

FEMUR

- **OTHER NAME-** thigh bone
- The femur is the longest and heaviest bone in the body.
- It transmits body weight from the hip bone to the tibia when a person is standing.
- It has 2 ends upper and lower and a shaft.

Side determination-

- 1. The upper end bears a rounded head whereas the lower end is widely expanded to form 2 large condyles.**
- 2. The head is directed medially.**
- 3. The cylindrical shaft is convex forwards.**

Upper end-

The upper end (proximal) end of the femur consists of a head, neck and 2 trochanters (greater and lesser).

- **Head-**

- ✓ Head forms more than half a sphere and is directed medially, upwards and slightly forwards.
- ✓ It articulates with the acetabulum to form the hip joint.
- ✓ A roughened pit is situated just below and behind the centre of the head. This pit is called the fovea.
- ✓ Blood supply

Medial part- medial epiphyseal arteries derived from the posterior division of the obturator artery and from the ascending branch of the medial circumflex femoral artery.

Lateral part- lateral epiphyseal arteries which are derived from the retinacular branches of the medial circumflex femoral artery.

Neck-

- ✓ It connects the head with the shaft and is about 3.7 cm long.
- ✓ It makes an angle with the shaft. The neck-shaft angle is about 125 degree in adults. it is less in females due to their wider pelvis. The angle facilitates movements of the hip joint. it is strengthened by a thickening of bone called the calcar femorale present along its concavity.

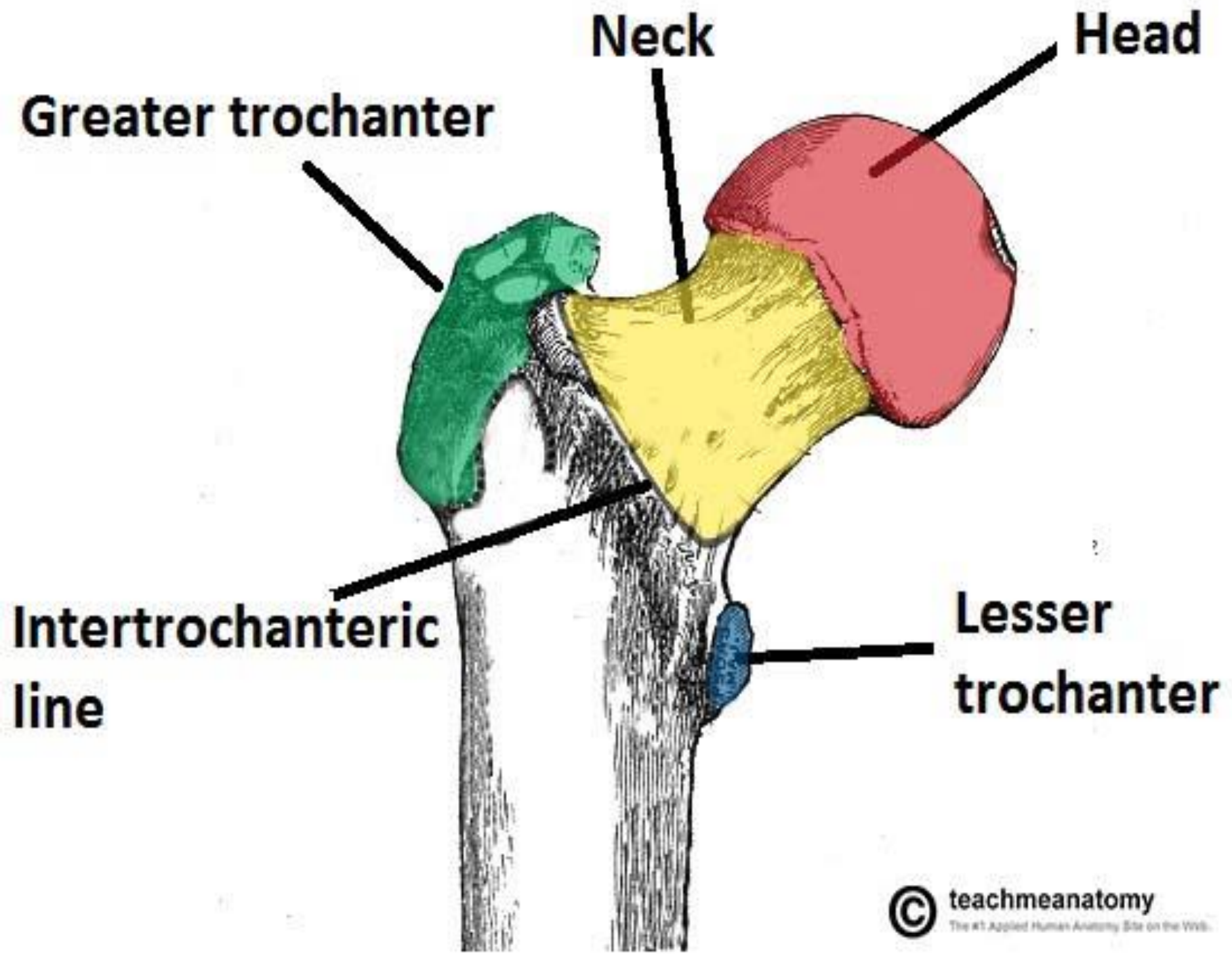
✓ It has 2 borders and 2 surfaces.

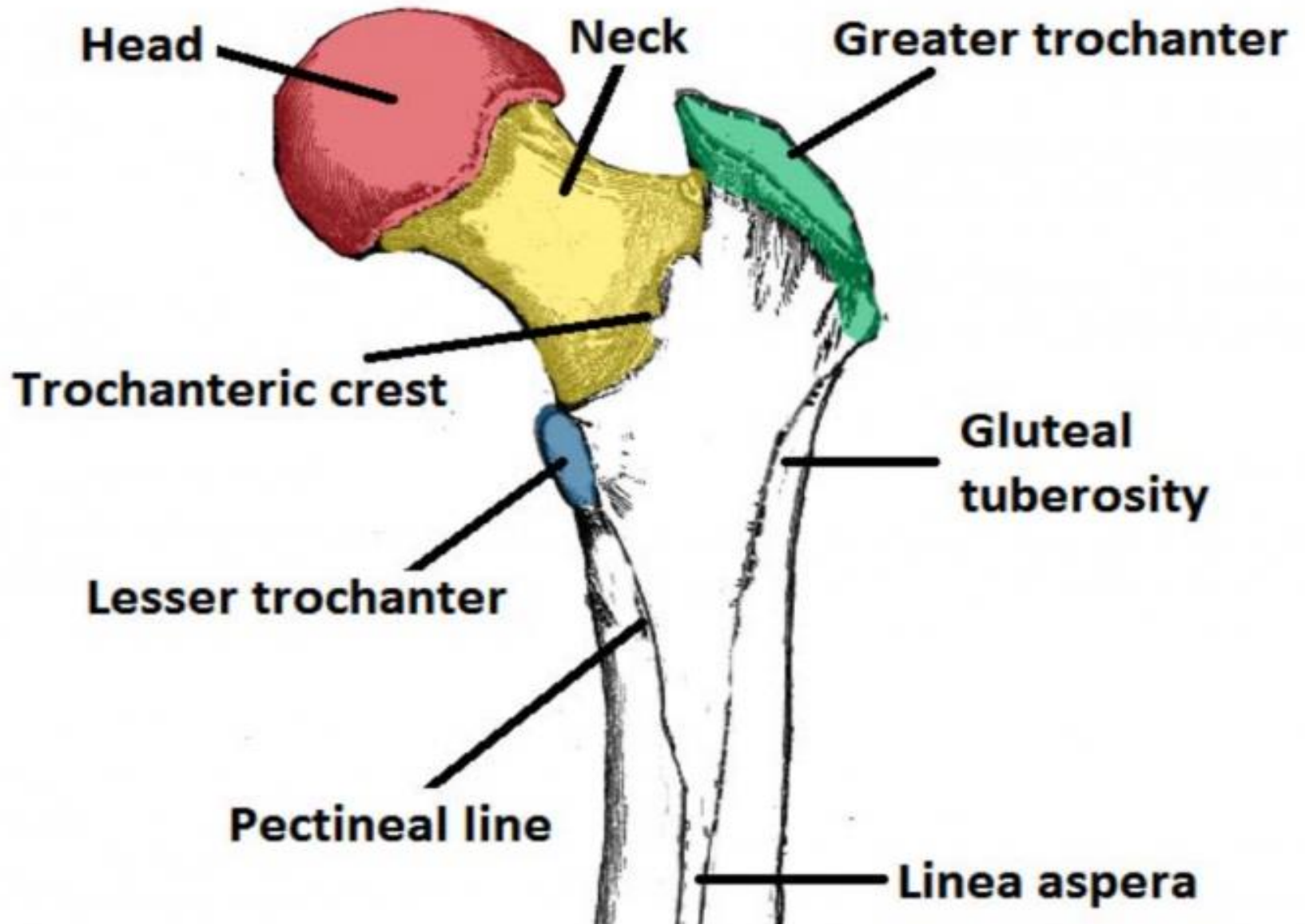
Upper border- concave and horizontal, meets the shaft at the greater trochanter.

Lower border- straight and oblique, meets the shaft near the lesser trochanter.

Anterior surface- flat, meets the shaft at the intertrochanteric line.

Posterior surface- convex from above downwards and concave from side to side, it meets the shaft at the intertrochanteric crest.





From <https://humananatomy.site/femur-bone-anatomy/>

- **Angle of femoral torsion or angle of anteversion-**
 - **between the transverse axes of the upper and lower ends of the femur.**
 - **it is about 15 degree.**

- **Greater trochanter-**

This is large quadrangular prominence located at the upper part of the junction of the neck with the shaft.

It has 3 surfaces- anterior, medial, lateral

And it has an upper border with an apex

Trochanteric fossa- situated on medial surface.

- **Lesser trochanter-**

It is a conical projection directed medially and backwards from the junction of the posteroinferior part of the neck with the shaft.

- **Intertrochanteric line(spiral line)**

- It marks the junction of the anterior surface of the neck with the shaft of the femur.
- It is roughened ridge which begins above, at the anterosuperior angle of the greater trochanter as a tubercle and is continuous below with the spiral line in front of the lesser trochanter.
- The spiral line winds round the shaft below the lesser trochanter to reach the posterior surface of the shaft.

Intertrochanteric crest-

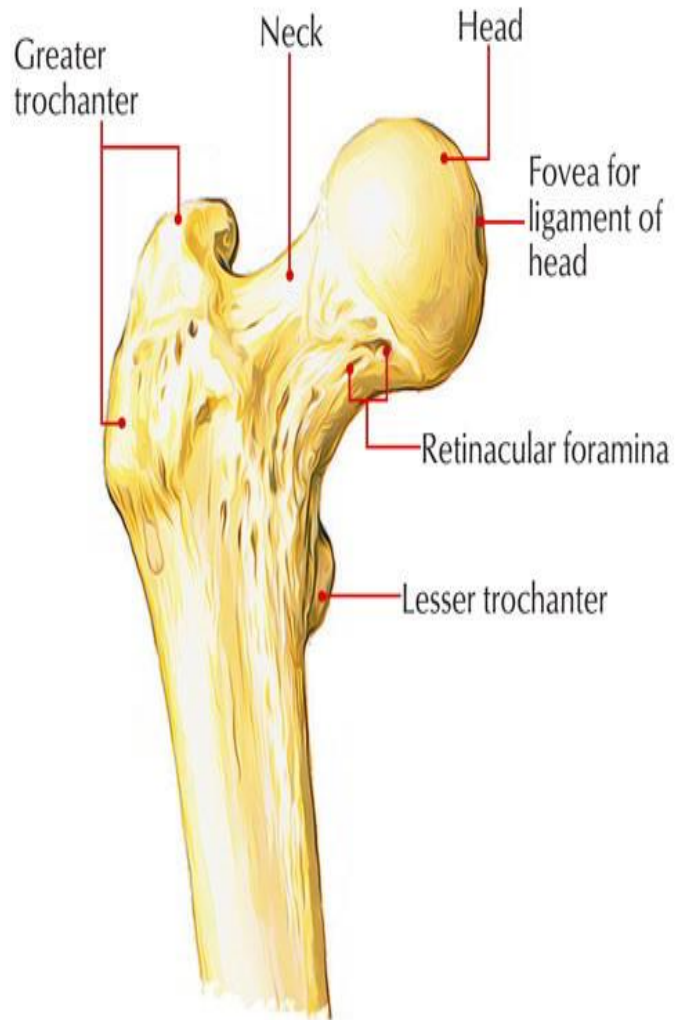
- It marks the junction of the posterior surface of the neck with the shaft of the femur.
- It is a smooth rounded ridge, which begins above at the posterosuperior angle of the greater trochanter and ends at the lesser trochanter.

NOTE- Quadrate tubercle- the rounded elevation, a little above the middle of the intertrochanteric crest.

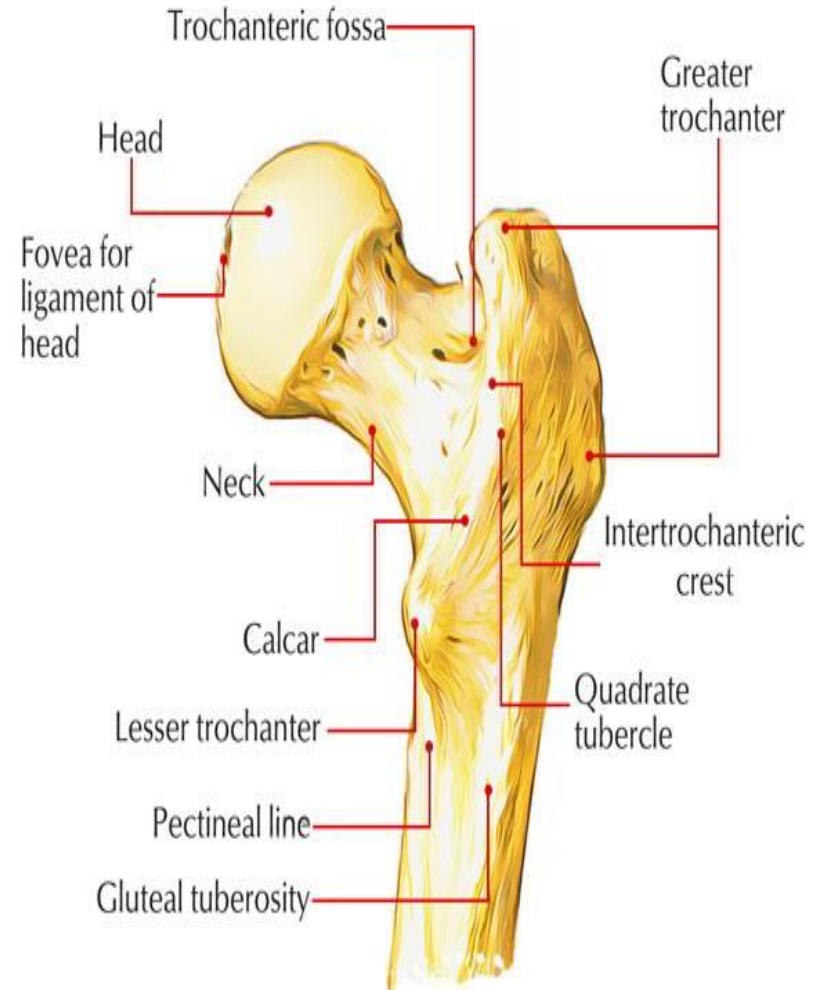
SHAFT-

- The shaft is more or less cylindrical. It is narrowest in the middle and is more expanded inferiorly than superiorly.

Anterior view



Posterior view



- It is convex forwards and is directed obliquely downwards and medially
- because the upper ends of 2 femoral are separated by the width of the pelvis and their lower ends are closed together.
- **In the middle 1/3rd the shaft** has 3 borders-medial, lateral and posterior
- 3 surfaces- anterior ,medial and lateral
- The medial and lateral borders are rounded and ill-defined, but the posterior border is in the form of a broad roughened ridge called the linea aspera(latin-rough line).
- The linea aspera has distinct medial and lateral lips.

➤ **In the upper 1/3rd- 4 borders=**
medial,lateral,spiral line and lateral lip of gluteal tuberosity.

4 surfaces- anterior,medial, lateral, posterior

➤ **Gluteal tuberosity-** it is a broad roughened ridge on the lateral part of the posterior surface.

➤ **In the lower 1/3rd – 4 border-**
medial,lateral,medial supracondylar line and lateral supracondylar line

4 surfaces-anterior, medial, lateral, popliteal

Lower end- it consists of the 2 large condyles called the medial and lateral condyles.

➤ Anteriorly, the 2 condyles are joined together and lie in the same plane as the lower part of the shaft.

➤ Posteriorly, they project much beyond the plane of the shaft and are separated by a deep **intercondylar notch or fossa**.

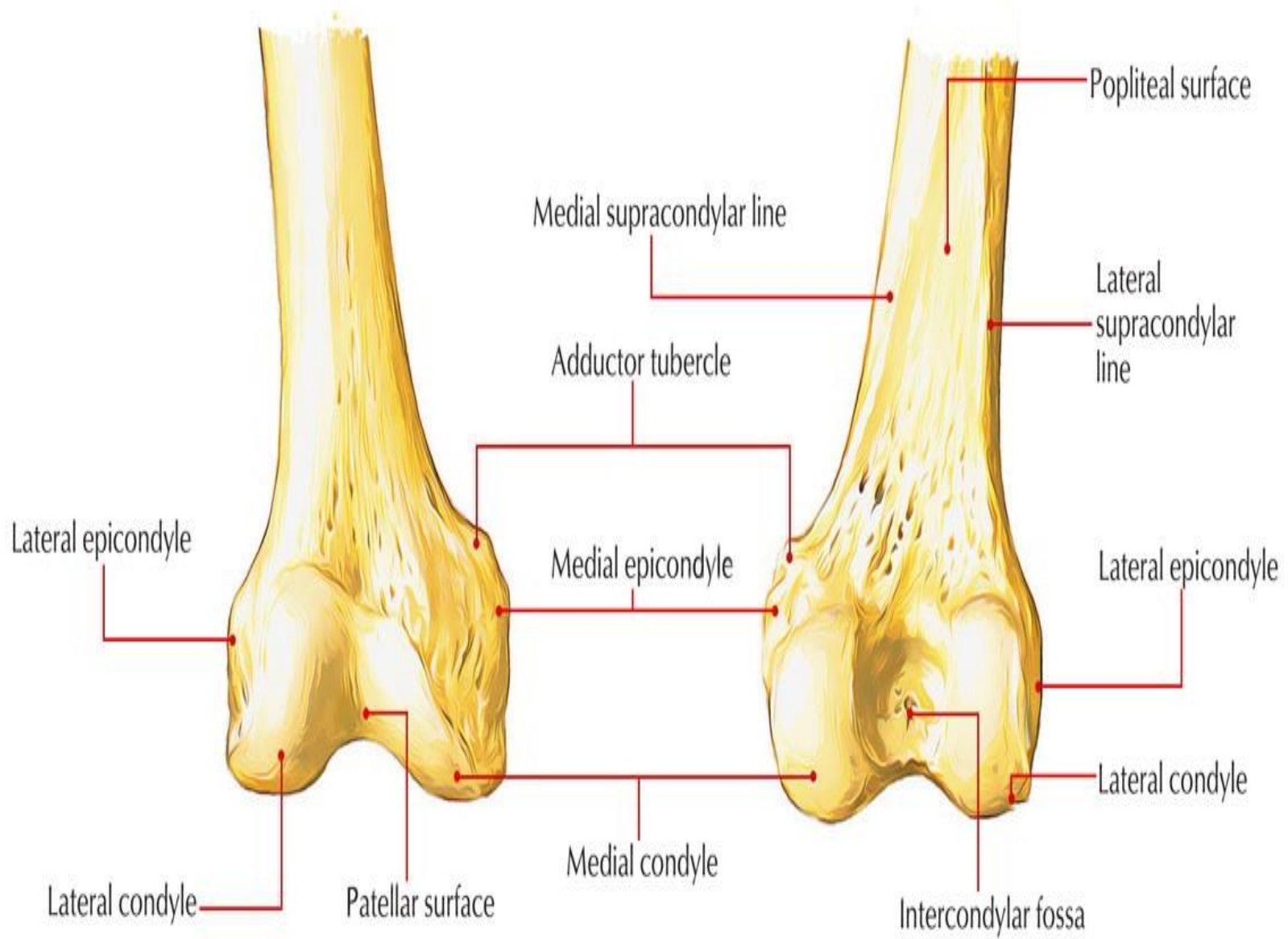
➤ The anterior aspect of the 2 condyles is marked by an articular area for the **patella**. Inferiorly, the condyles articulate with the tibia to form the knee joint..

Lateral condyle- stronger, less prominent

- Its lateral aspect presents the following-
- A prominence called the **lateral epicondyle**
- The popliteal groove which lies just below the epicondyle.

Medial condyle- most prominent point on it is called the **medial epicondyle**.

- Posterosuperior to the epicondyle there is a projection, the **adductor tubercle**.

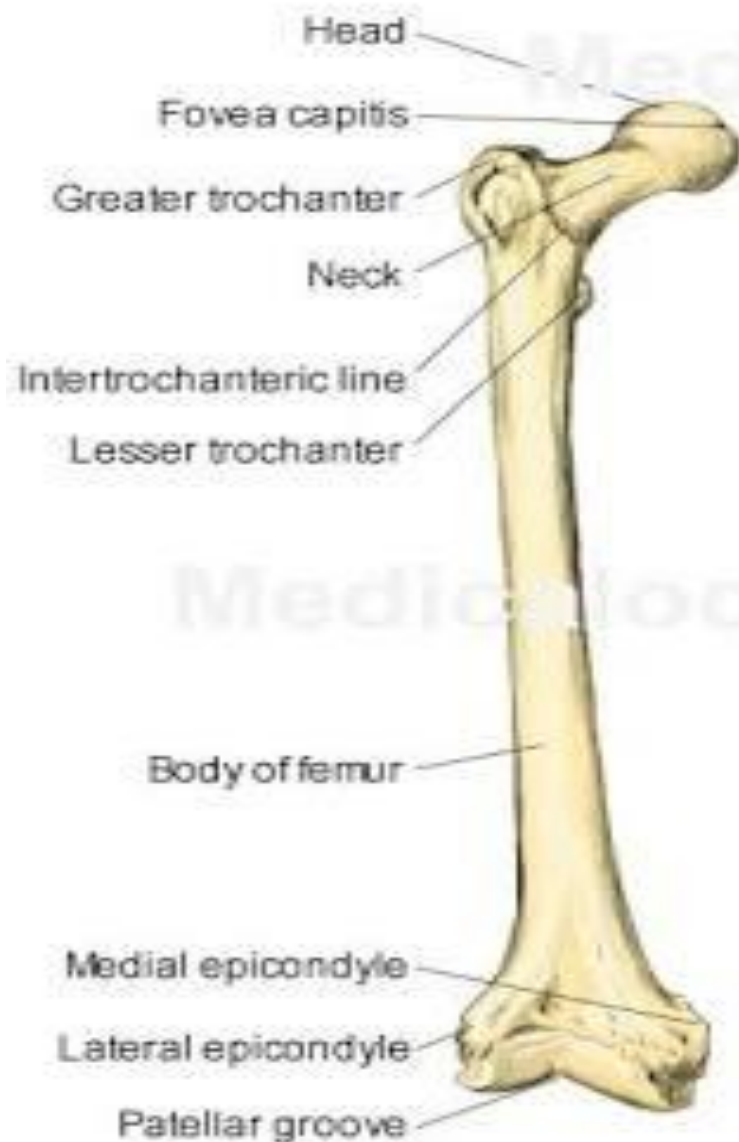


Intercondylar fossa or notch-

- **This notch separates the lower and posterior parts of the 2 condyles. It is limited anteriorly by the patellar articular surface and posteriorly by the intercondylar line which separates the notch from the popliteal surface.**



Anterior view



Posterior view



Right Femur

Anterior view

Posterior view

Head

Head

Fovea capitis

Fovea capitis

Greater trochanter

Greater trochanter

Neck

Neck

Intertrochanteric
line

Intertrochanteric
crest

Lesser trochanter

Lesser trochanter

Pectineal line

Gluteal tuberosity

Linea aspera

Body of femur

Body of femur

Medial epicondyle

Medial epicondyle

Lateral epicondyle

Lateral epicondyle

Patellar groove

Intercondylar fossa

Lateral condyle

Medial condyle

(a)

(b)

