



ANATOMY TEAM

LECTURE (1)
PRACTICAL

OBJECTIVES

- **Identify the bone forming appendicular skeleton**
- **Identify the main general feature and the side of each bone**

Upper limb:

- 1) **Pectoral Girdle.**
- 2) **Arm : Humerus.**
- 3) **Forearm : Radius & Ulna.**
- 4) **Wrist : Carpal bone**
- 5) **Hand: Metacarpals & Phalanges**

Lower limb:

- 1) **Bones of the thigh (femur & patella)**
- 2) **Bones of the leg (tibia & Fibula).**
- 3) **Bones of the foot (tarsals, metatarsals and phalanges)**

Hip bone

- 1) **Ilium > upper**
 - 2) **Pubis > lower and anterior**
 - 3) **Ischium > lower and posterior**
- They are united around the acetabulum**

Pectoral girdle

Pectoral girdle ⇔ (clavicle + scapula)

Clavicle:

Long bone has two end:

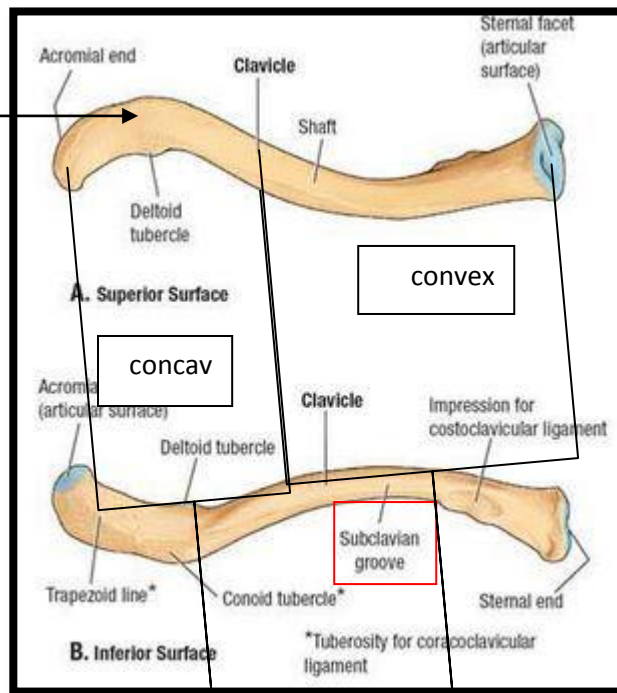
Flatted acromial end (laterally)

Rounded sternal end (medially)

It has two surface:

Superior: smooth.

Inferior: rough due to present of subclavian groove



The medial 2/3 of the Body (Shaft) is convex forward.

The lateral 1/3 is concave forward.

How can you distinguish between Right and left clavicle?



From the smooth surface Right clavicle — from below, and from above.



From smooth surface Left clavicle — from above, and from below.

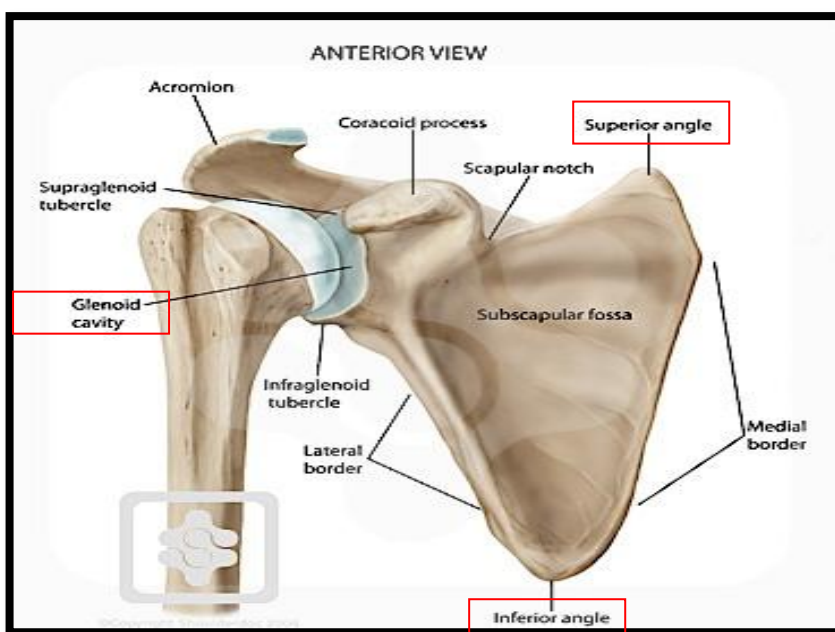
2) Scapula:

Flat bone .it has three angles:

Superior angle

Inferior angle

Lateral angle (glenoid cavity) where the head of humerus articulates with scapula.



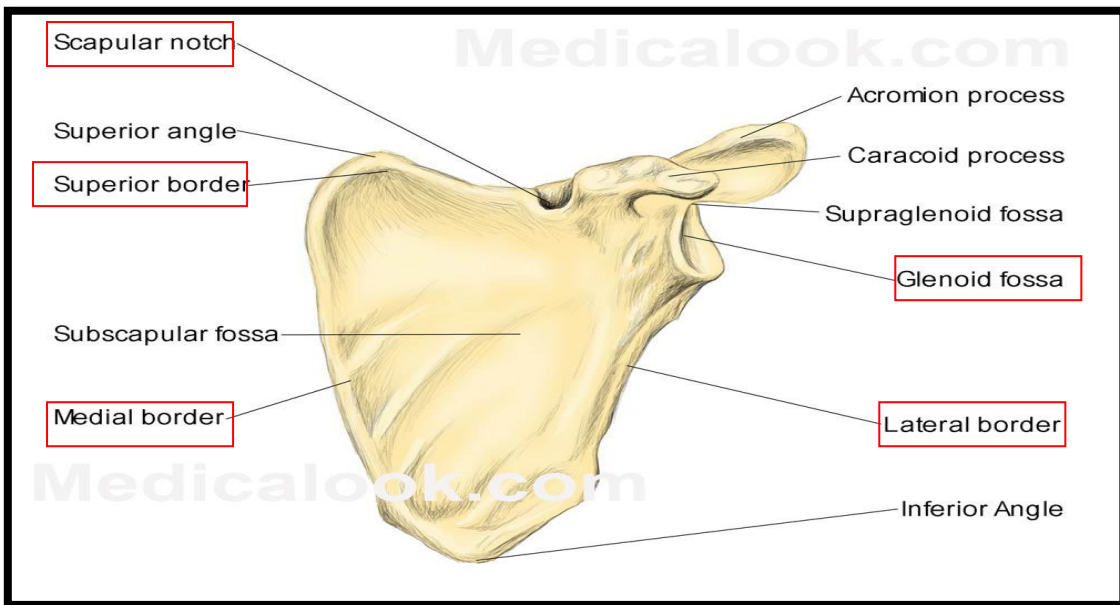
2) Scapula:

It has three borders

Superior: the end of superior border is suprascapula notch

Medial (Vertebral)

Lateral (Axillary): the end of the lateral border is glenoid cavity

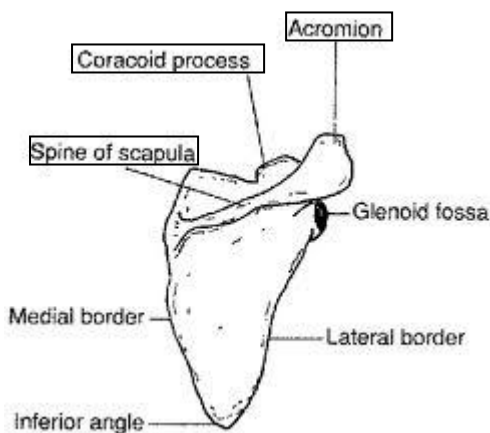


Three Processes:

(1) Spine: a thick projecting ridge of bone that continues laterally

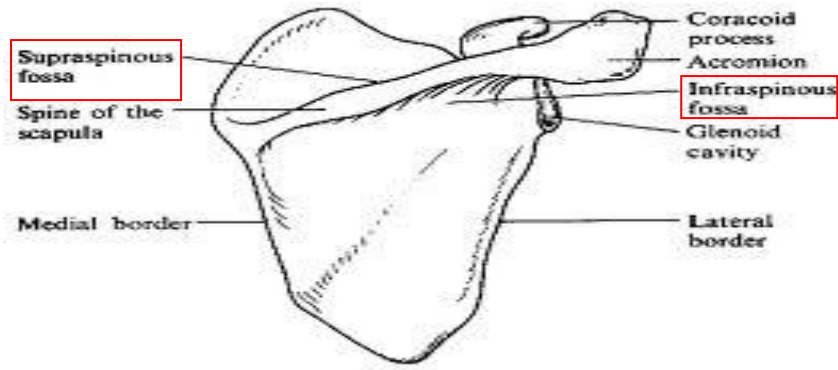
(2) Acromion: the lateral end of spin process .

(3) Coracoid: a beak like process.



Two Surfaces:

- 1. Convex Posterior: divided by the spine of the scapula into the smaller Supraspinous Fossa (above the spine) and the larger Infraspinous Fossa (below the spine).



- 2. Concave Anterior (Costal) : it forms the large Subscapular Fossa

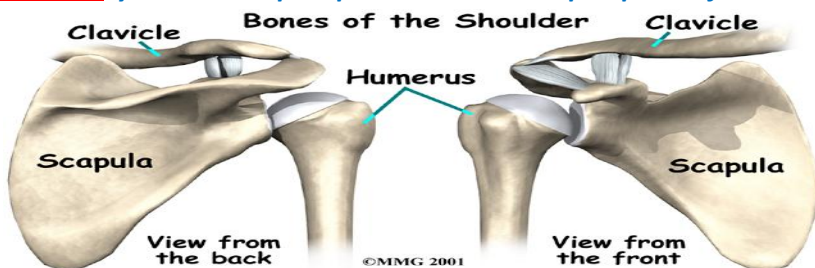


How can you distinguish between anterior and posterior view of scapula

Anterior: you will see subscapular fossa and coracoid

There is no spine process.

Posterior: you will see spine process and two supraspinous fossa and infraspinous fossa



Arm

Humerus: Long bone consist of a proximal end, shaft and distal end

A proximal end :

Head:

Great (lateral) lesser (medial) tubercle

Anatomical neck

Surgical neck

intertubercle groove : between great and lesser tubercles

shaft:

Deltoid tuberosity: anterior view where the deltoid muscle attach

Spiral (Radial) groove: posterior view

Distal end :

The Medial Epicondyles bigger than lateral epicondyles

The lateral epicondyles.

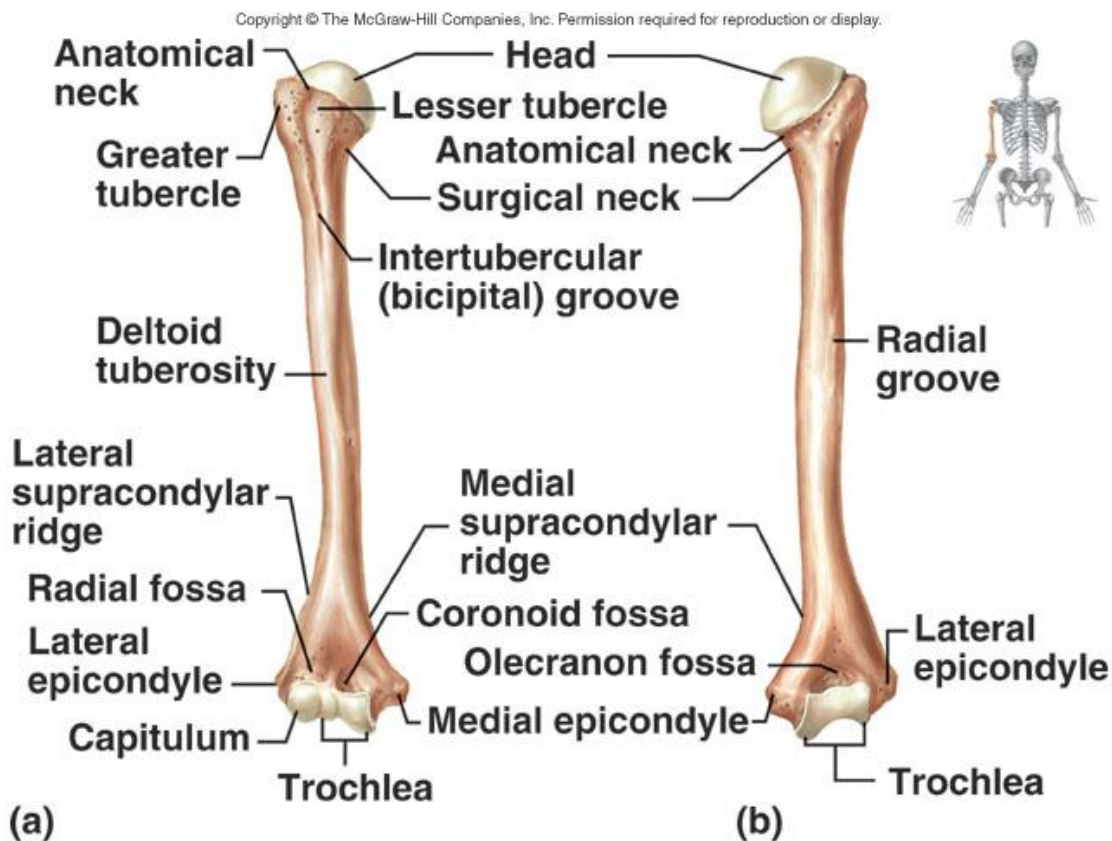
Trochlea: articulates with ulna

Capitulum : articulates with radius

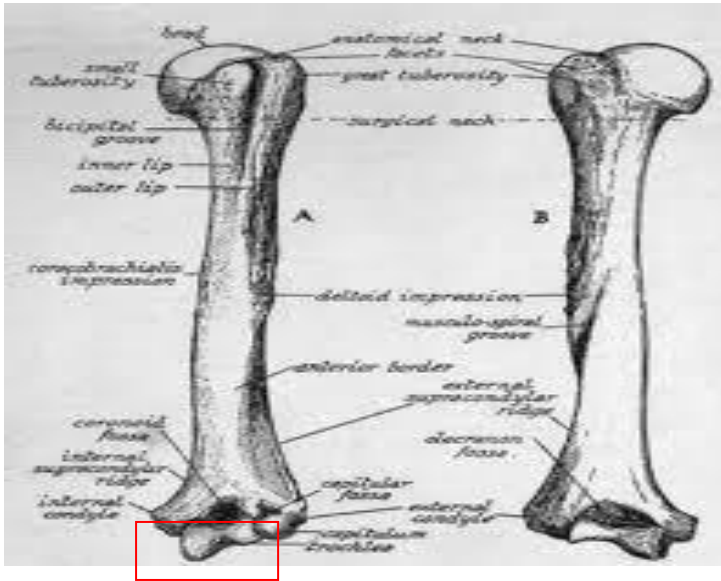
Coronoid fossa: above the trochlea (anteriorly)

Radial fossa: above the capitulum (anteriorly)

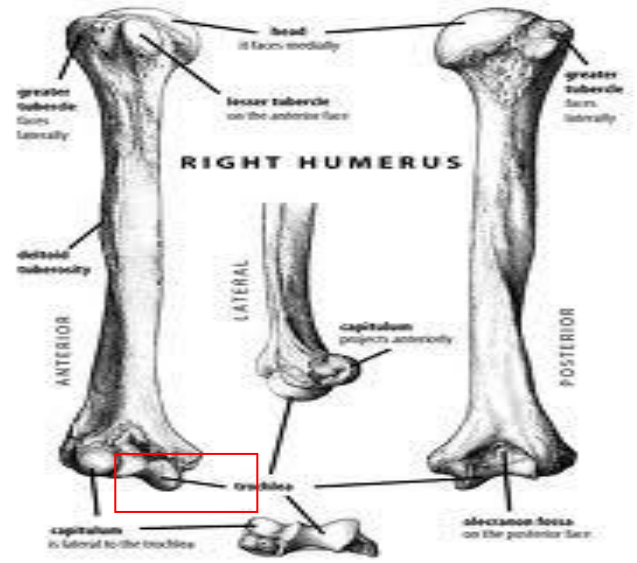
Olecranon fossa: above the trochlea (posteriorly).



left humerus



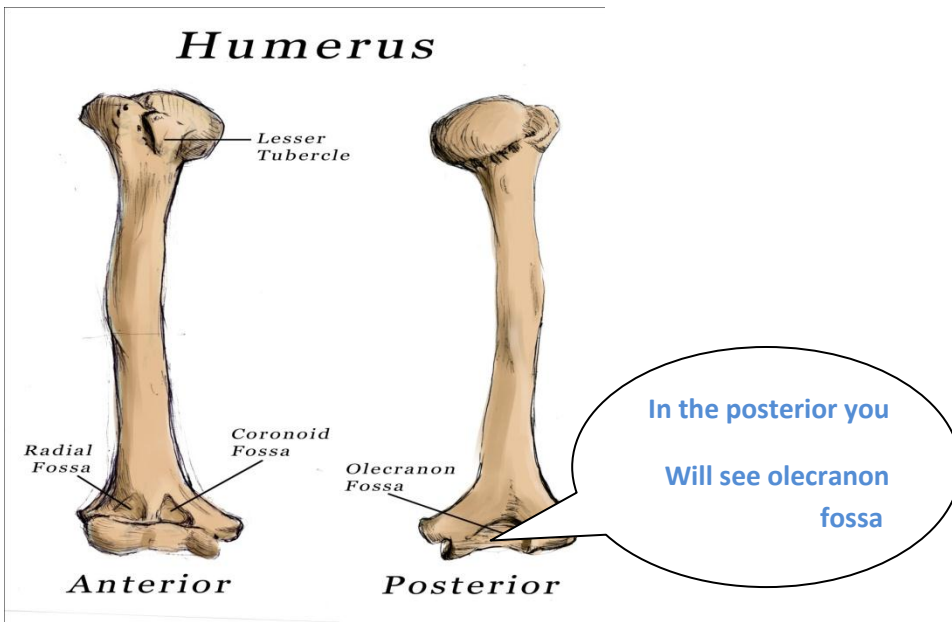
Right humerus



Right humerus: head trochlea medially

Left humerus: head and trochlea laterally

Anterior and posterior humerus



Radius and ulna

Ulna:

Proximal End

Olecranon Process: projects proximally from the posterior aspect (forms the prominence of the elbow).

Coronoid Process: projects anteriorly.

Tuberosity of Ulna: inferior to coronoid process.

Trochlear Notch: articulates with trochlea of humerus.

Radial notch articulate with head of radius

Shaft

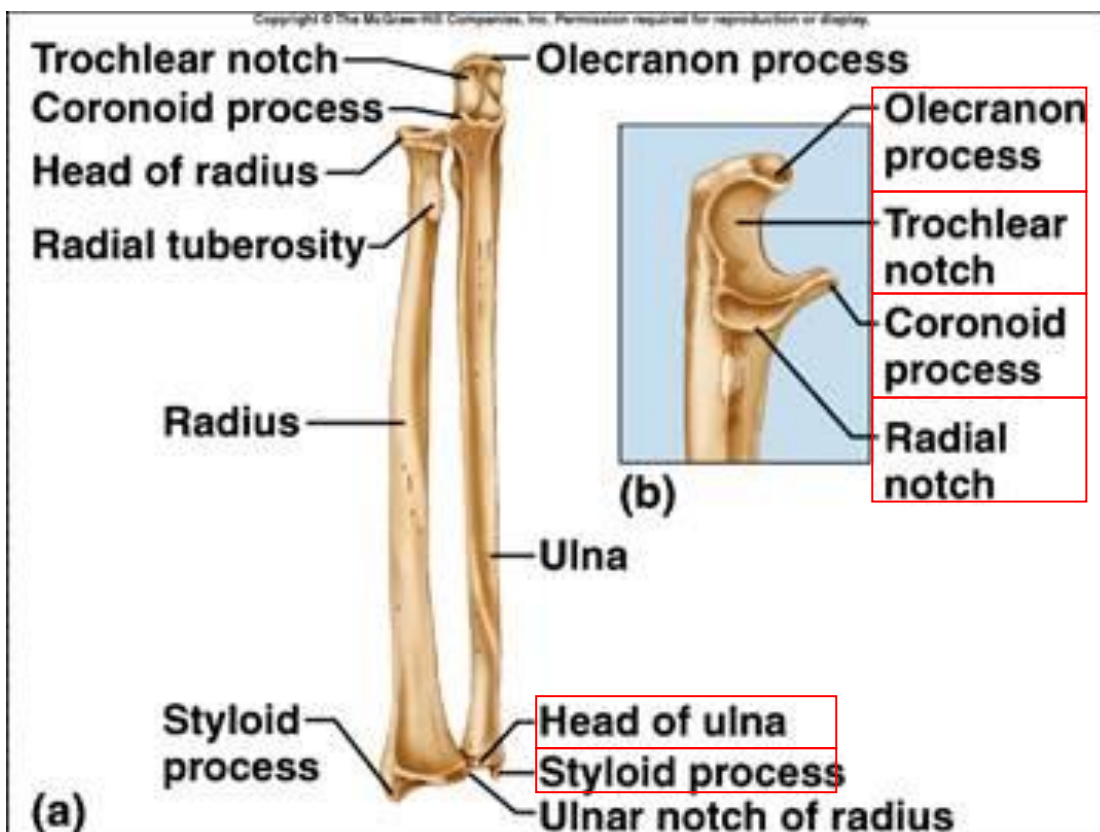
Three surfaces (Anterior, Medial & Posterior).

Sharp Lateral Interosseous border

Distal End

Small rounded Head : lies with the wrist and articulate with ulnar notch of the radius .

Styloid process: Medial



Radius:

Proximal End

1. Head: small & circular&

Its upper surface is concave for articulation with the Capitulum.

2. Neck.

3. Radial (Bicipital) Tuberosity : medially directed and separates the proximal end from the body.

Shaft

Has a lateral convexity.

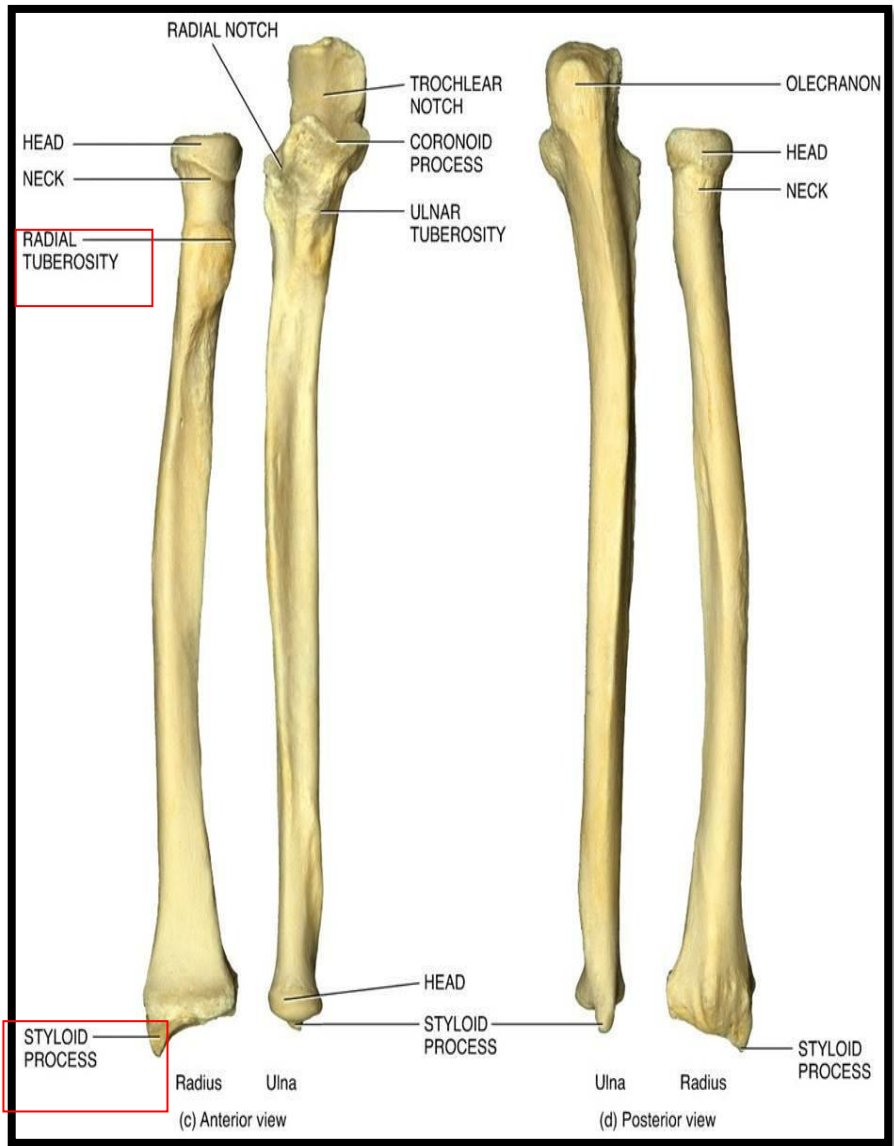
It gradually enlarges as it passes distally.

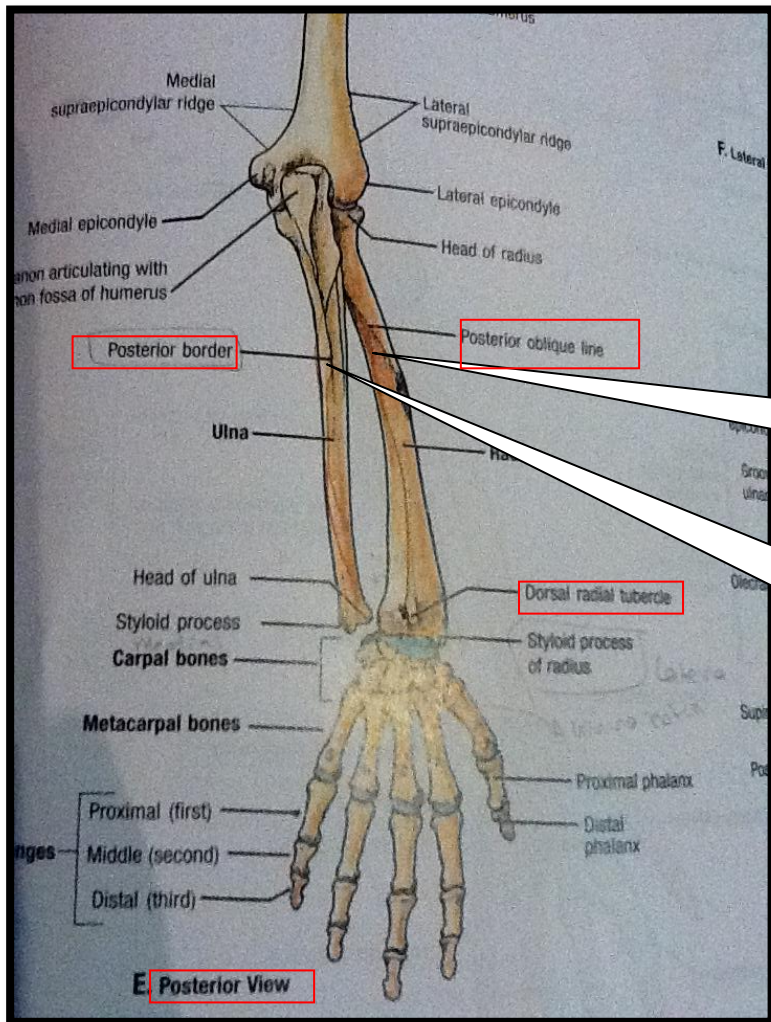
Distal (Lower) End

Its medial aspect forms a concavity: Ulnar Notch to articulate with the head of the ulna.

Radial Styloid process: extends from the lateral aspect.

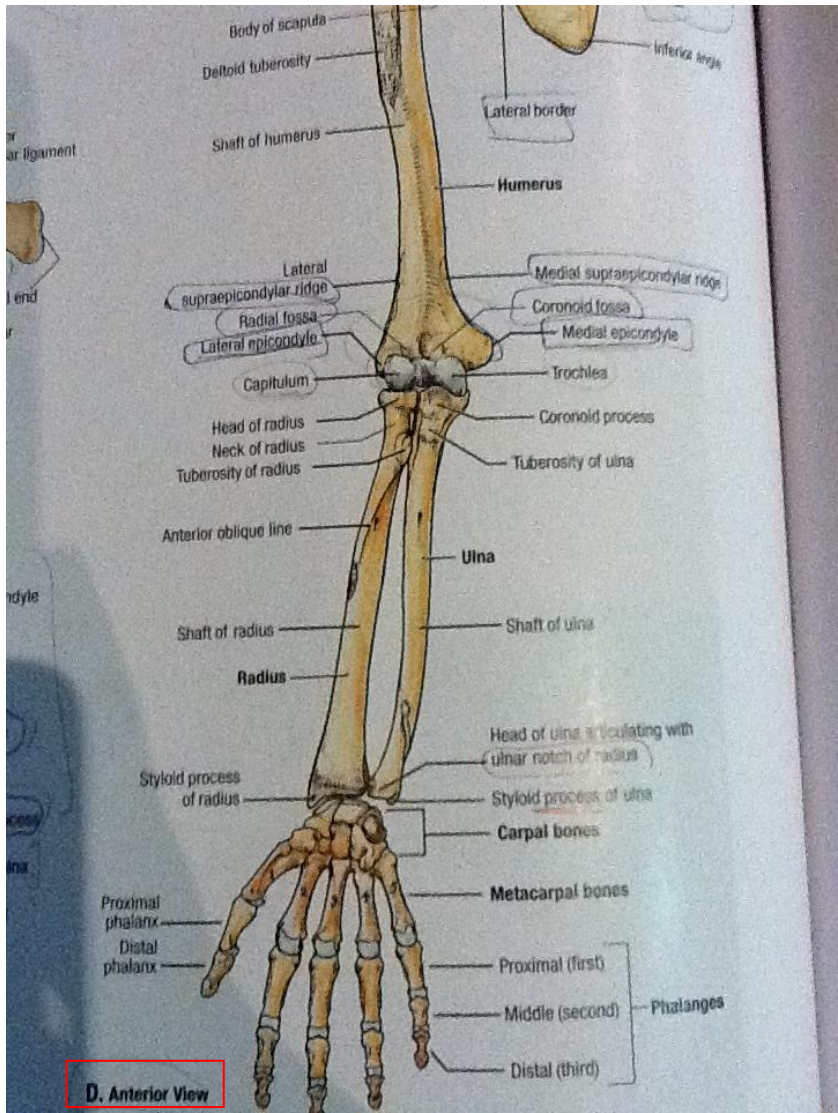
Dorsal tubercle: projects dorsally (posteriorly)





At the posterior you will see posterior oblique line and dorsal tubercle in the

At the posterior you will see posterior border in ulna



D. Anterior View

Carpel

Proximal row (from lateral to medial):

Scaphoid, Lunate, Triquetral & Pisiform bones.

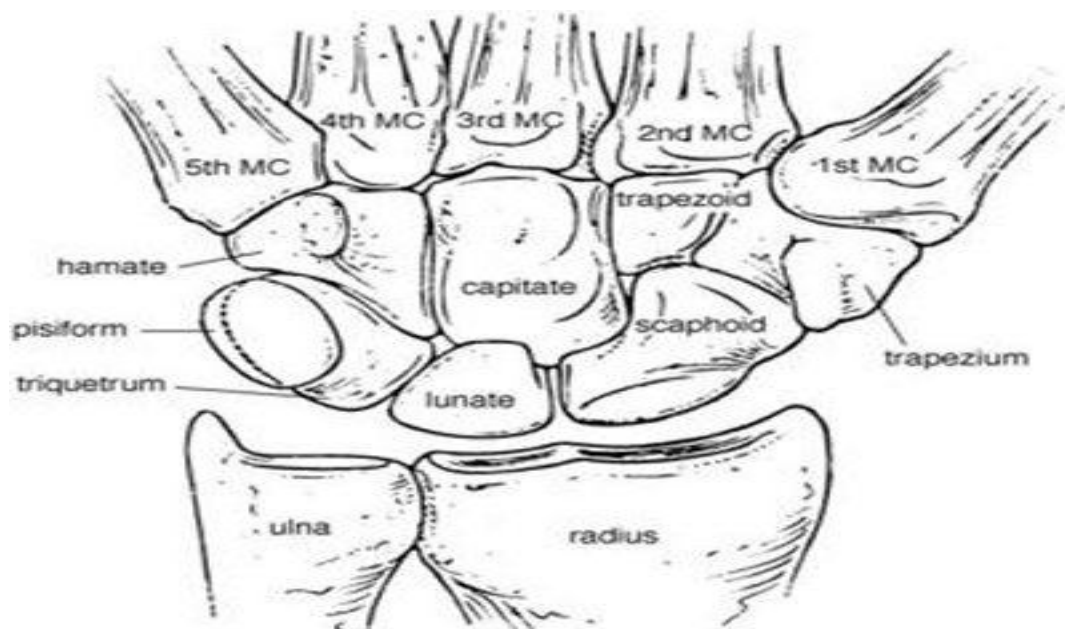
Distal row (from lateral to medial):

Trapezium, Trapezoip,

Capitate & Hamaet

bones, each has a Base, Shaft, and a Head.

They are numbered 1-5 from the thumb.



Each digit has Three Phalanges

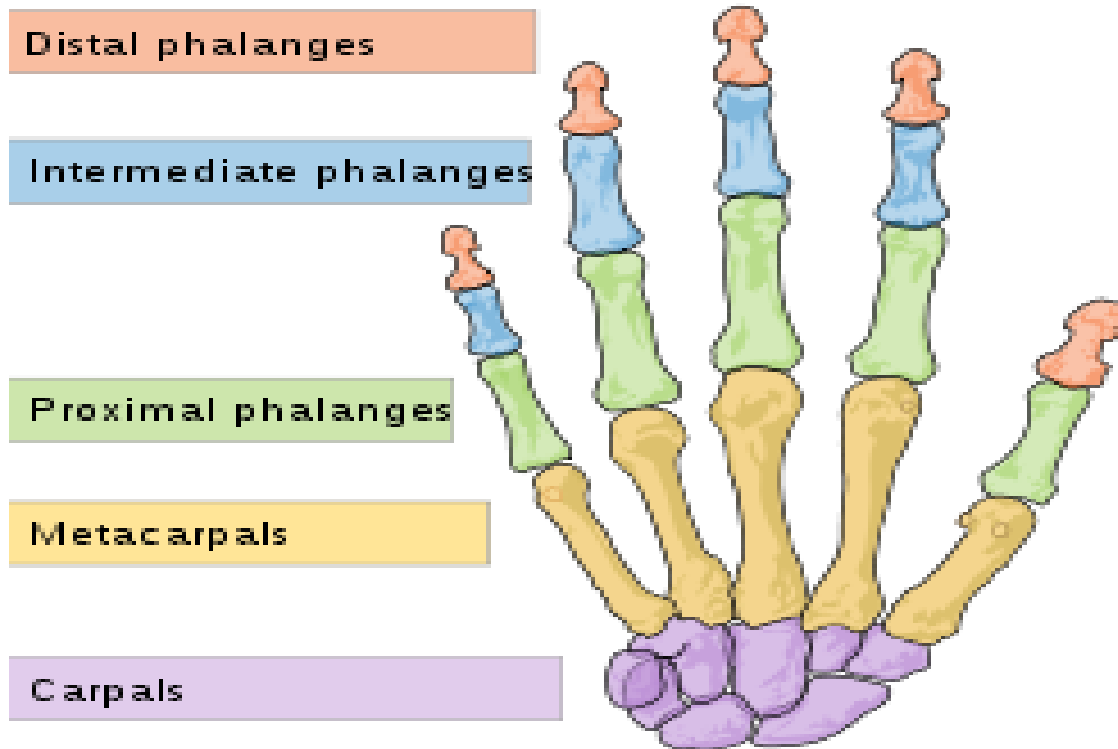
Except the Thumb which has only Two

Each phalanx has a Base Proximally, a Head distally and a Body between the base and the head.

The proximal phalanx is the largest.

The middle ones are intermediate in size.

The distal ones are the smallest



Bones of the thigh (femur & patella):

Femur:

Consists of:

Upper end:

-Head

Has a depression in the center (**fovea capitis**)

-Neck:

It connects head to the shaft.

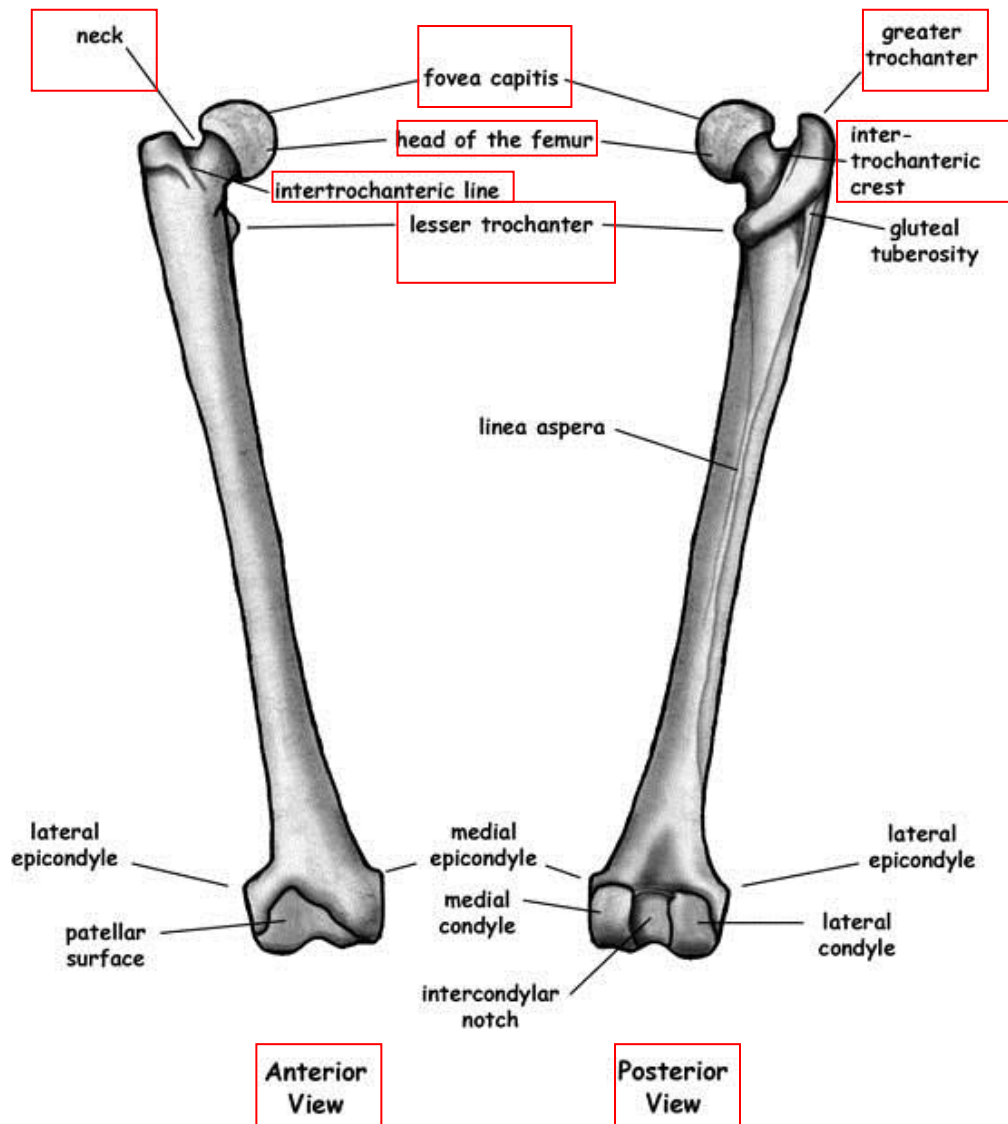
-Greater & lesser trochanters :

-Anteriorly, connecting the 2 trochanters.

the **inter-trochanteric line**

-Posteriorly, the **inter-trochanteric crest**.

The Bony Features of the Femur



It has 3 surfaces

Anterior, Medial and Lateral.

It has 3 borders:

2 rounded medial and lateral, and a thick posterior border or ridge called linea aspera.

Anteriorly: is smooth and rounded.

Posteriorly: has a ridge, the linea aspera.

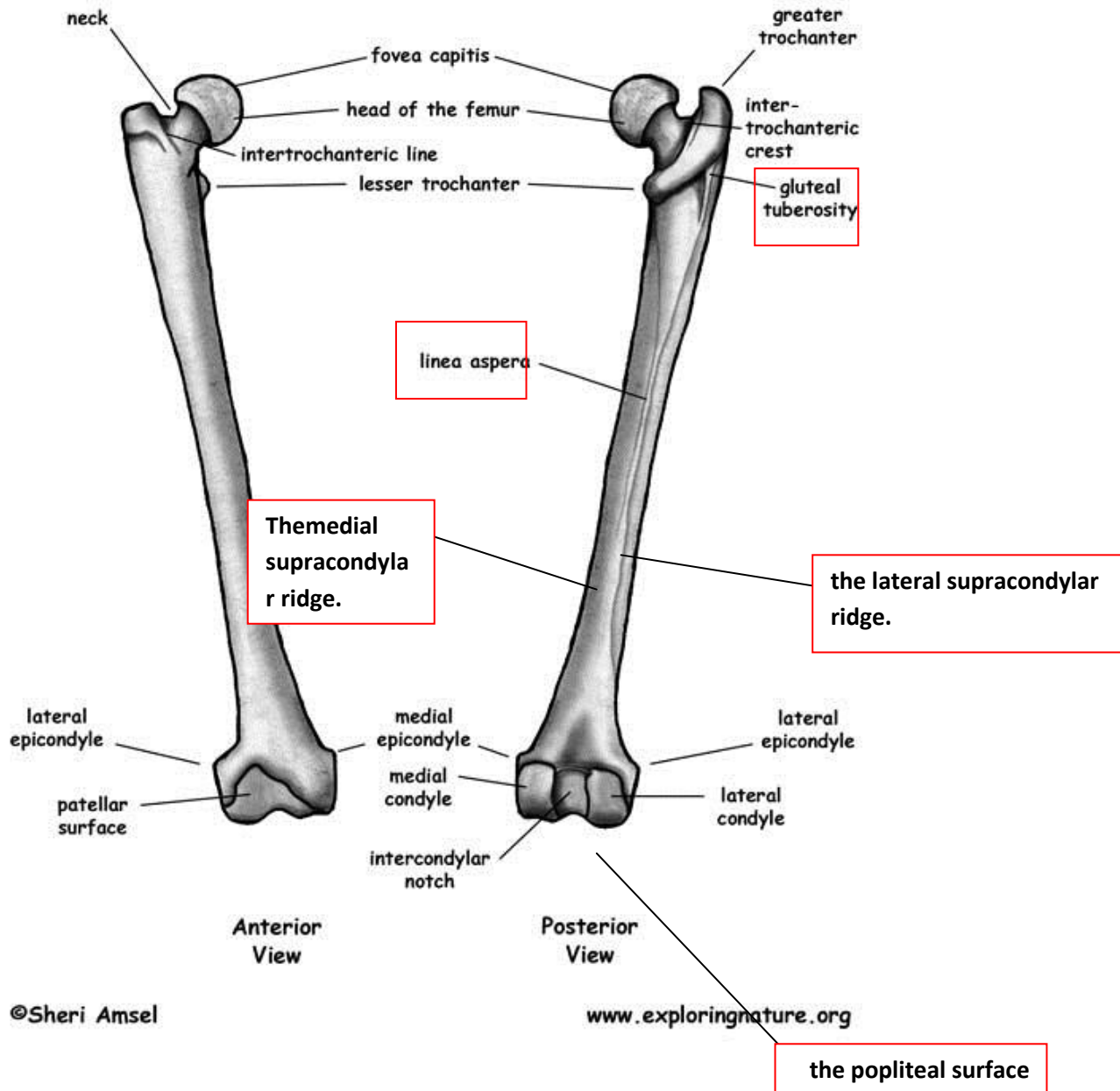
Posteriorly: below the greater trochanter is the gluteal tuberosity

The medial margin of linea aspera continues below as medial supracondylar ridge.

The lateral margin becomes continues below with the lateral supracondylar ridge.

A Triangular area, the popliteal surface

The Bony Features of the Femur



How can you distinguish between anterior view and posterior?

Anterior : you will see smooth surface and patellar surface

Posterior: you will see line aspera and intercondyl notch

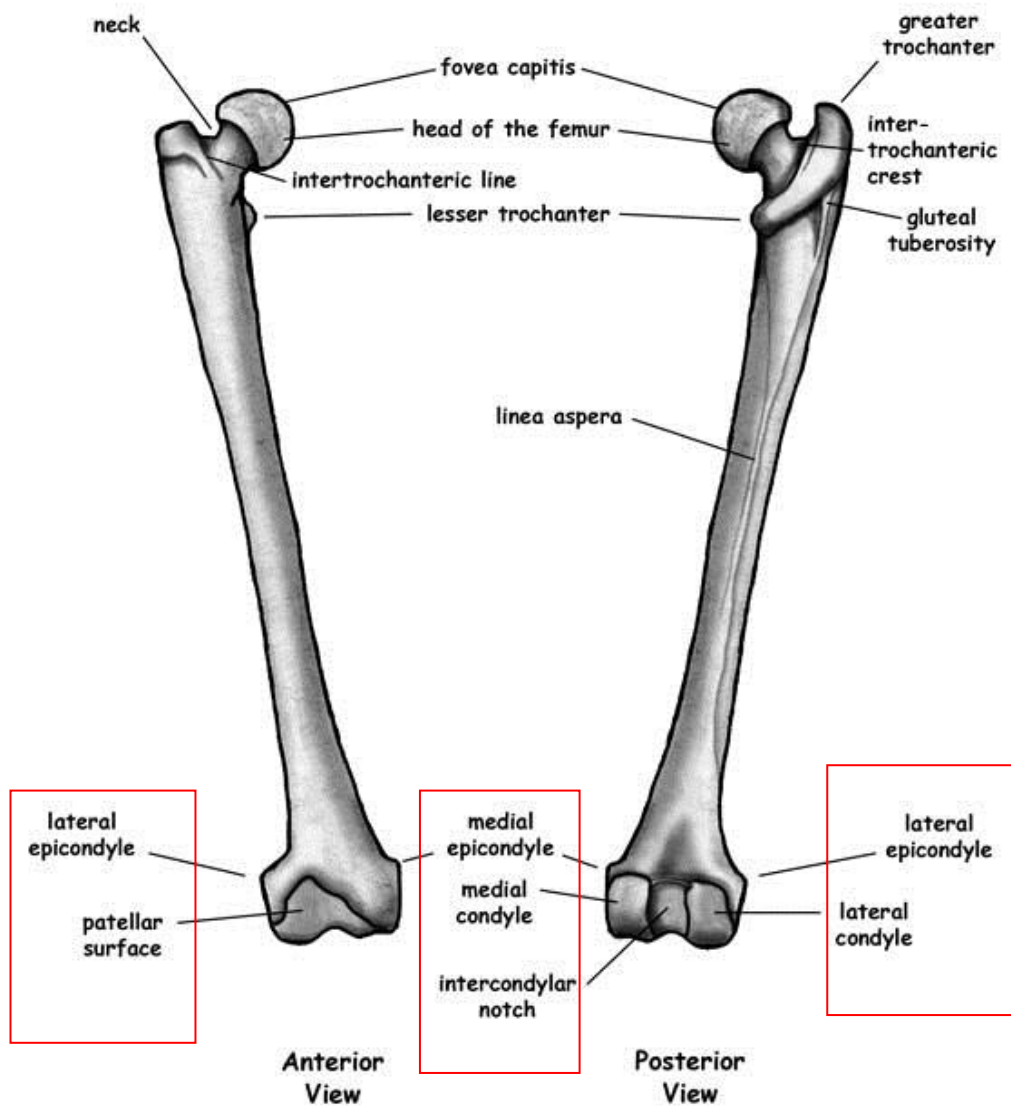
Lower end of femur

Has lateral and medial condyles, separated anteriorly by articular patellar surface, and posteriorly by intercondylar notch or fossa.

The 2 condyles take part in the knee joint.

Above the condyles are the medial & lateral epicondyles.

The Bony Features of the Femur



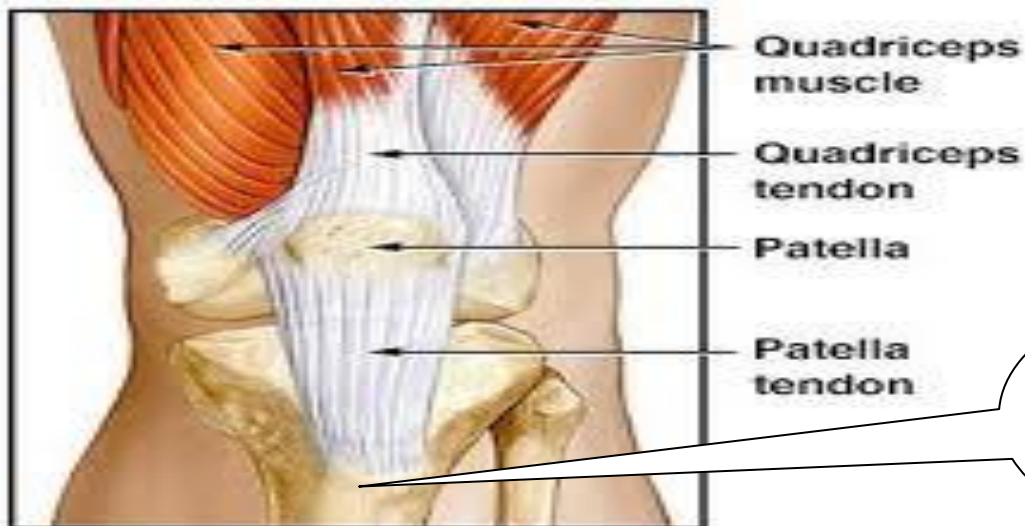
Patella

It is a largest sesamoid bone (lying inside the Quadriceps tendon in front of knee joint).

Its anterior surface is rough and subcutaneous.

Its posterior surface articulates with the condyles of the femur to form knee joint.

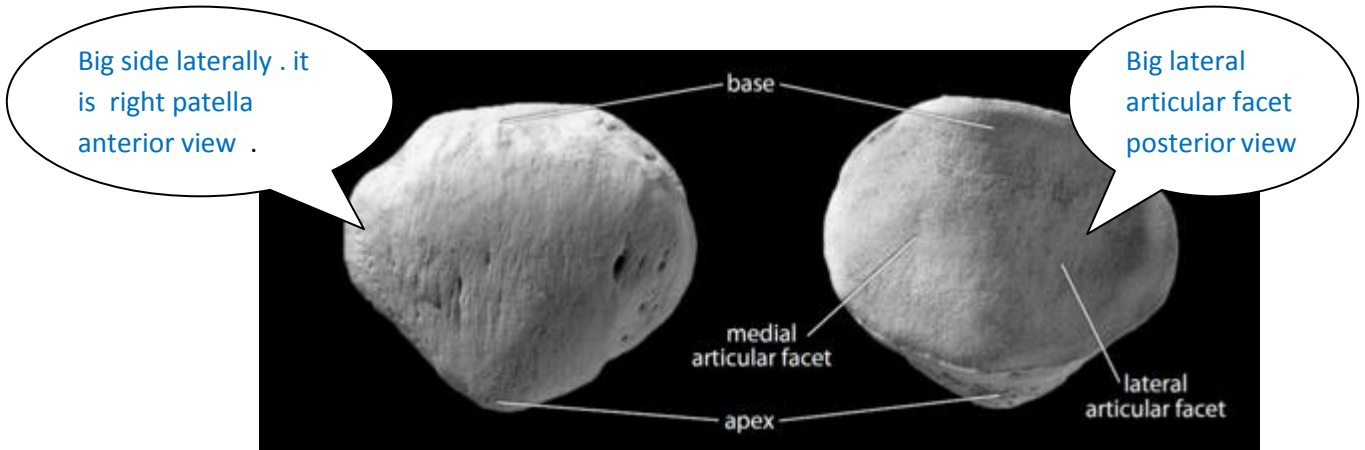
Its apex lies inferiorly and is connected to tuberosity of tibia by ligamentum patellae.



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How distinguish between right and left patella ?



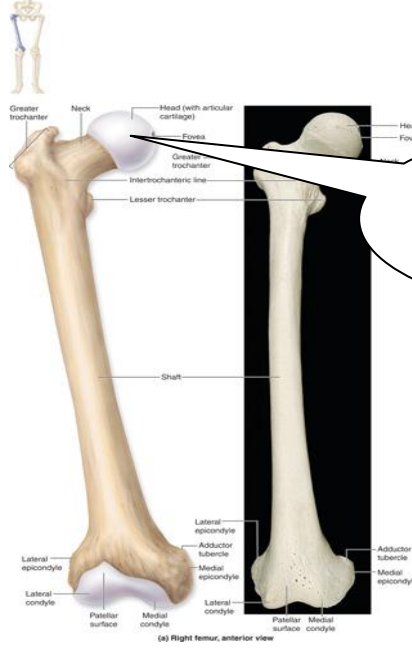
Right patella



Left patella

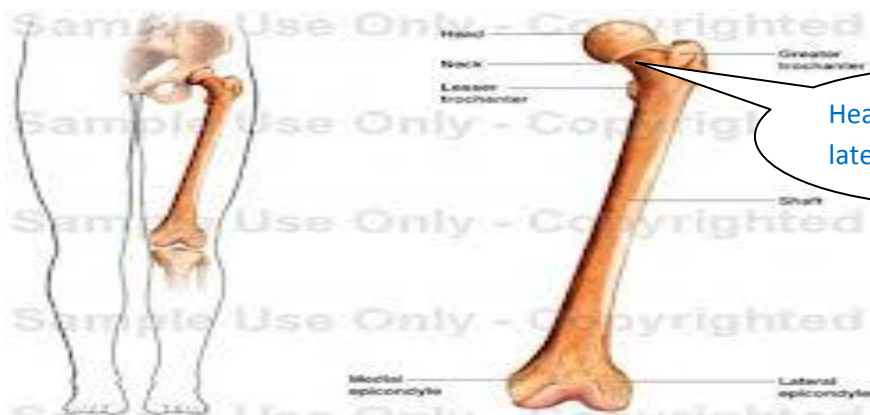
How can you distinguish between right and left femur?

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Head of femur medially

Right femur



Head of femur laterally left femur

1-Tibia.

It is the medial bone of leg.

2-Fibula.

It is the lateral bone of leg.

Each of them has upper end, shaft, and lower end.

1-Tibia

Upper end of tibia

It has:

2 tibial condyles:

Medial condyle: is larger and articulate with medial condyle of femur. It has a groove on its posterior surface for semimembranosus ms.

Lateral condyle: is smaller and articulates with lateral condyle of femur. It has facet on its lateral side for articulation with head of fibula to form proximal tibio-fibular joint.

Intercondylar area: is rough and has intercondylar eminence.

Shaft has:

1) Tibial tuberosity :

Its upper smooth part gives attachment to ligamentum patellae.

Its lower rough part is subcutaneous.

2) 3 borders :

Anterior border : sharp and subcutaneous.

Medial border.

Lateral border interosseous border.

3) 3 surfaces :

Medial : subcutaneous.

Lateral

Posterior has oblique line, soleal line for attachment of soleus muscle

Articulates with talus for formation of ankle joint.

Lower end:

Articulates with talus for formation of ankle joint.

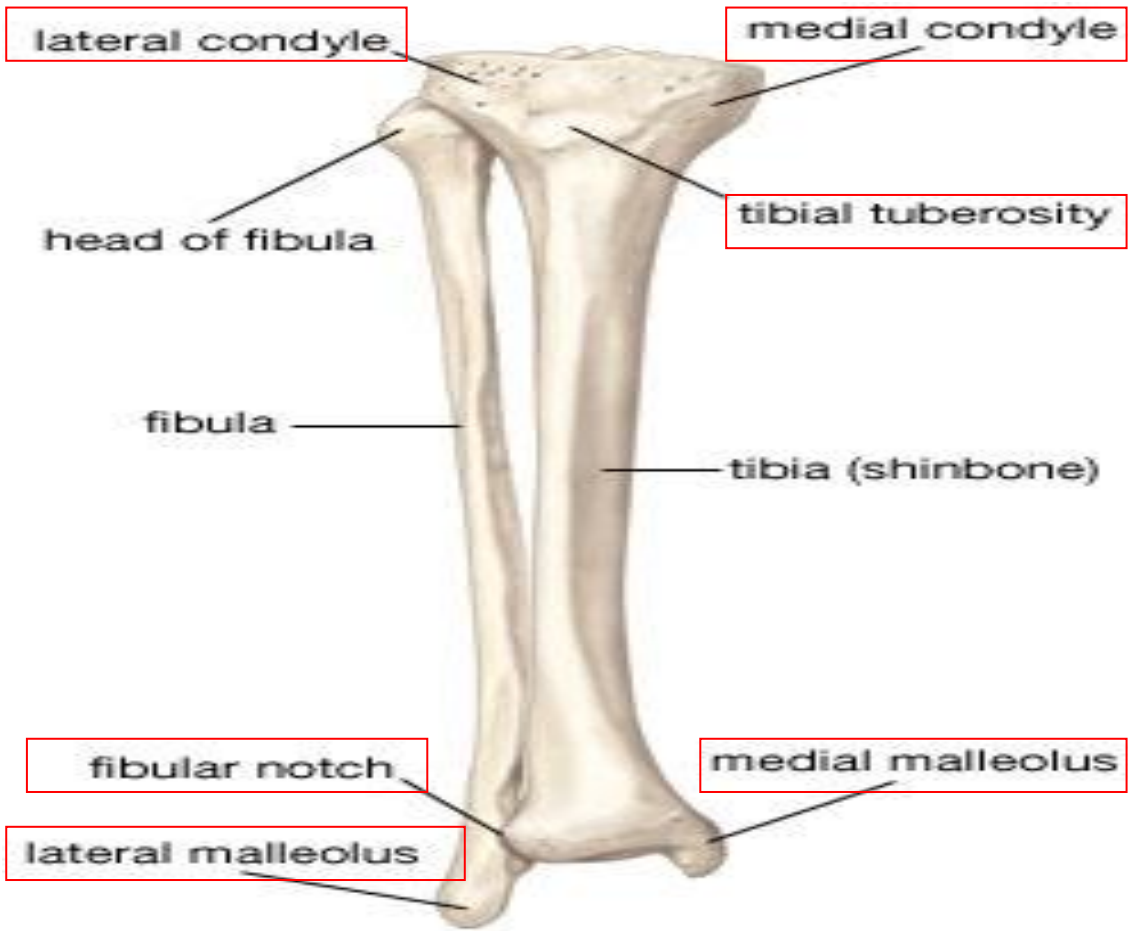
1)Medial malleolus:

Its medial surface is subcutaneous.

Its lateral surface articulate with talus.

Fibular notch:

Lies on its lateral surface of lower end to form distal tibiofibular joint.



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2-FIBULA

It is the slender lateral bone of the leg.

It takes no part in articulation of knee joint.

Its upper end has :

-Head : articulates with lateral condyle of tibia.

-Styloid process.

-Neck.

Shaft has :

4 borders

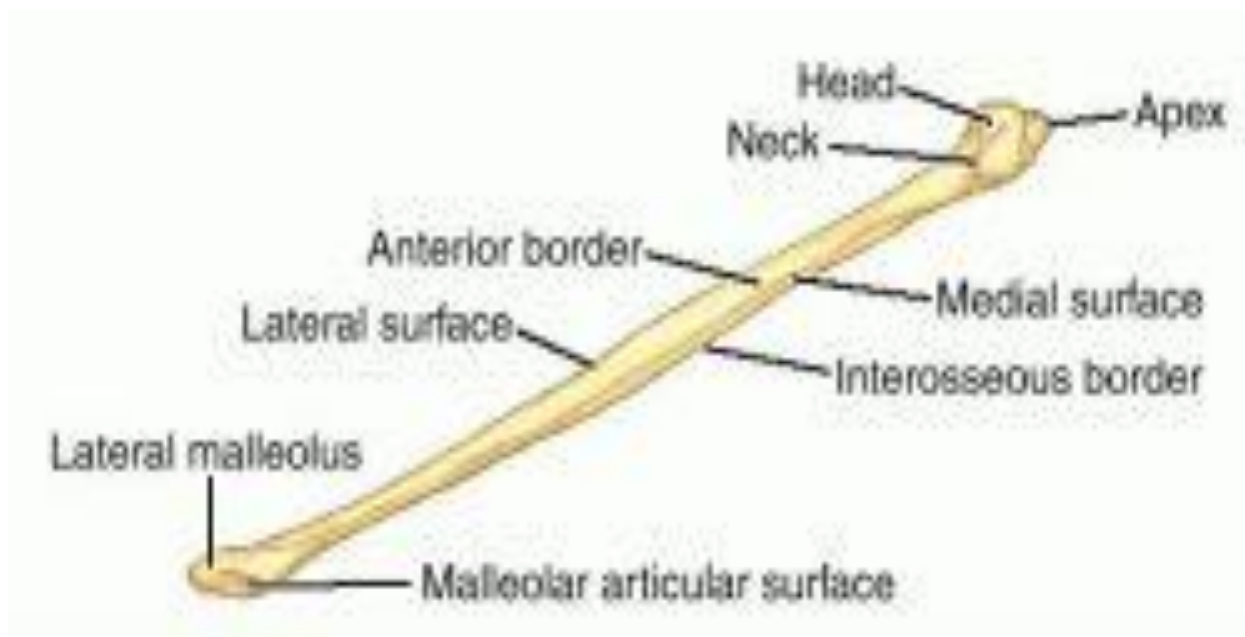
its medial interosseous border gives attachment to interosseous membrane.

4 surfaces.

Lower end forms :

Lateral malleolus : is subcutaneous.

Its medial surface is smooth for articulation with talus to form ankle joint.



7 Tarsal bones

Calcaneum.1

Talus .2

Navicular.3

Cuboid.4

3 cuneiform bones.5,6,7

Only Talus articulates with tibia & fibula at ankle joint.

Calcaneum: the largest bone of foot, forming the heel.

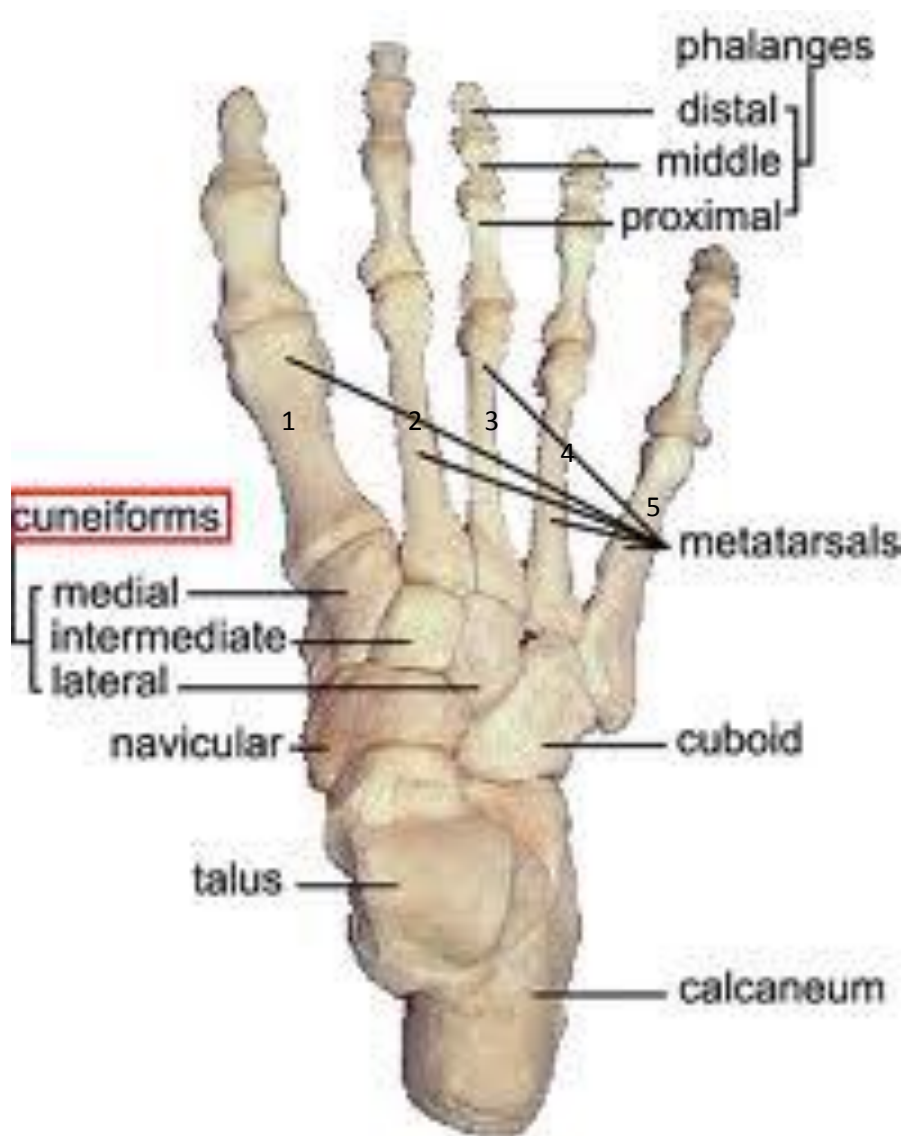


5 Metatarsal bones:

They are numbered from medial (big toe) to lateral.

1st metatarsal bone is large and lies medially.

Each metatarsal bone has a base (proximal), a shaft and a head (distal).

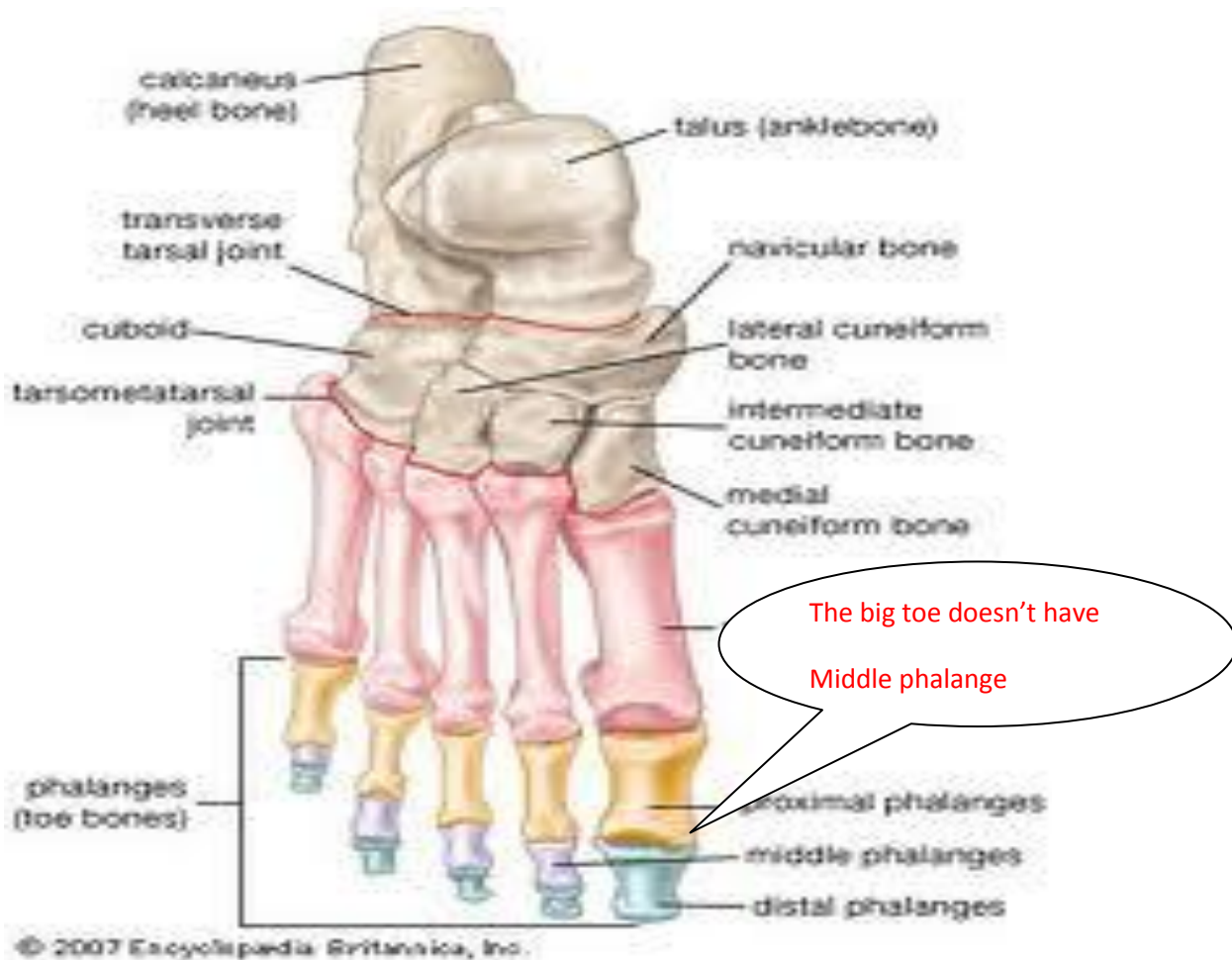


14 phalanges:

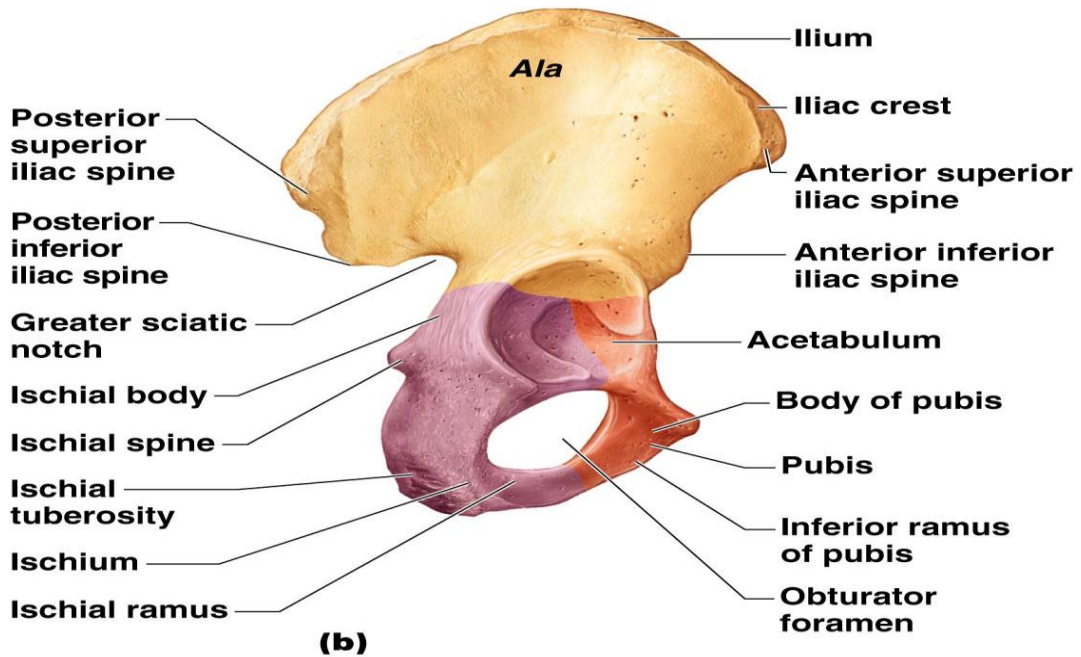
2 phalanges for big toe (proximal & distal)

3 phalanges for each of the lateral 4 toes (proximal, middle & distal)

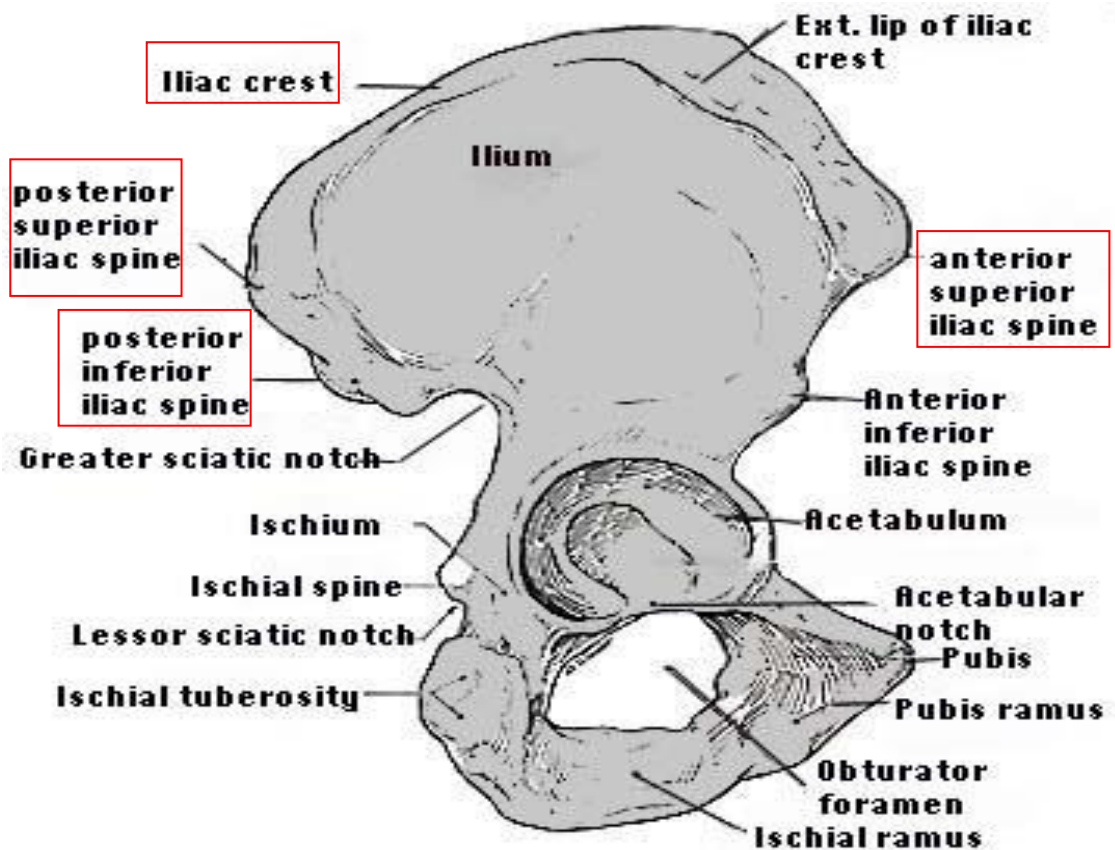
Each phalanx has base, shaft and a head.

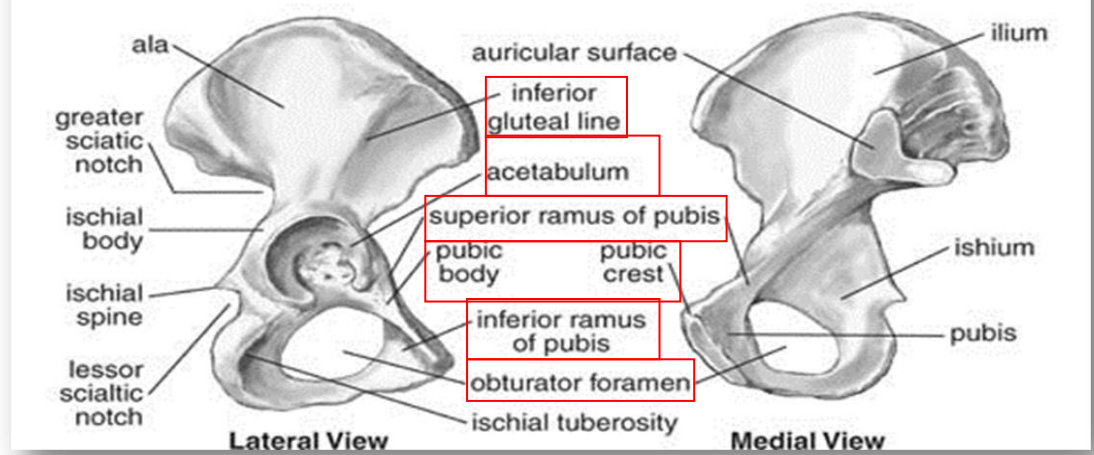
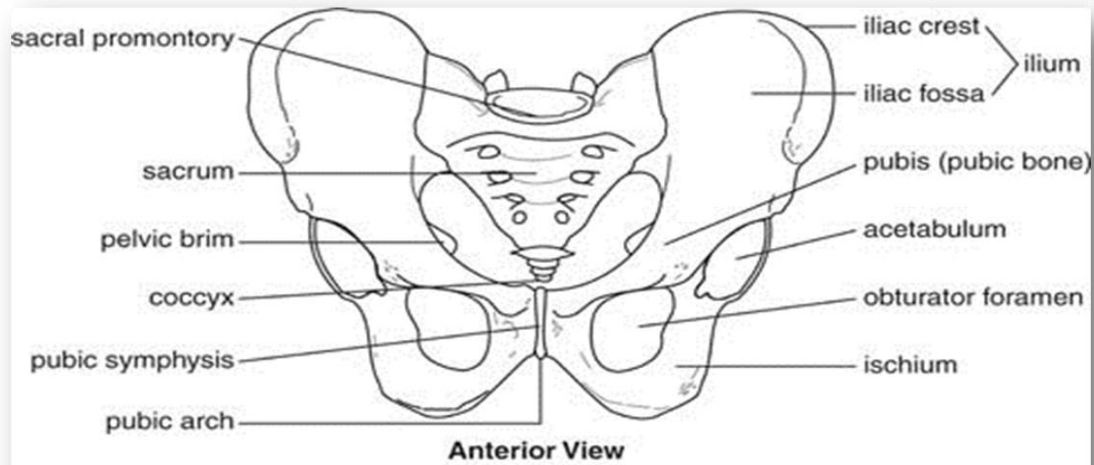


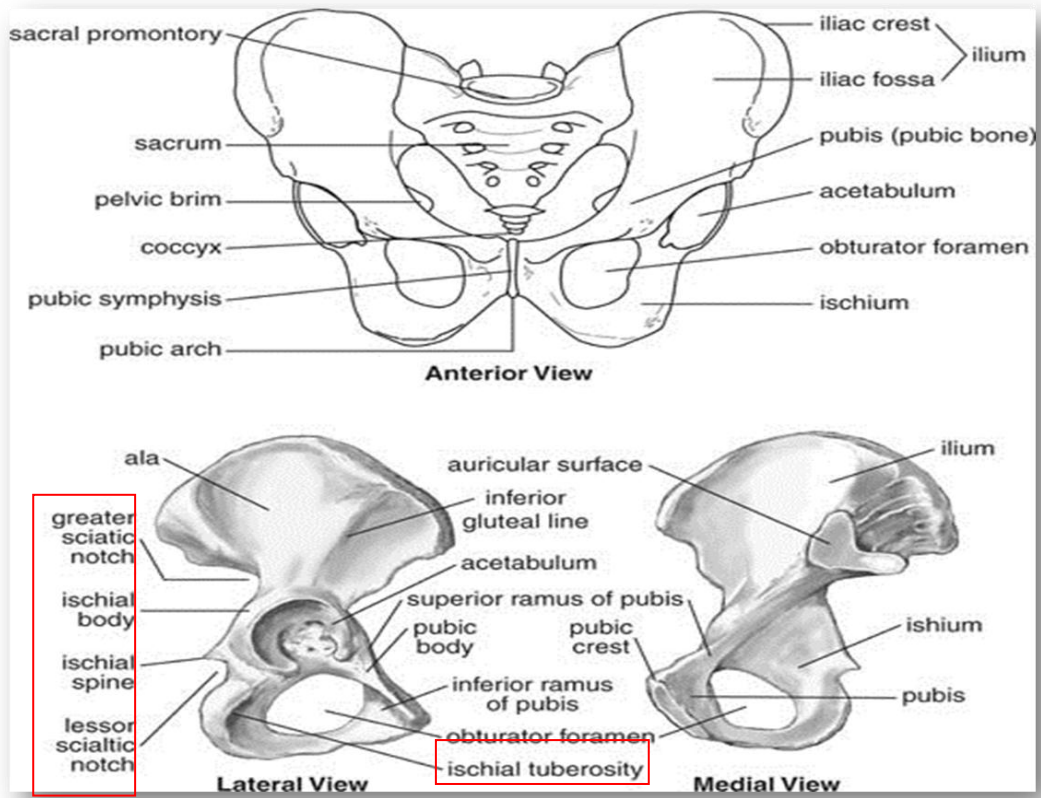
HIP BONE



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GOOD LUCK :)