ANATOMY OF LONG BONE

BONE

LONG BONES ARE HOLLOW CYLINDRICAL BONES THAT PROVIDE SUPPORT ,STABILITY AND MOVEMENT TO THE BODY

FUNCTIONS AS

- SUPPORTIVE STRUCTURE
- PROTECTOR
- RESERVOIR

TYPE OF BONE

COMPACT

- DENSE BONE TISSUE COMPOSED OF OSTEONS ,WHICH RESIST PRESSURE AND SHOCKS AND PROTECT THE SPONGY TISSUE ,FROM THE DIAPHYSIS OF LONG BONE

SPONGY

- TISSUE MADE OF BONY COMPARTMENT SEPARATED BY CAVITIES FILLED WITH BONE MARROW

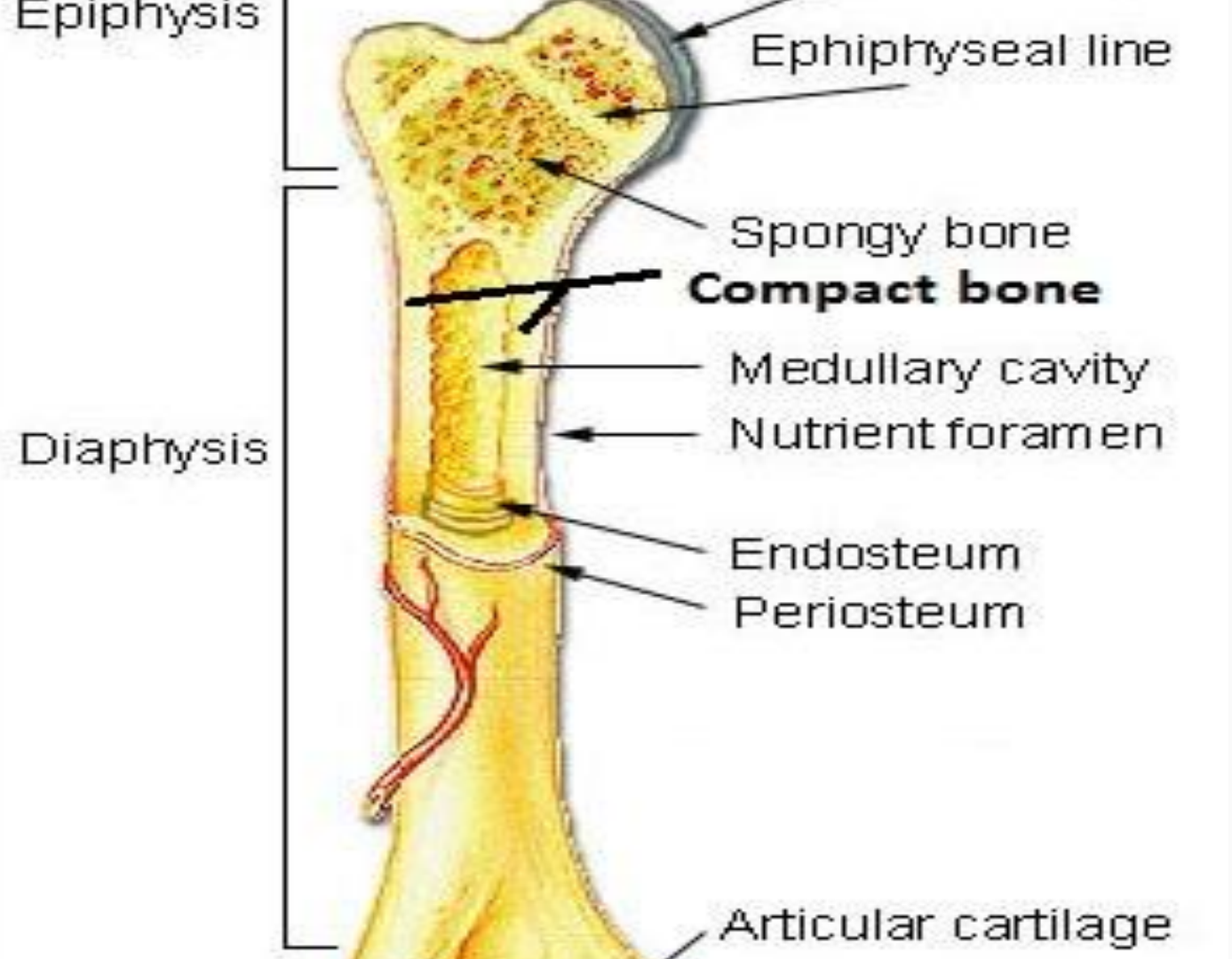
CLASSIFICATION OF BONE

1. LONG BONE
2. SHORT BONE
3. FLAT BONE
4. IRREGULAR BONE
5. SESAMOID BONE

TYPICAL LONG BONE

THREE PARTS :DIAPHYSIS AND TWO EPIPHYSES

- MEDULLARY CAVITY FILLED WITH BONE MARROW
- OSSIFICATION IN CARTILAGE
- LIE VERTICALLY
- WEIGHT BEARING
- EXAMPLES : HUMERUS ,RADIUS ,ULNA, FEMUR, TIBIA , FIBULA


Epiphysis
Ephiphyseal line
Spongy bone
Compact bone
Medullary cavity
Diaphysis
Nutrient foramen
Endosteum
Periosteum
Articular cartilage

PARTS OF LONG BONE

- EPIPHYSES
- EPIPHYSEAL PLATE
- METAPHYSES
- DIAPHYSIS

EPIPHYSES

- ENDS OF LONG BONE WHICH OSSIFICATION FROM SECONDARY CENTERS.
- TYPES OF EPIPHYSES

PRESSURE EPIPHYSES

TRACTION EPIPHYSES

ATAVISTIC EPIPHYSIS

ABERRANT EPIPHYSIS

EPIPHYSIS

- ARE EXPANDED ARTICULAR ENDS
- SEPARATED FROM THE SHAFT BY THE EPIPHYSEAL PLATE DURING BONE GROWTH
- COMPOSED OF A SPONGY BONE SURROUNDED BY A THIN LAYER OF COMPACT BONE

PROXIMAL EPIPHYSIS

- NEAREST TO THE CENTER OF THE BODY

DISTAL EPIPHYSIS

- FARTHEST FROM THE CENTRE OF THE BODY

METAPHYSIS

- PART OF THE BONE BETWEEN THE EPIPHYSIS AND THE DIAPHYSIS
- DISAPPEAR AT ADULTHOOD
- IT CONTAIN THE CONNECTING CARTILAGE ENABLING THE BONE TO GROW

DIAPHYSIS

- MADE OF COMPACT TISSUE
- ENCLOSE THE MEDULLARY CAVITY
- LOCATED BETWEEN THE METAPHYSIS

GROWTH OF A LONG BONE

ALL LONG BONES ,EXCEPT CLAVICLE DEVELOPS FROM ENDOCHONDRAL OSSIFICATION . THIS TYPE OCCUR BEFORE BIRTH .

THE SECONDARY OSSIFICATION CENTRES APPEAR AT THE ENDS OF THE BONE AFTER BIRTH .ATH THE END OF GROWTH PERIOD , EPIPHYSIS FUSE WITH DIAPHYSIS AND GROWTH STOPS .

THE TIME AND SEQUENCE OF APPEARANCE AND FUSION OF EPIPHYSIS HAS CLINICAL RELEVANCE IN DECIDING THE TRUE AGE .

STRUCTURE OF LONG BONE

OSTEON

- ELEMENTARY CYLINDRICAL STRUCTURE OF COMPACT BONE
- SURROUND AND OPEN INTO HAVERSIAN CANAL

HAVERSIAN CANAL

- CENTRAL CANAL OF THE OSTEON
- ENCLOSE BLOOD VESSEL AND NERVE

VOLKMANN'S CANAL

- TRANSVERSE CANAL OF THE COMPACT BONE ENCLOSING BLOOD VESSEL
- THEY CONNECT THE HAVERSIAN CANALS WITH THE MEDULLARY CAVITY AND THE PERIOSTEUM

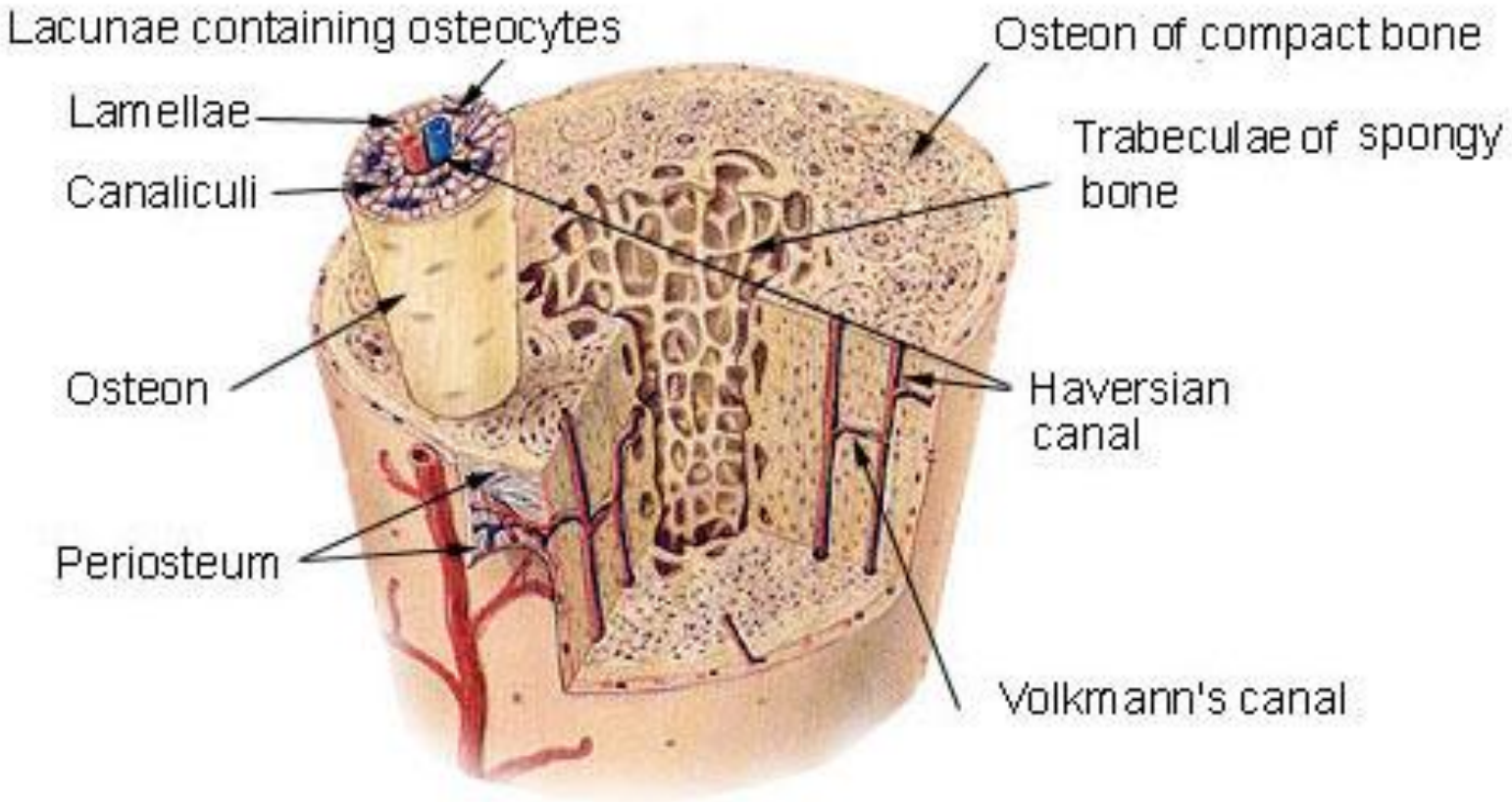
CONCENTRIC LAMELLAE

- BONY LAYERS OF OSTEON MADE OF COLLAGEN FIBERS

PERIOSTEUM

- FIBROUS MEMBRANE RICH IN BLOOD VESSEL THAT ENVELOPES THE BONE
- ANCHORED TO THE BONE ITSELF BY BITS OF COLLAGEN CALLED SHARPEY'S PERFORATING FIBERS
- CONTRIBUTES TO THICKNESS

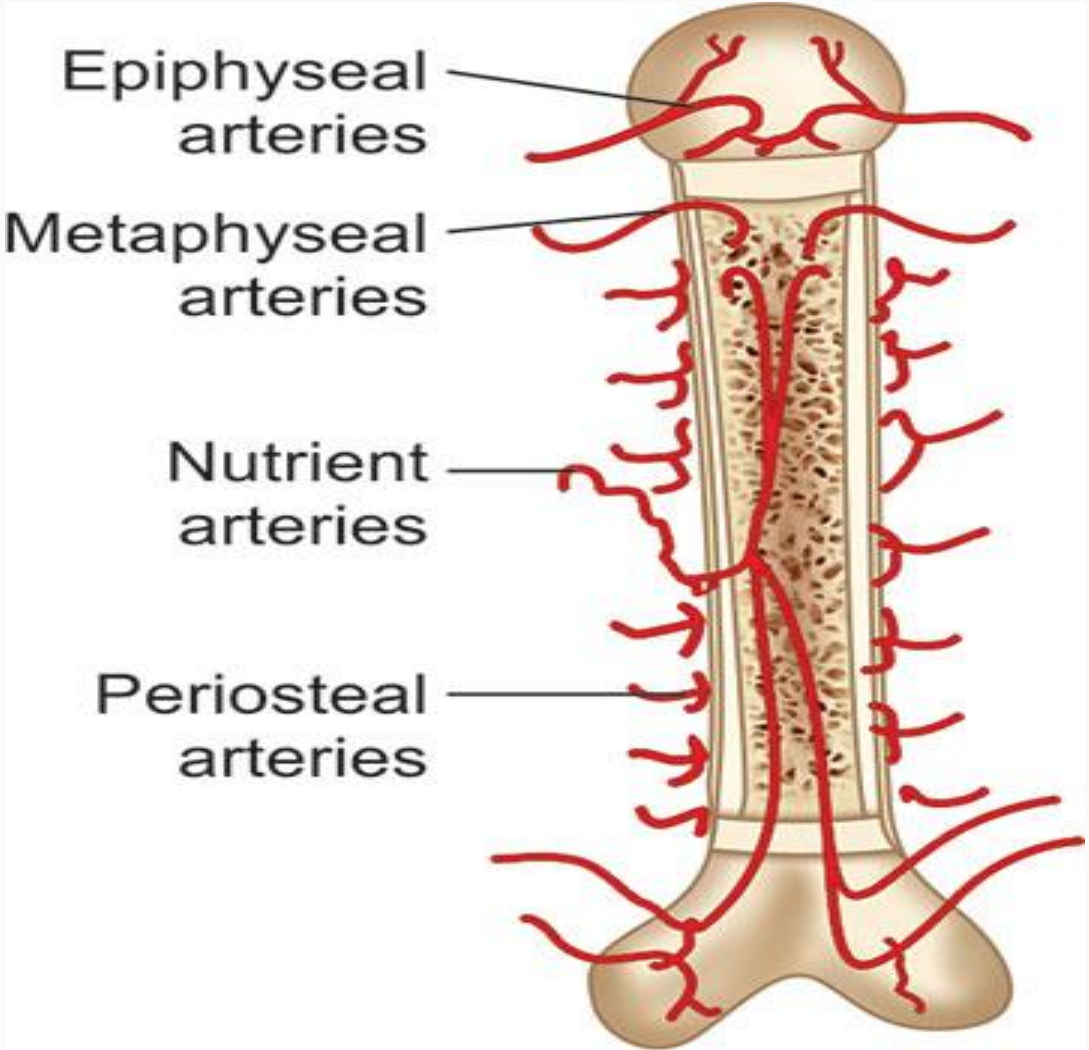
Compact Bone & Spongy (Cancellous Bone)



BLOOD SUPPLY OF LONG BONE

THE TYPICAL BLOOD SUPPLY OF LONG BONE IS DERIVED FROM :

1. NUTRIENT ARTERY : THIS VESSEL ENTERS THE BONE AROUND ITS MIDDLE AND DIVIDES INTO TWO BRANCHES ,ON BOTH ENDS
2. METAPHYSEAL VESSELS :NUMEROUS SMALL VESSEL DERIVED FROM ANASTOMOSIS AROUND JOINT
3. EPIPHYSEAL VESSEL : TEY ENTRE INTO EPIPHYSIS DIRECTLY
4. PERIOSTEAL VESSEL : THEY SUPPLY THE OUTER THIRD OF THE CORTEX OF ADULT BONE


Epiphyseal arteries
Metaphyseal arteries
Nutrient arteries
Periosteal arteries

THANK U