



Anatomy

HAYAT BATCH

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lecture no : 4

Bones of Lower Limb

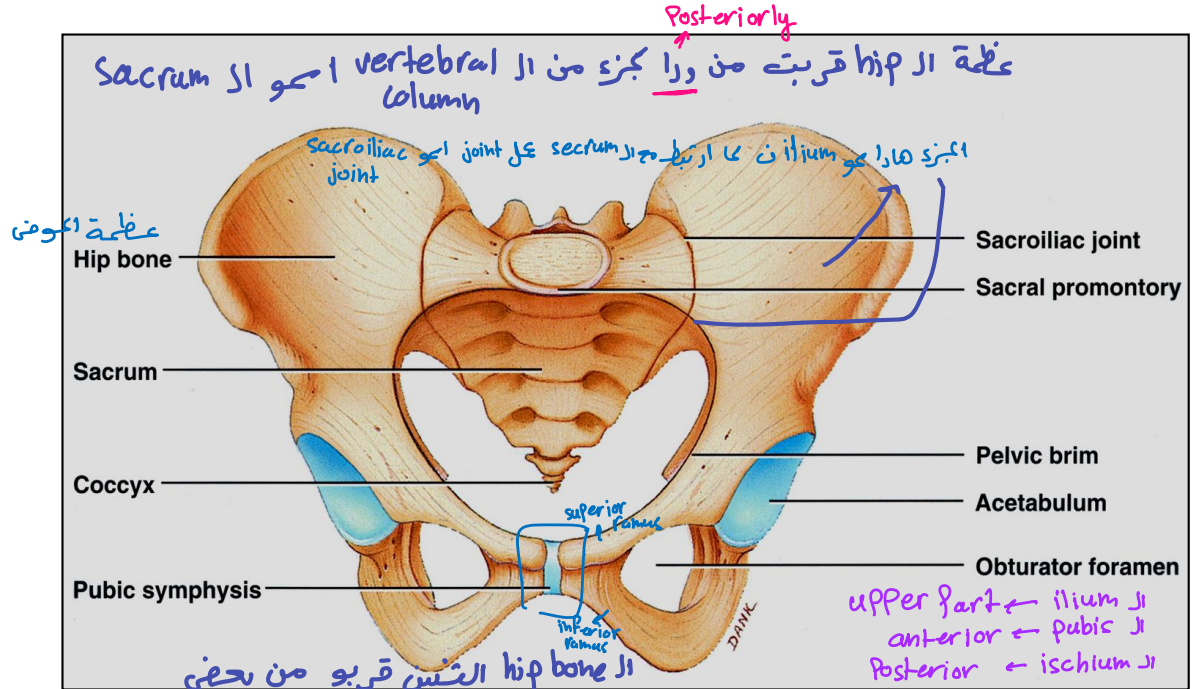
Passa: depression

The Pelvic Girdle

Girdle يعني جزء دائري وليس مفصل
لا Girdle عبارة عن bones قربوا من بعض
Region علو

لكن ال joint عبارة عن bones قربوا من بعض علو مرفقة ال المفصل هار

- * The pelvic girdle connects bones of lower limb to axial skeleton.
- * The pelvic girdle consists of the two hip bones.
- * The hip bones articulate posteriorly with the sacrum to form sacroiliac joints, and anteriorly with each other to form symphysis pubis.



بين acetabulum الـ انو اتا قامه
 outer surface الـ اطلع
 of the hip bone

A. The Ilium

* Includes the upper part of acetabulum & the expanded, flattened area of bone above it.

* Its upper margin is curved and is termed **iliac crest**.

* Its anterior border presents anterior superior iliac spine (ASIS) & anterior inferior iliac spine (AIIS).

* Its posterior border presents posterior superior iliac spine (PSIS) & posterior inferior iliac spine (PIIS).

* The lateral surface of the ilium is called the **gluteal surface**.

2) Gluteal lines
 يطلع الـ
 Gluteal muscles

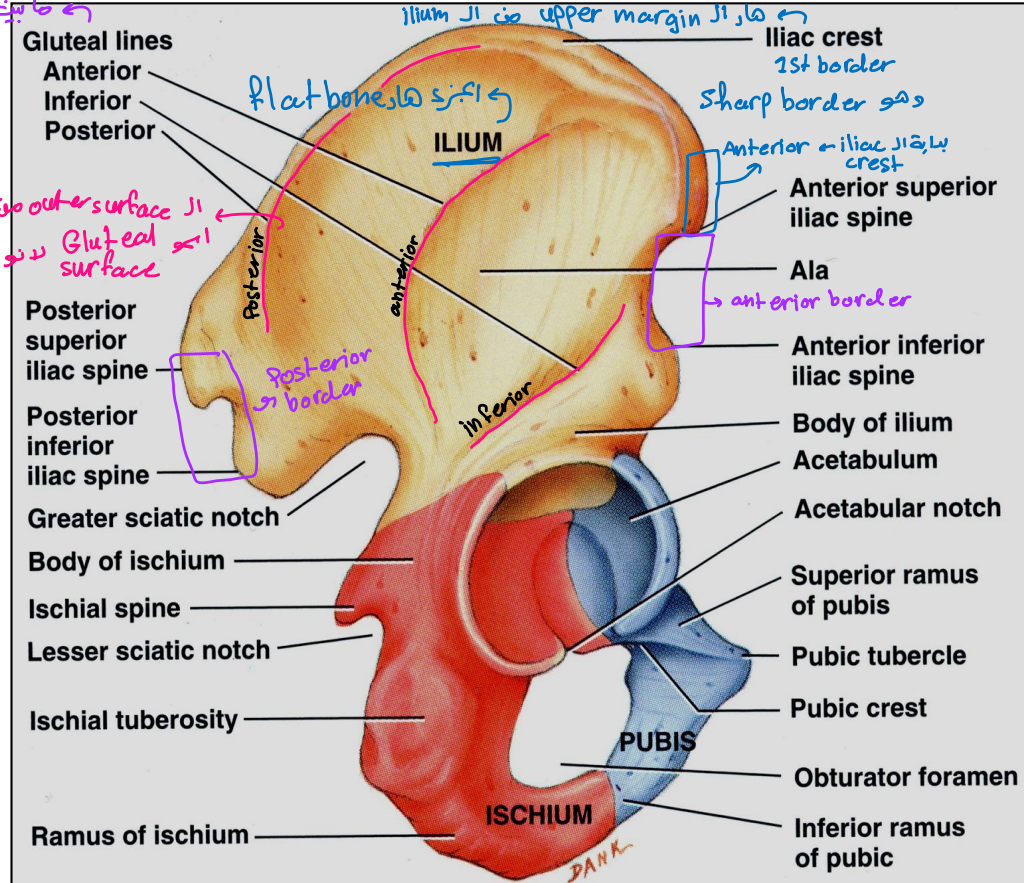
outer surface الـ
 Gluteal surface

4 borders الـ ilium الـ

upper margin الـ

Flat bone الـ

lateral outer Gluteal } surface of the ilium has the same meaning

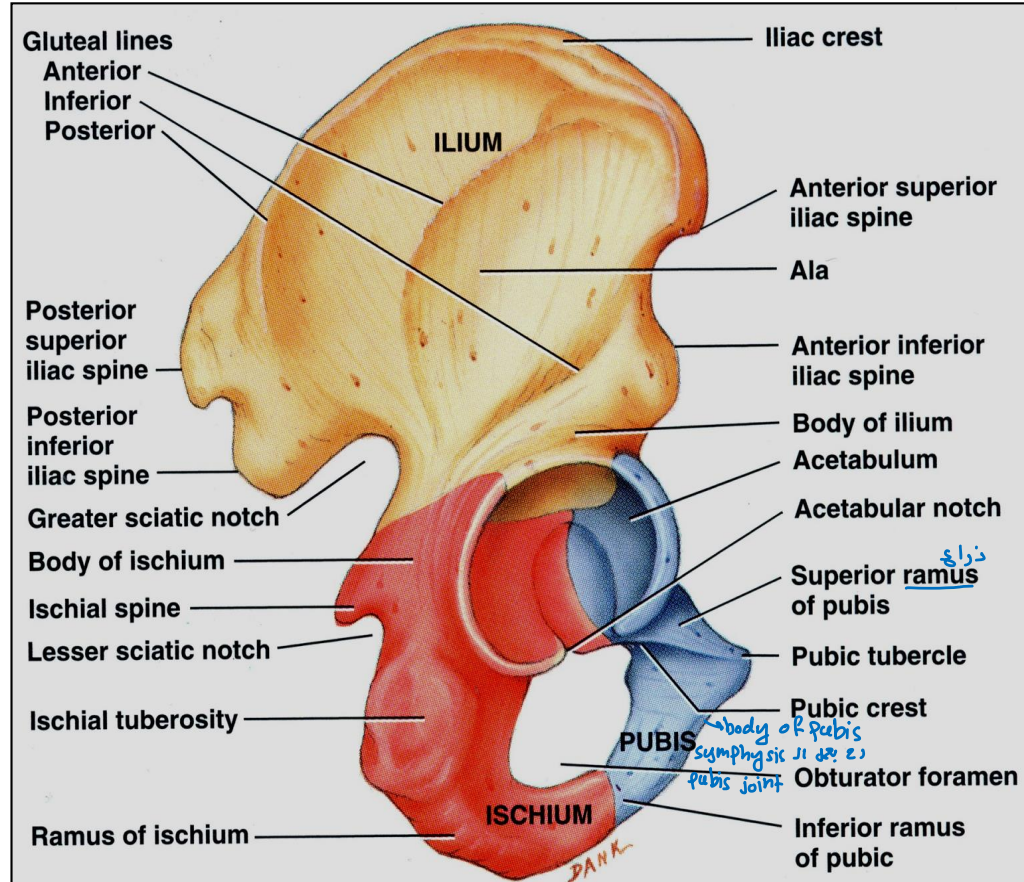


B. The Pubis

* Forms the anterior portion of the lower expanded part of the hip, and the lower anterior part of the acetabulum.

* It consists: a body, a superior ramus, and an inferior ramus.

* The body articulates with the body of the opposite pubis forming the symphysis pubis.



Greater: كبر

C. The Ischium

* Forms the posterior portion of the lower expanded part of hip and the lower posterior part of acetabulum.

* It consists of: a body and a ramus, which is continuous with the inferior ramus of the pubis.

* The ischial tuberosity is a large rough area situated on the lower part of the body.

* The posterior border of ischium is continuous with posterior border of ilium.

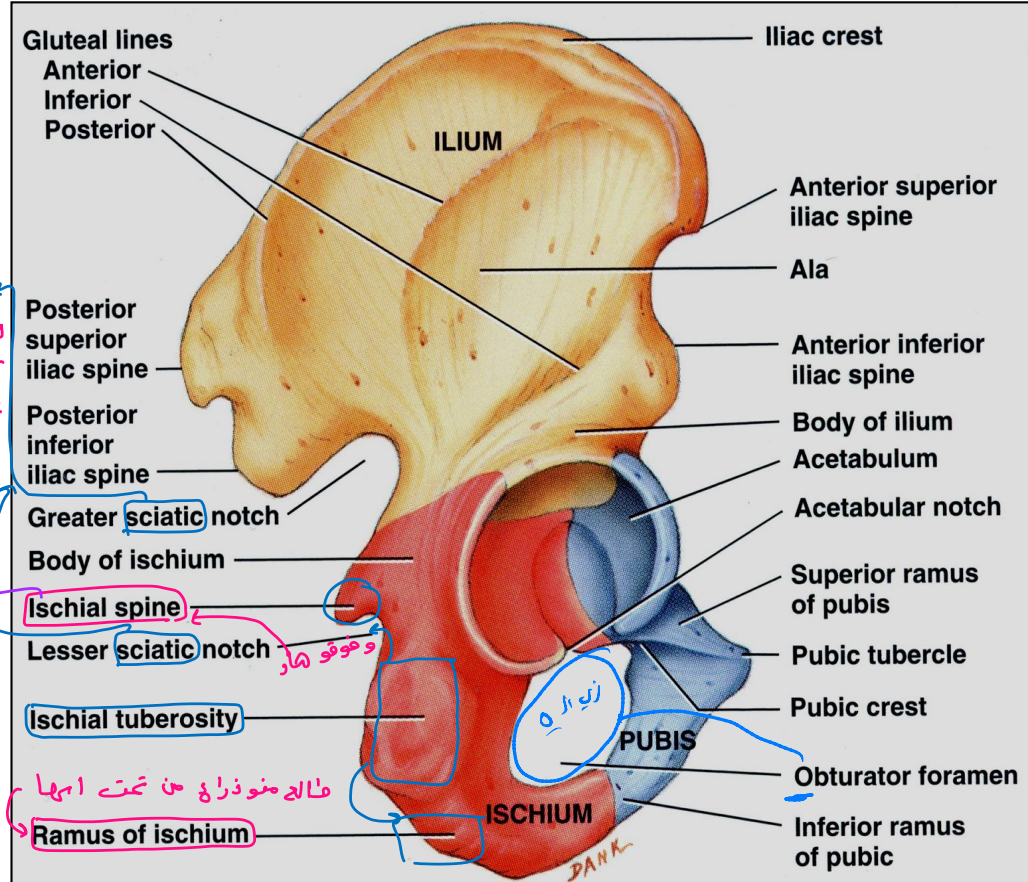
* It presents a sharp projection called ischial spine, which intervenes between the greater and lesser sciatic notches.

Sciatic nerve: عرق النسا

sciatic notch لا تسمى اصغر
nerve لا تسمى كبر
Sciatic nerve كبر اصغر
2 notches بحرفين

فصل بين الـ Greater & Lesser sciatic notch

و هو قوف همار



Foramen with missed border هو notch الـ

bone of the thigh
 اعطول عظمة صوبورة في
 الكعب

2. The Femur

Line: **بشق ما ينقسم**
 Crest: **بشق ما ينقسم**

A. Upper end:

* Shows a head, neck, and greater and lesser trochanters.

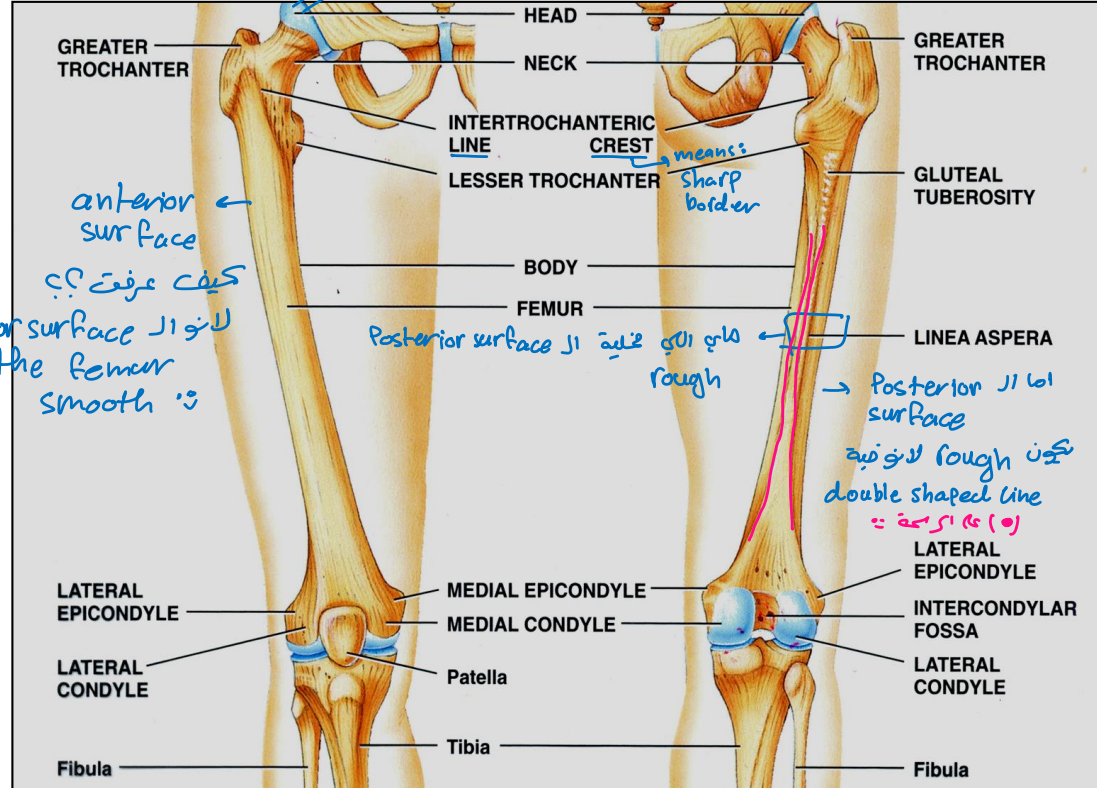
* The head, which is more than half of a sphere, articulates with acetabulum of the hip, to form the hip joint.

* The neck is about 5 cm long & connects the head to shaft.

* The intertrochanteric line is a rough ridge, which runs downwards and medially on anterior aspect of the bone from greater trochanter to lesser trochanter.

adult طولها سنين
 ٢٤٥

complete ← use head of circle
 articulate with the acetabulum to form hip joint



anterior surface ←

كيف عرفتة؟
 لاسواج anterior surface of the femur smooth :-

means: sharp border

Posterior surface ←
 ما هو الذي عليه ال rough

Posterior surface
 يكون rough لاسوية
 double shaped line
 = (o) كة اسوية :-

ridge: **قافة / نتوء**
 حافة

intertrochanteric line ← العظمة الواصلة بين ال greater & lesser trochanter anteriorly
 intertrochanteric crest ← العظمة الواصلة بين ال greater & lesser trochanter posteriorly
 Dr Ashraf Ramzy

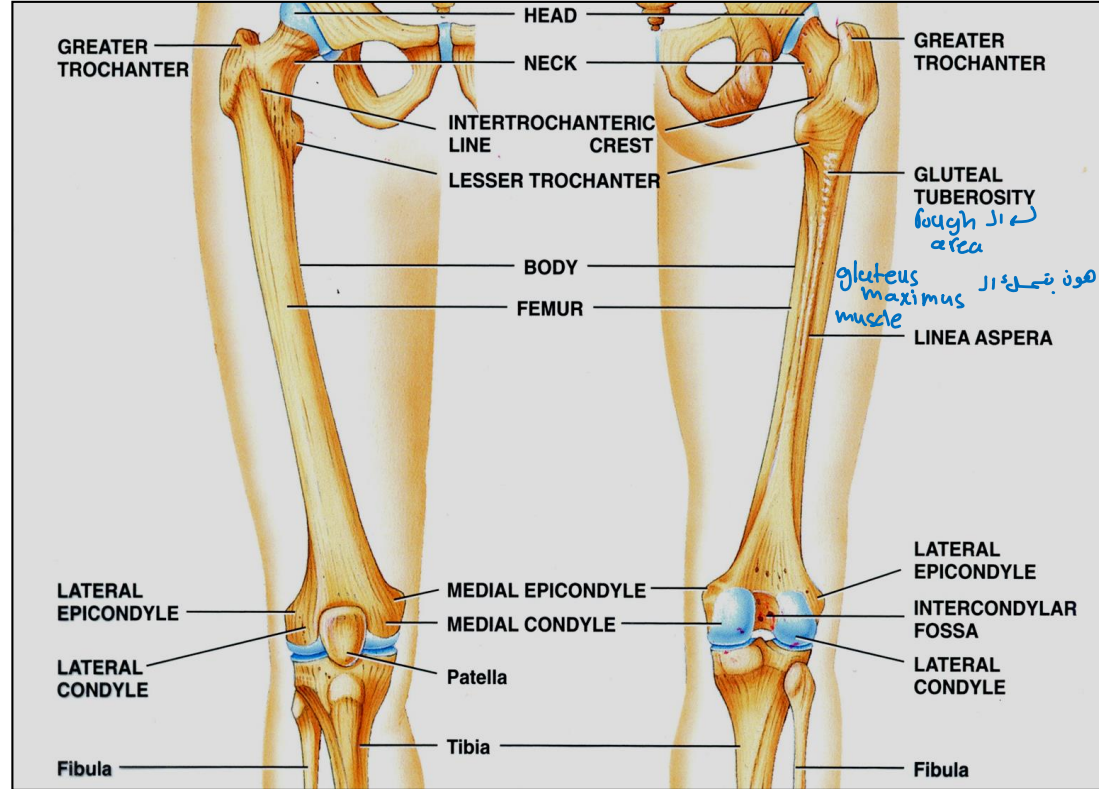
elevation: ارتفاع

* The **intertrochanteric crest** is a **smooth** elevation on **posterior** aspect of the bone between greater and lesser trochanters.

B. Shaft:

* The middle third of the posterior aspect of femur presents a broad, rough vertical ridge termed **linea aspera**.

* Superiorly, the linea aspera is continuous with another vertical ridge, called **gluteal tuberosity**.



C. Lower end:

* The expanded lower end consists of two large masses, the **medial and lateral condyles**, which **unite** anteriorly, but **separated** posteriorly by the deep **intercondylar fossa or notch**.

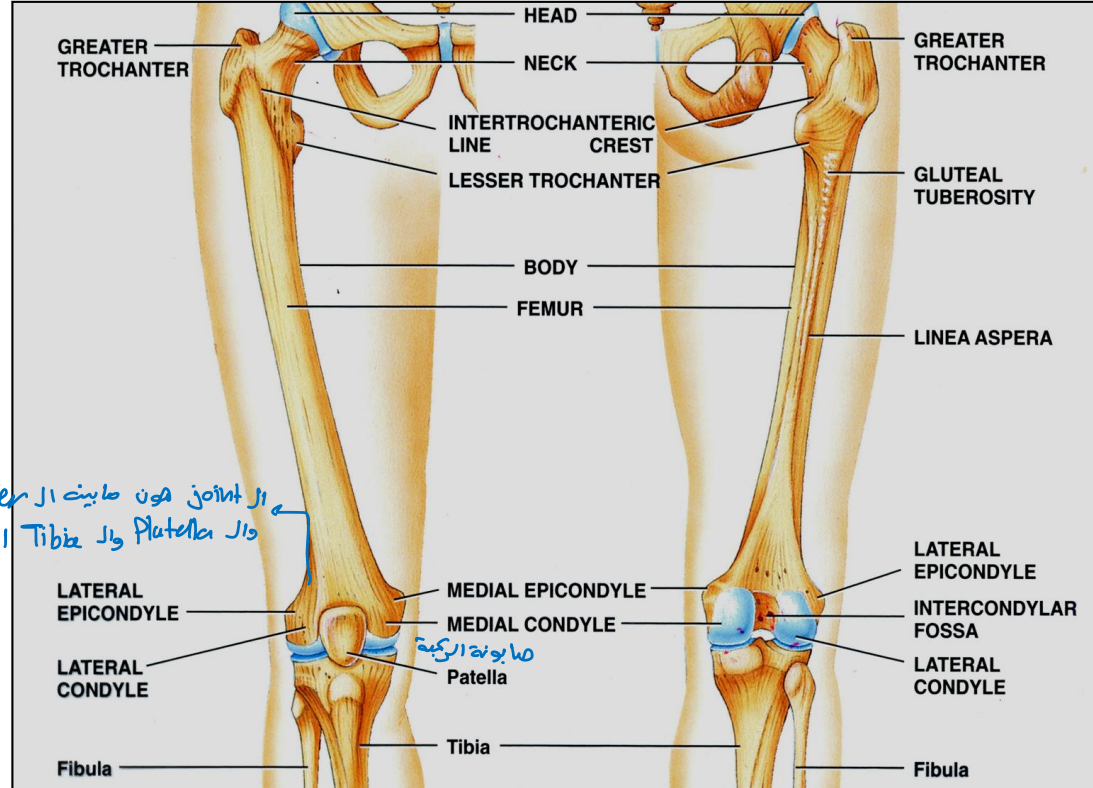
بواسطه: راجع

تفصيل

* Anteriorly, the condyles exhibit a broad n-shaped articular surface for articulation with the patella anteriorly and the tibia below.

ال joint كون طابقت ال humer
وال Tibia و ال Platella
Knee joint

* Superior to the medial and lateral condyles, are the **medial, and lateral epicondyles**, respectively. → على التوالي



3. The Patella

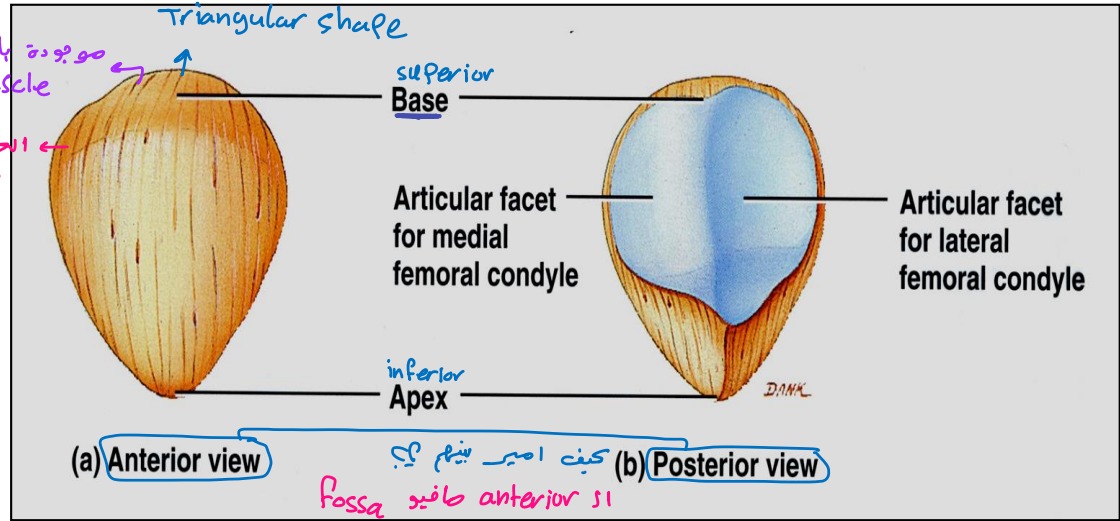
inverted

* The patella is a **triangular sesamoid bone** (bone inside tendon), located in front of the knee joint.

* The base of the patella forms the upper border, whereas the apex is pointed inferiorly.

* The posterior surface contains two articular facets, for articulation with the medial and lateral condyles of the femur (in knee joint).

Triangular shape
quadriceps femoris muscle
العضلة التي تشترك في
Knee joint



(a) Anterior view *كيف اسير ششم*
1 فوسا anterior صغیر
2 فوسا posterior أكبر
الفاصا medial صغیر ← medial condyle
الفاصا Lateral أكبر ← lateral condyle
مبلغ 2 يعلو joint من ال knee joint
Patellofemoral joint

(b) Posterior view
Facet ← مكان يعلو joint

4. The Tibia

* The tibia is the medial, larger, and much stronger one of the two bones of the leg.

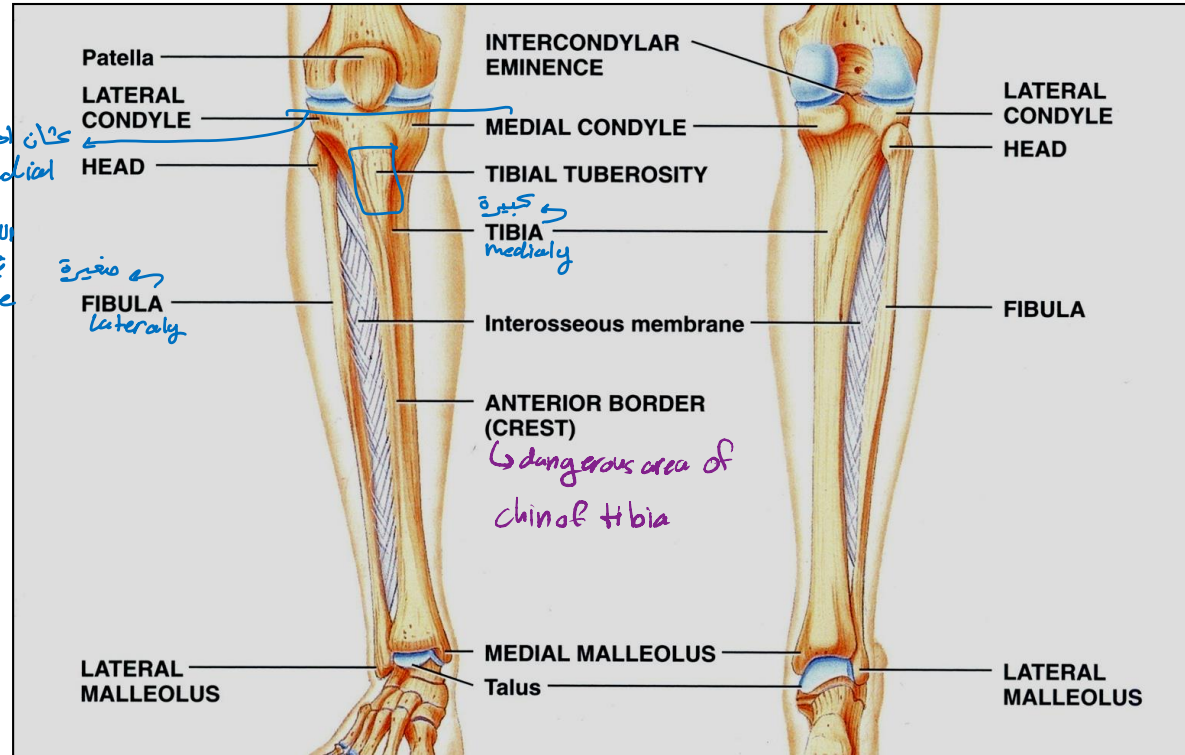
A. Upper end:

* Shows the **medial and lateral condyles**.

* The **medial condyle** is relatively larger than the lateral one.

* The upper surface of each condyle is **smooth** and articulates with the corresponding condyle of femur (in the knee joint).

Corresponding : المقابل

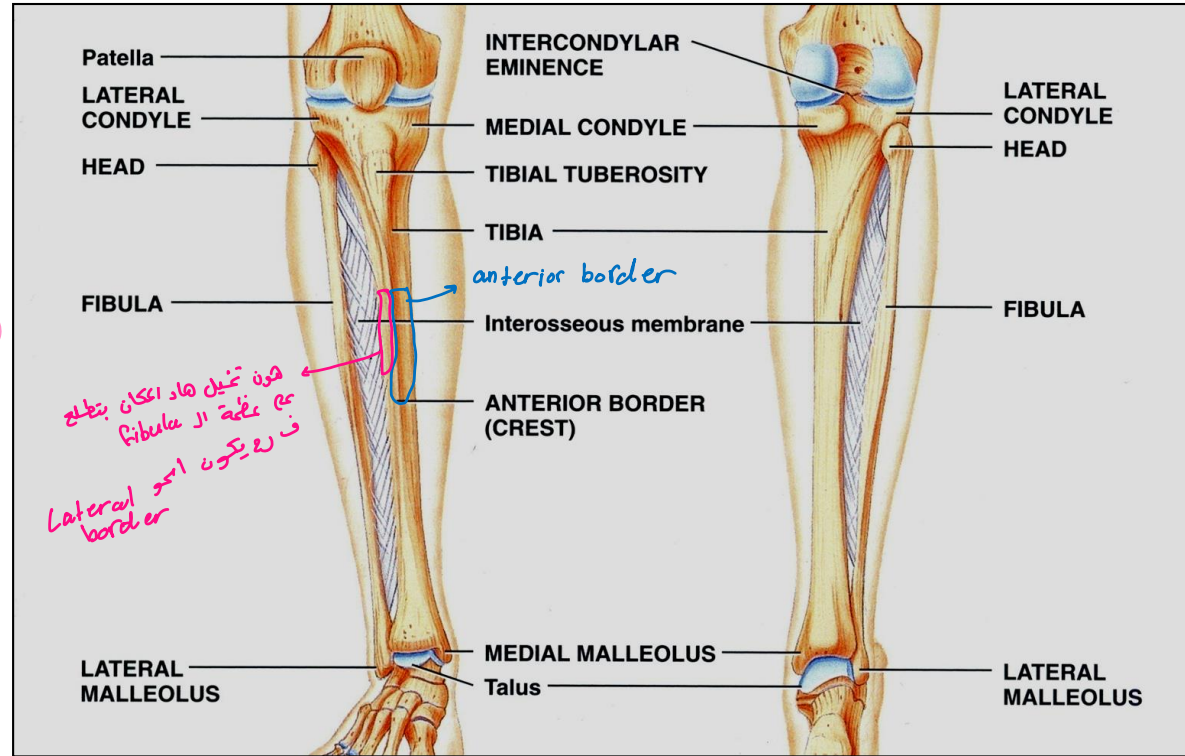


* On the posterior aspect of the lateral condyle there is a facet for articulation with the head of fibula forming the superior tibio-fibular joint.

B. Shaft:

* The tibial tuberosity lies at the upper end of anterior border of the shaft.

* The lateral border is sharp and is called the interosseous border to which the interosseous membrane is attached.



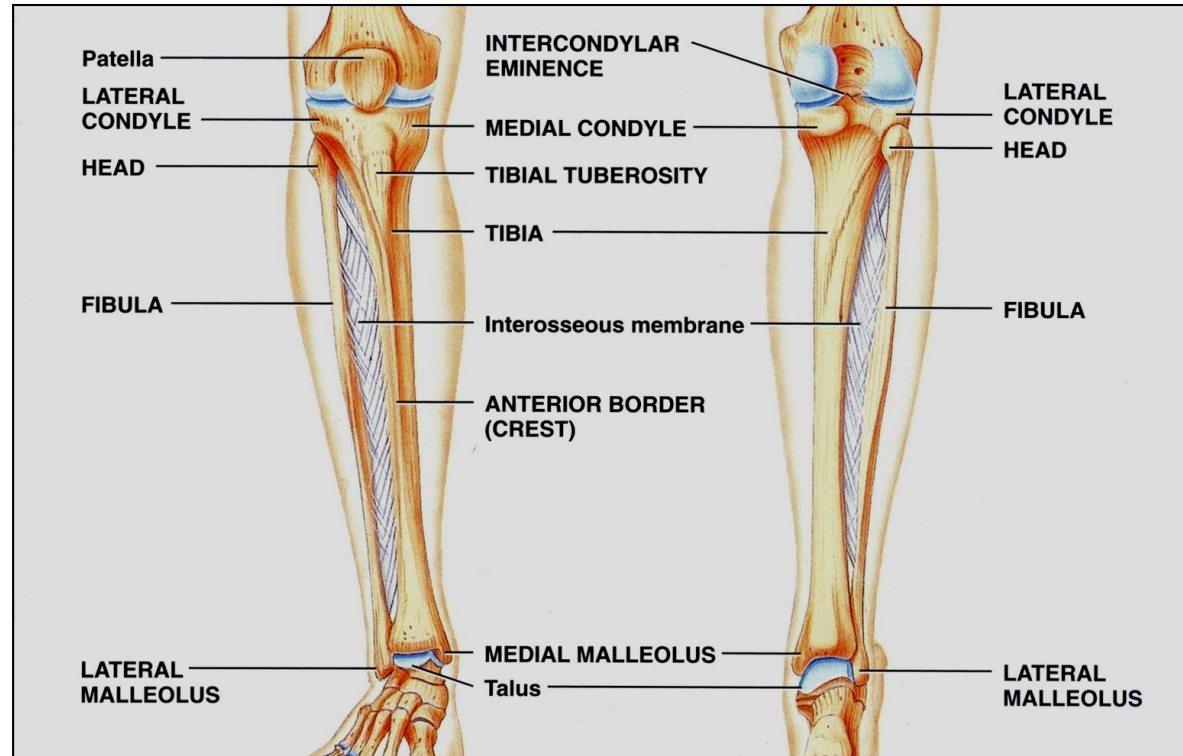
5. The Fibula

* The fibula is the lateral bone of the leg.

* It has an upper end (head), shaft, and lower end.

* The medial border of the shaft is called **interosseous border**, to which the interosseous membrane is attached.

* The lower end has a projection, the **lateral malleolus**. This forms the prominence on the lateral aspect of the ankle.



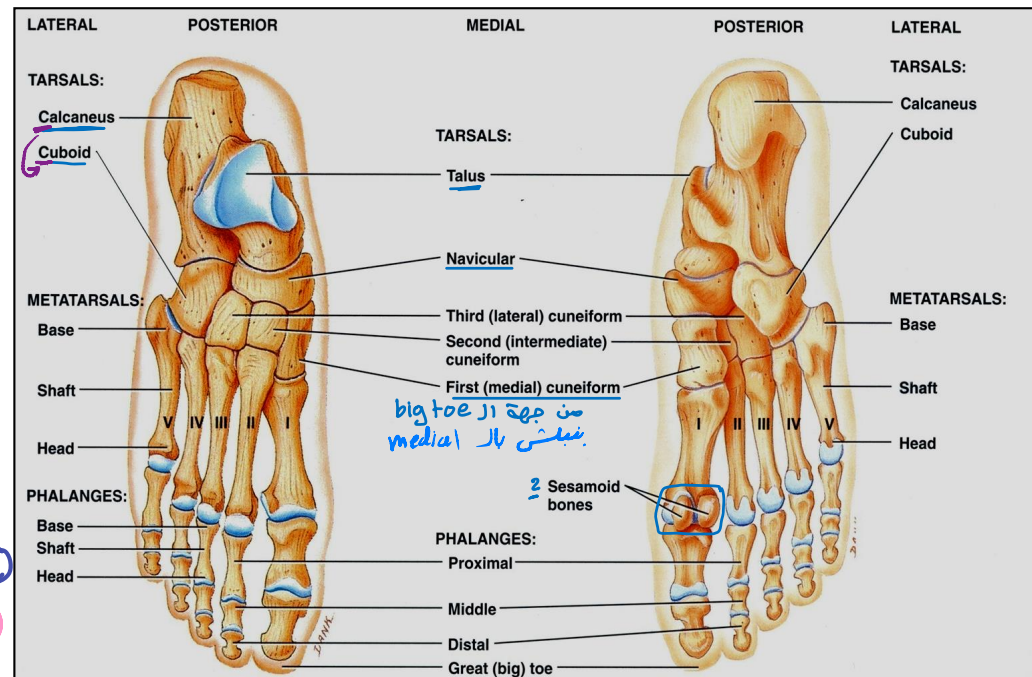
6. Bones of Foot

A. The Tarsal Bones (Tarsus):

* Form the proximal region of foot.

* It consist of two large bones: talus & calcaneus + five smaller bones: cuboid & navicular bones and the medial, intermediate & lateral cuneiform bones.

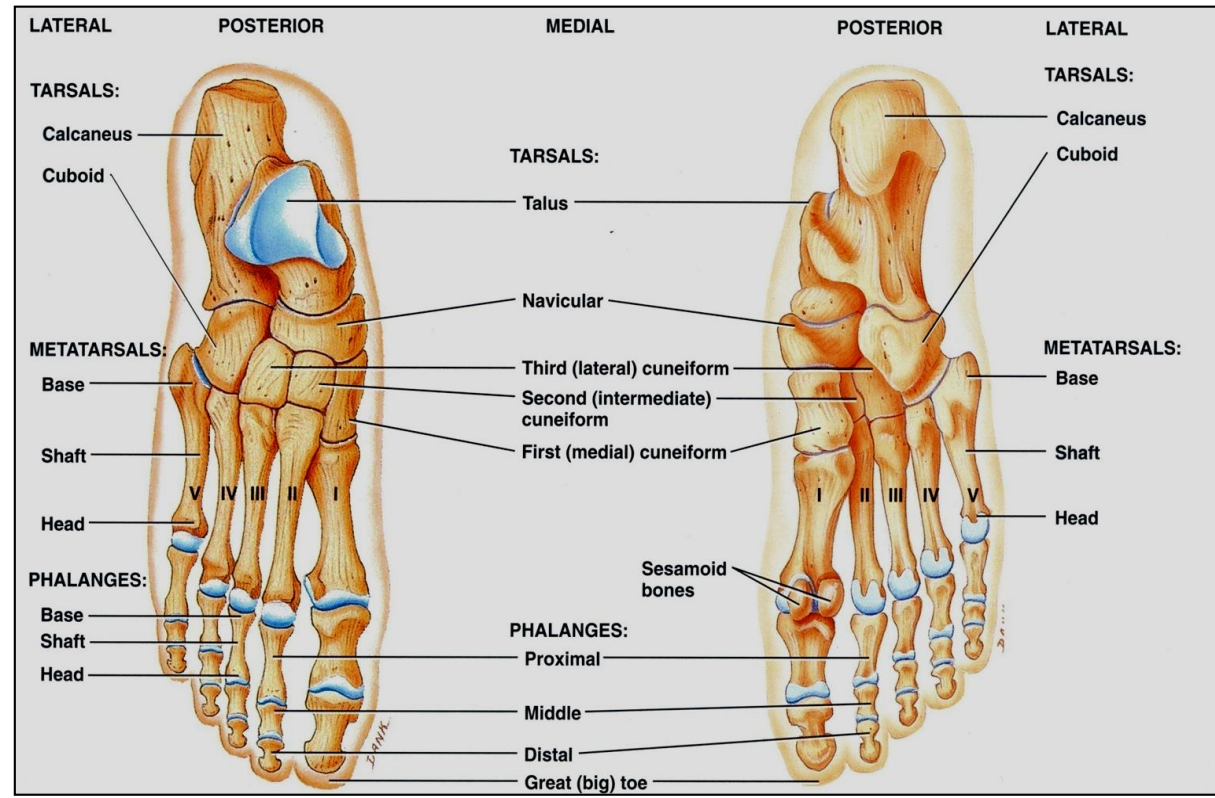
* The talus bone articulates superiorly with lower end of the tibia to form ankle joint, inferiorly with calcaneus, and anteriorly with navicular bone.



* The three cuneiform bones articulate posteriorly with the navicular bone and anteriorly with the 1st, 2nd & 3rd metatarsal bones.

* The cuboid bone articulates posteriorly with calcaneus, medially with lateral cuneiform, and anteriorly with the fourth and fifth metatarsal bones.

* Joints between tarsal bones are called the intertarsal joints.



B. The Metatarsal Bones:

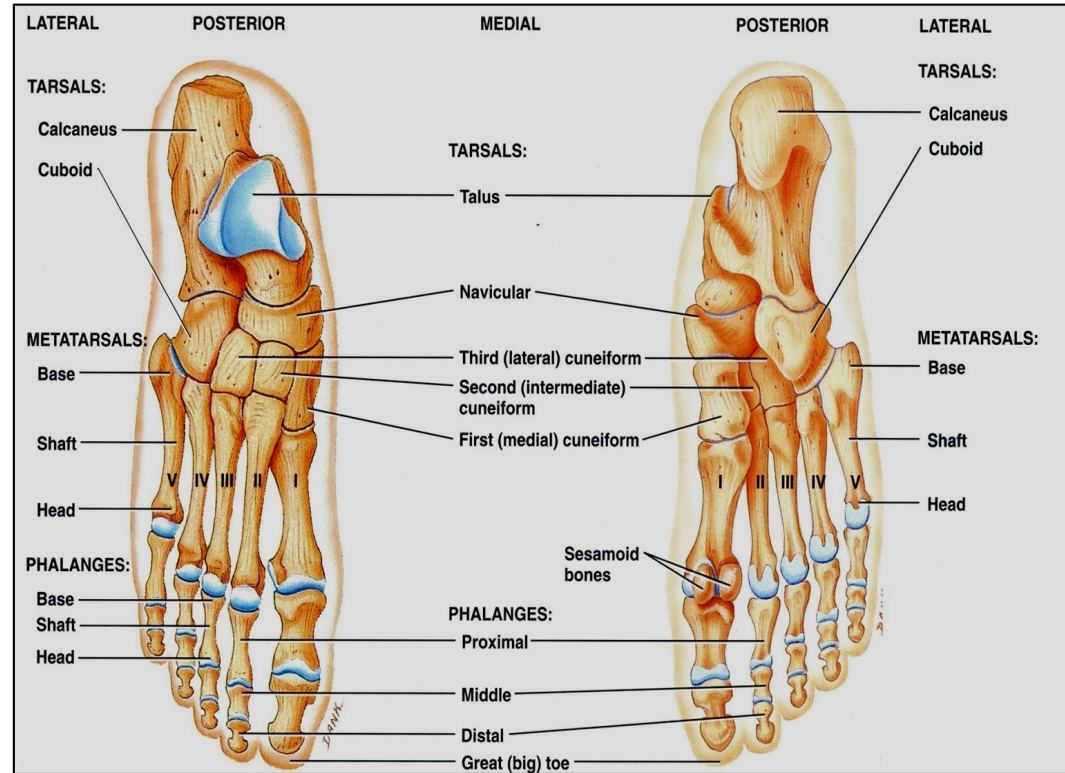
* In each foot there are five metatarsal bones. The 1st one is that of the big toe.

* Each one has a proximal base, a body & a distal head.

C. The Phalanges:

* There are two phalanges in the big toe and three in each one of the lateral four digits.

* Each phalanx has a proximal base, a body & a distal head.



Transverse: عرصية
 Longitudinal: طولية
 axes: محاور

Arches of the Foot

* The tarsal and metatarsal bones are arranged in such a way that they form arches in longitudinal and transverse axes of the foot.

* The function of these arches is to distribute body weight over the soft and hard tissues of the foot.

* Flat foot:

* Bones are held in position by ligaments and muscles tendons.

* Weakness of these ligaments and tendons results in a decrease in the height of the arches.

تصلي فاصل بينة رجلينا والأرض
 ليس ربنا معطينا ماد الإحتي ؟ عشان يجعل Transmission ل weight
 كيف محمول ؟؟ ① arrangement of bone

اللي محافظه مواد arrangement ← الحفلات وال Ligaments
 held in position by ligaments and muscle tendons



* ال Flat Foot يمكن نعتبره condition or disease
 يكون عند الناس اللي عندهم obese + deformities in foot

① longitudinal arch ← 2 arches
 ② Transverse arch ←

THANK
YOU