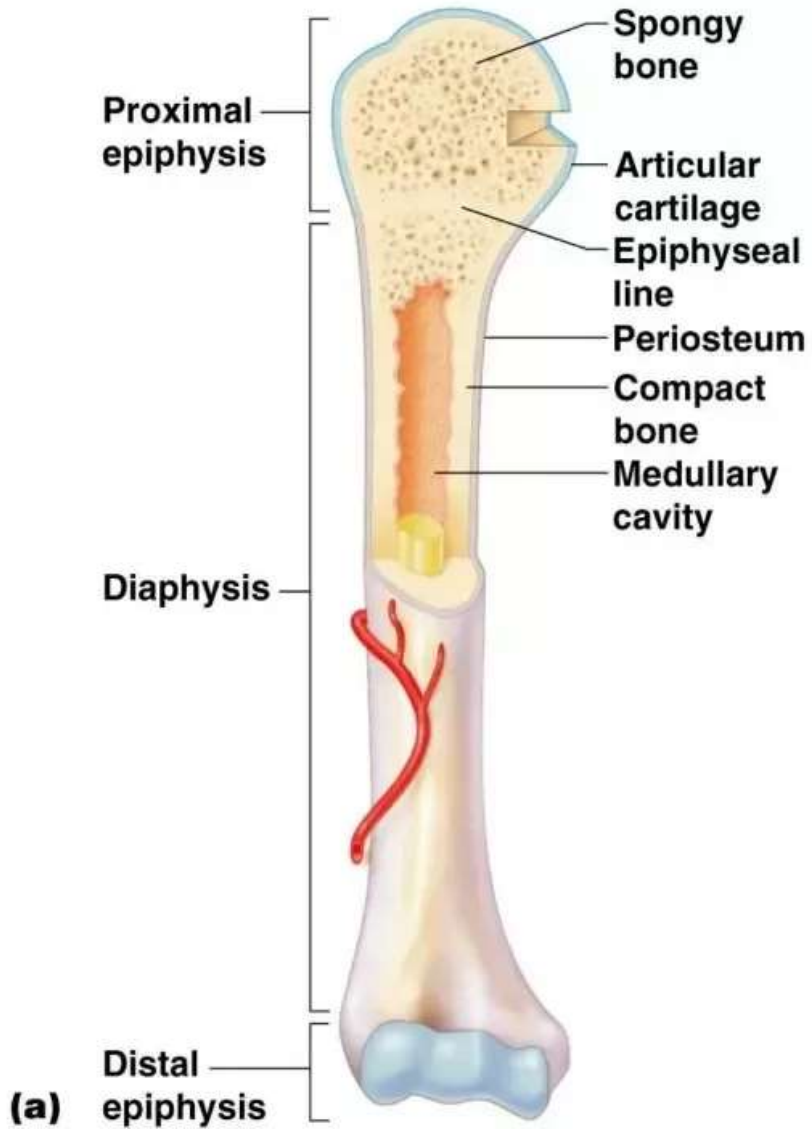
- Flat → Tables separated by diploe

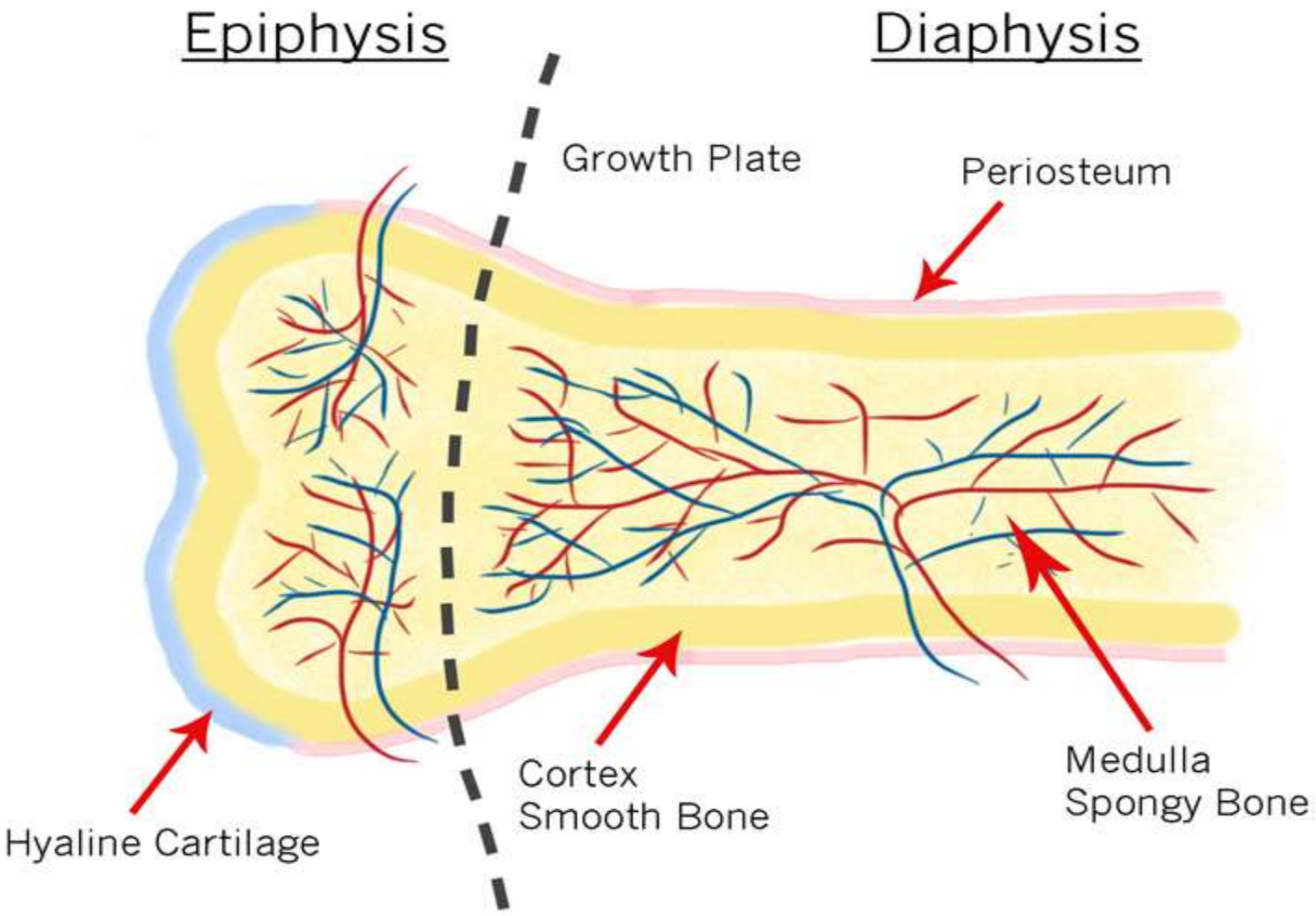
- Irregular → Not belong to above types
  Hip/ vertebrae bones

- Sesamoid → Bones within tendons

PARTS OF LONG BONES

- 1.Shaft (contains the medullary cavity)
- 2.Metaphysis (part of shaf
- 3.Epiphyseal line (scar)
- 4.Epiphysis




Epiphysis
Diaphysis
Growth Plate
Periosteum
Hyaline Cartilage
Cortex
Smooth Bone
Medulla
Spongy Bone

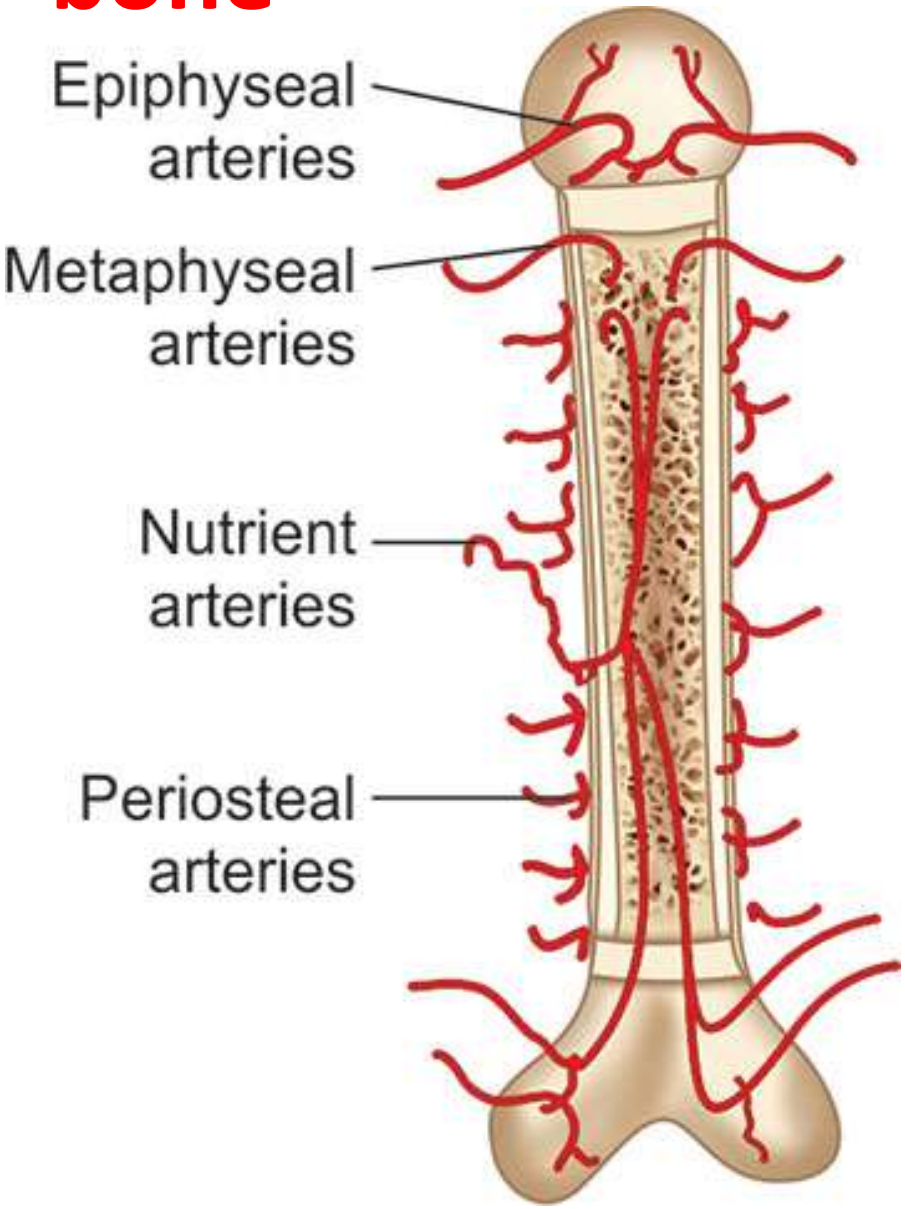
PARTS OF GROWING LONG BONES

1. Diaphysis
2. Metaphysis
3. Epiphyseal (growth) plate
4. Epiphysis

- Premature closure of the epiphyseal growth plate can lead to short limb

Blood supply of long bone

- Nutrient artery
- epiphyseal artery
- Metaphyseal artery
- Periosteal artery



Nerve supply of bone

- Sensory (to periosteum)
- Vasomotor (to blood vessels

Bone development

By two processes :

- Membranous ossification

Bone develops directly from a connective tissue membrane in the embryo like in skull

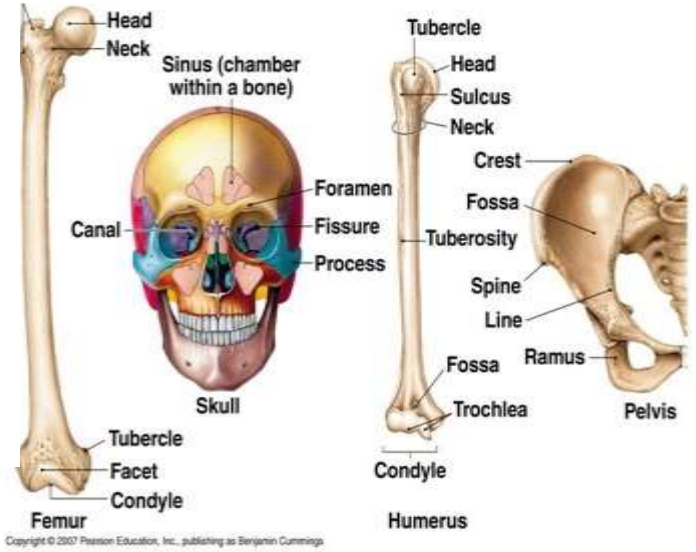
- Endochondral ossification (indirect)

A cartilage model is first laid down and is later replaced by bone like long bone .

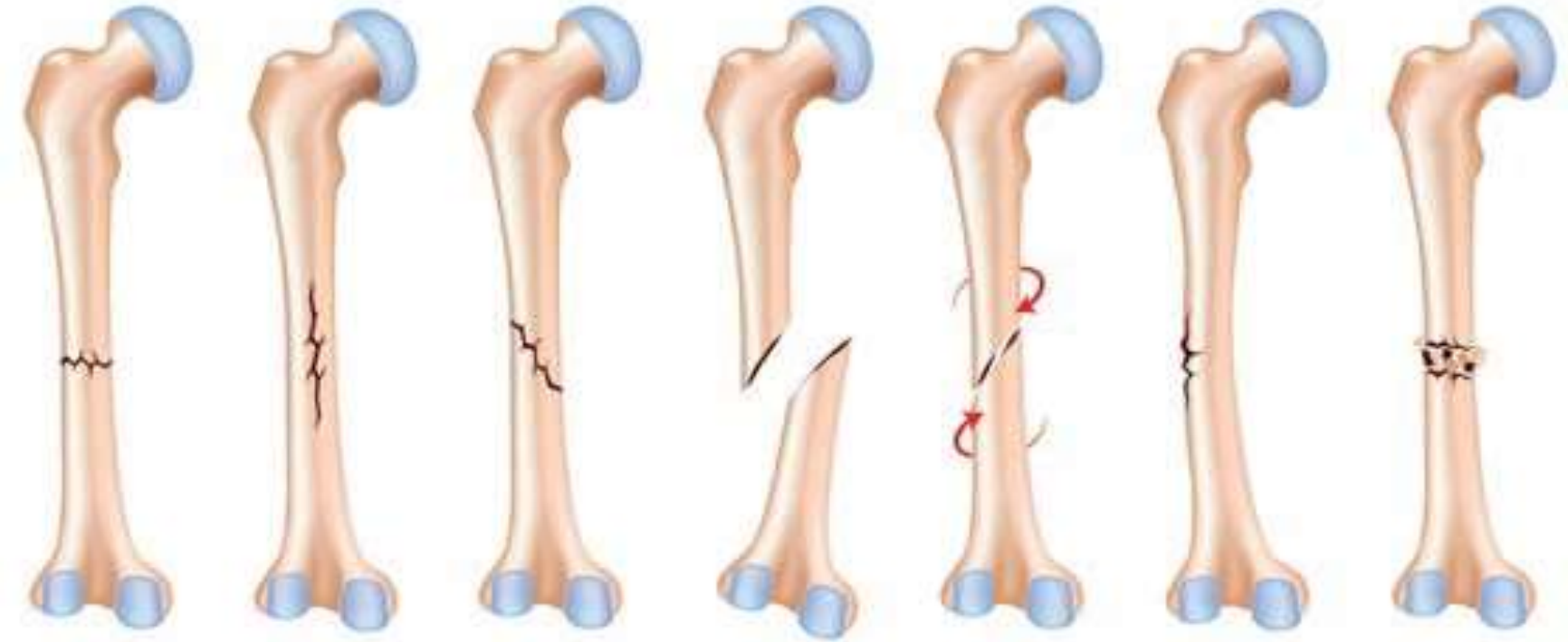
Q / The vault of skull develop by membranous formation in the embryo to ----------

Bone markings

- Tuberosity: large rounded elevation
- Tubercle: small raised eminence
- Groove: elongated depression
- Fossa: depressed area
- Notch: indentation at the edge of a bone
- Foramen: opening through the bone
- Canal: elongated foramen



Types of Bone Fractures




Thank
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