

Joint of the lower limb

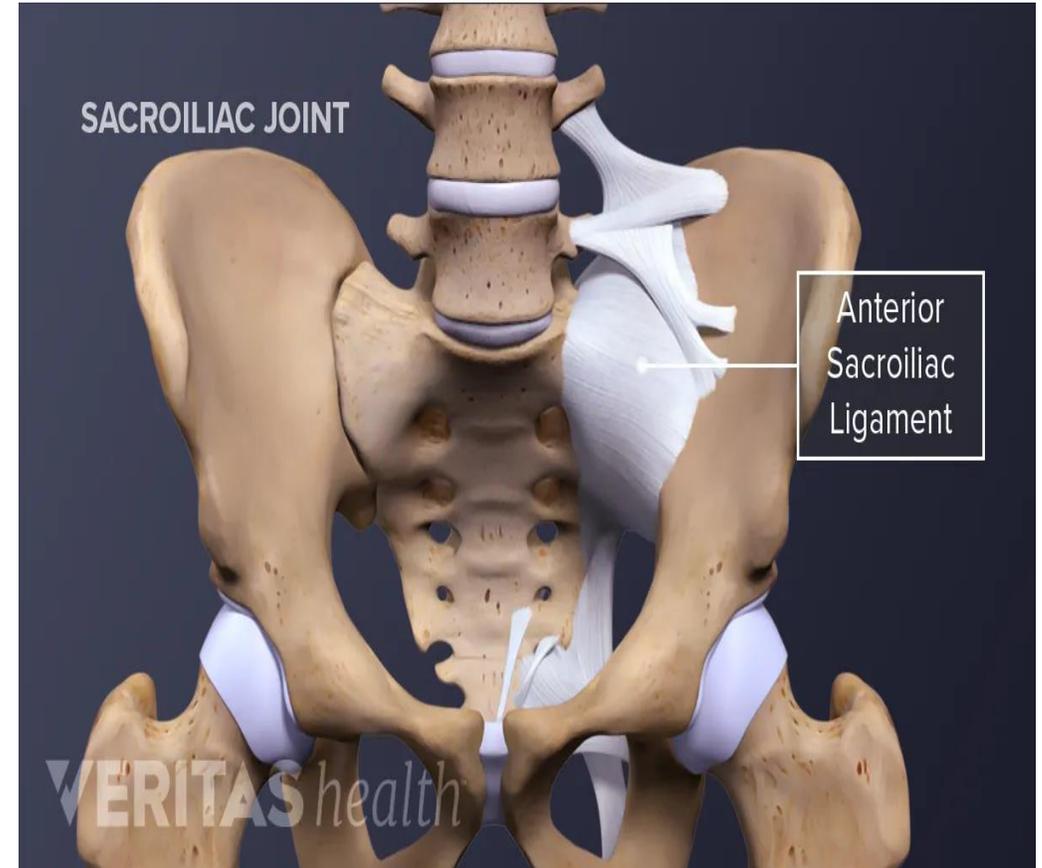


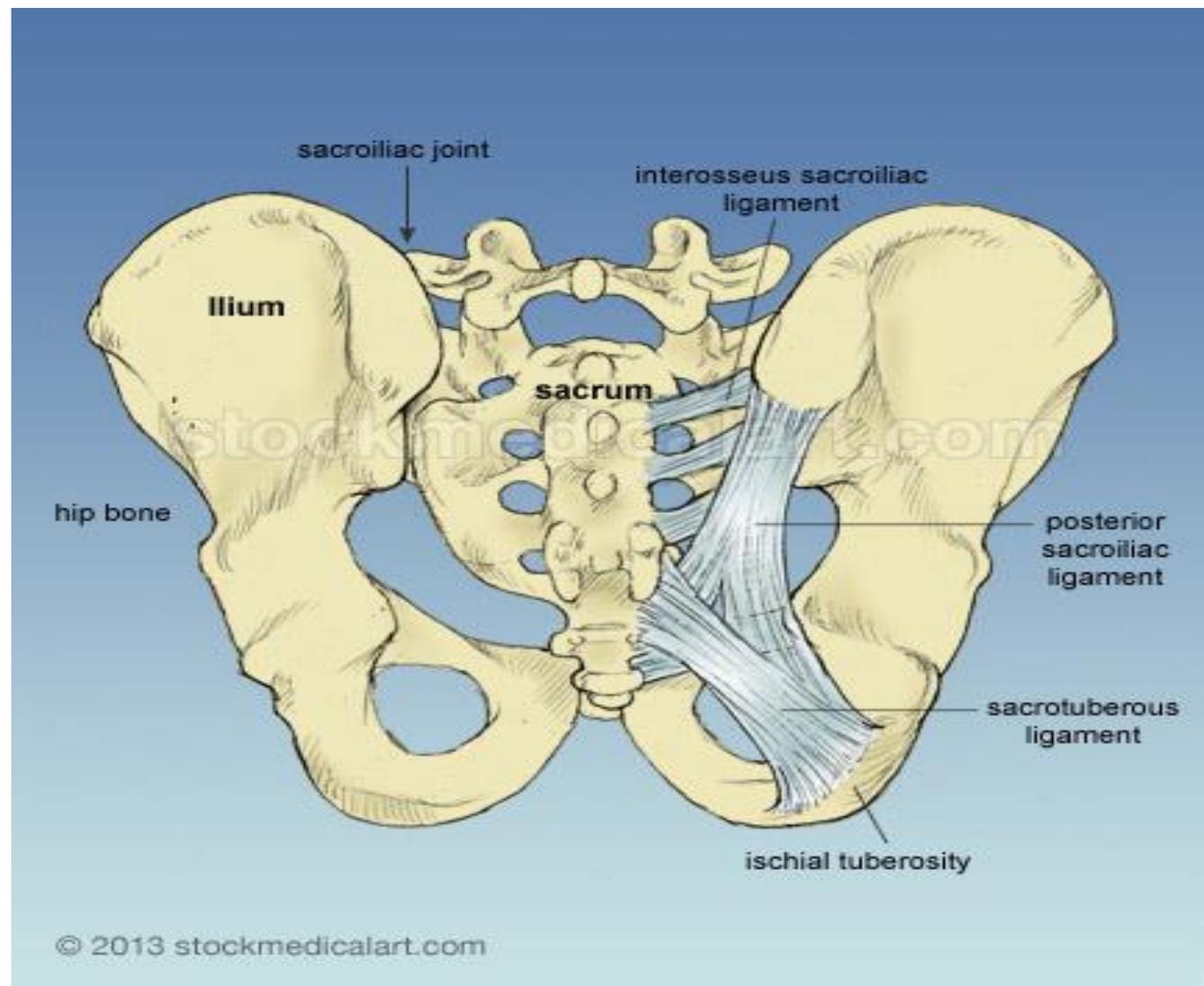
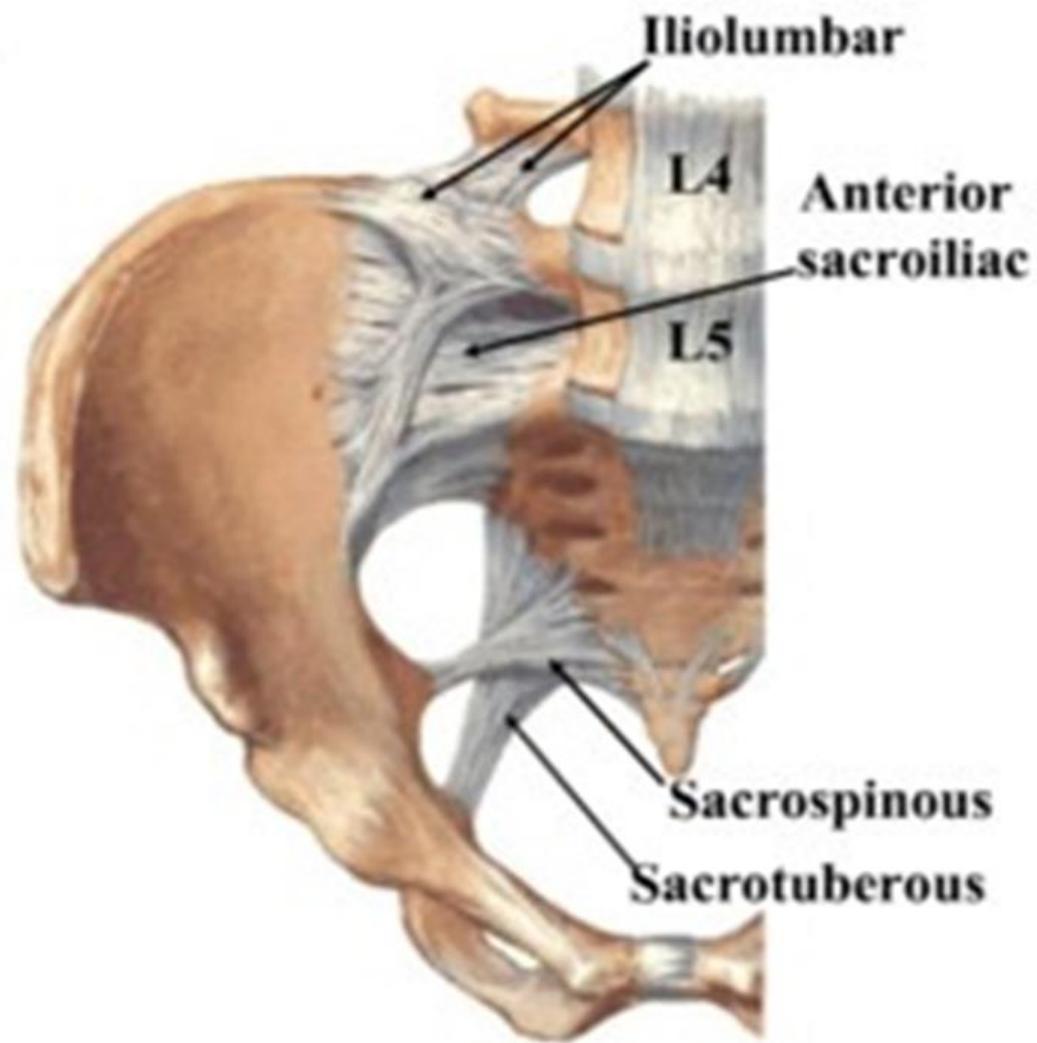
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Sacroiliac Joint (Read Only)

- **Type:** plane synovial joint
- **Articular surfaces :** between sacral and iliac auricular surfaces.
- **Ligaments:**
 - The ventral sacroiliac ligament
 - The interosseous sacroiliac ligaments .
 - The dorsal sacroiliac ligament.
- **Functions:**
 - It transmits the body weight from lumbar spine to the hip bones.





Hip Joint

Type : ball and socket synovial joint.

Articular Surfaces : Acetabulum and head of the femur

Ligaments:

1- Iliofemoral Ligament :

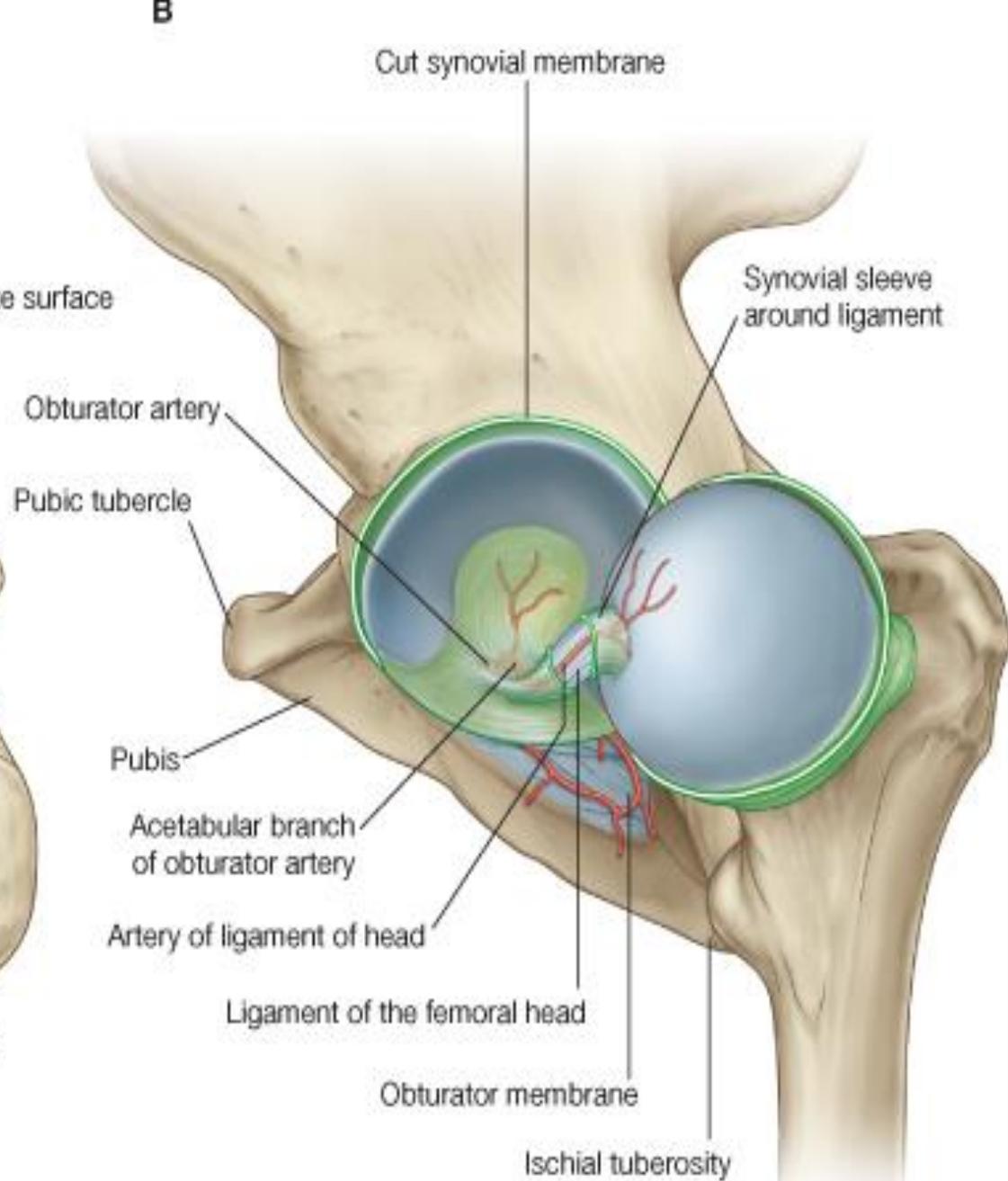
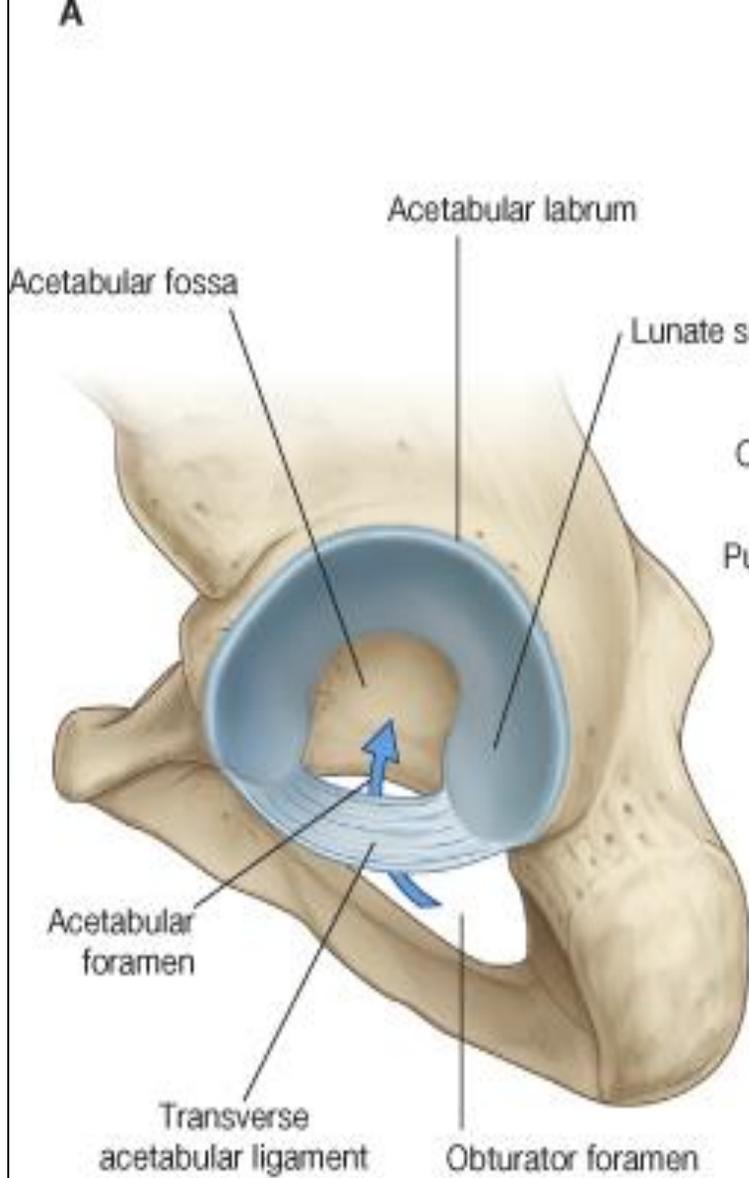
- It is Y shaped ligament
- It attached to **anterior inferior iliac spine** and **intertrochanteric line.**
- It prevent overextension of the hip during standing

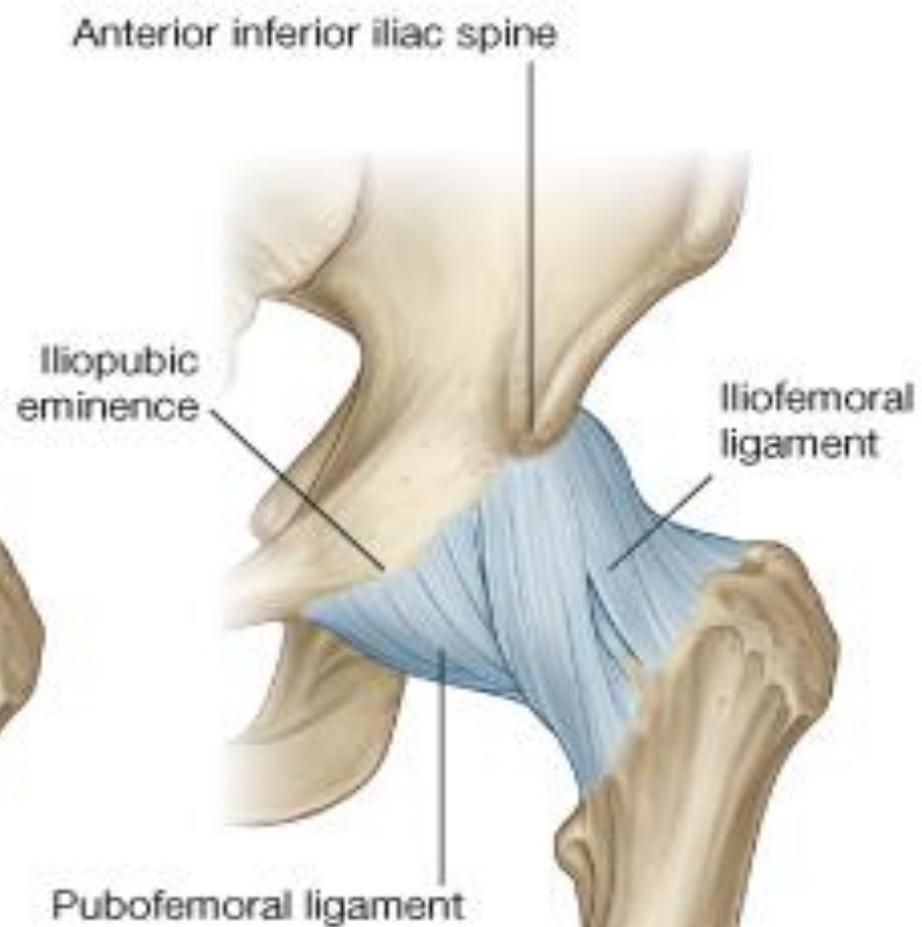
2-Pubofemoral Ligament : is attached above to the **iliopubic eminence** and **intertrochanteric line.**

3-Ischiofemoral Ligament: is attached to **ischium** to **intertrochanteric line.**

4- Ligament of the head of the femur : is attached to a fovea on the head of the femur and sides of the acetabular notch. It transmits blood supply for the head

5- Labrum acetabular : A fibrocartilaginous rim to deepens the concavity of acetabulum



A**B****C**

Movements of the Hip Joint :

1. Flexion:

- Mainly by ilio- psoas.
- Assisted by rectus femoris, sartorius .

2. Extension :

- Mainly by gluteus maximus.
- Assisted by hamstrings.

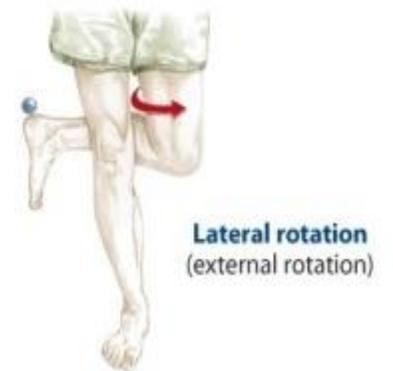
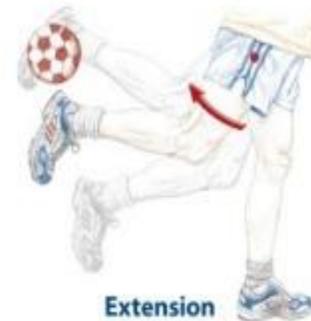
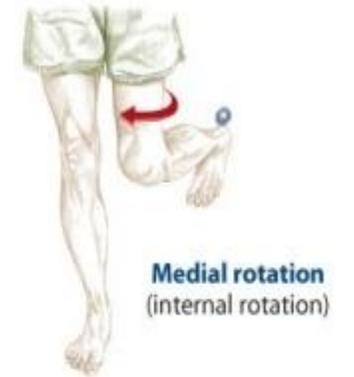
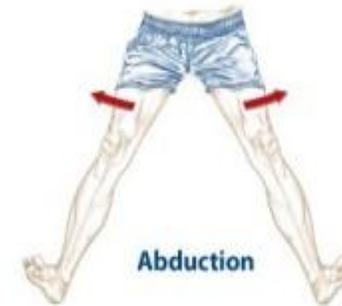
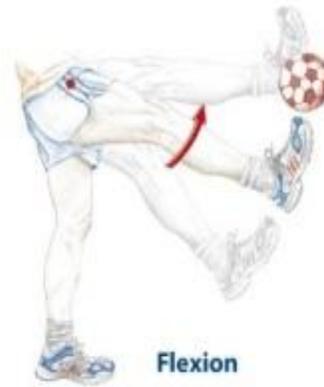
3. Adduction :

- Adductors (longus, brevis, Magnus)
- Assisted by gracilis.

4. Abduction :

- Gluteus medius and minimus.

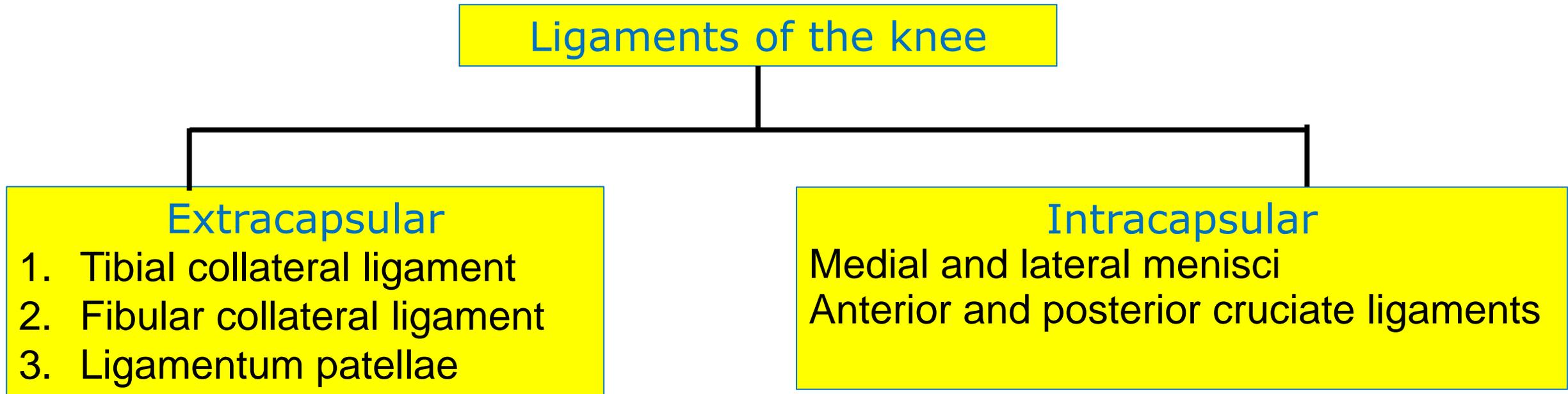
Hip (coxal joint)

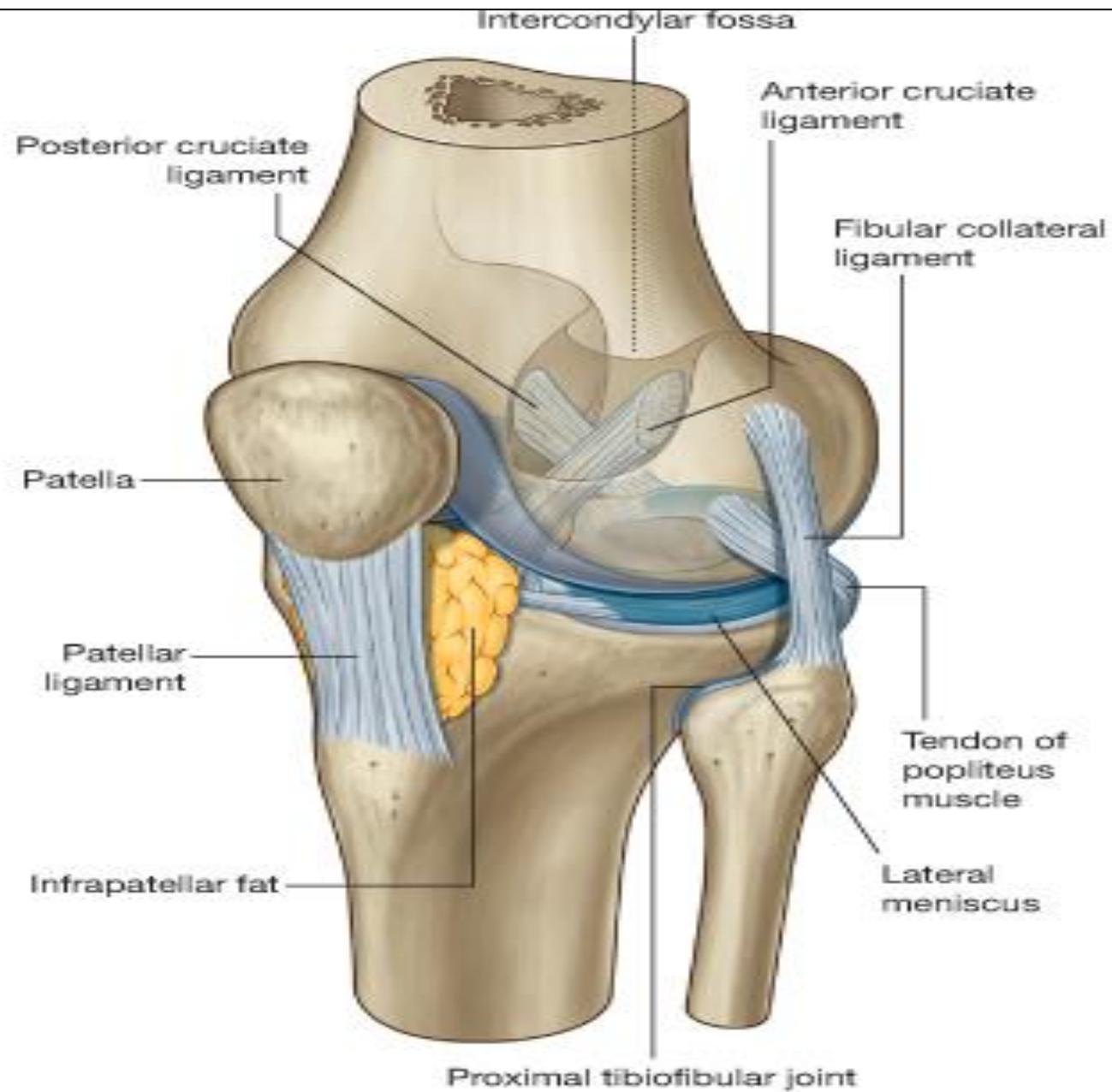


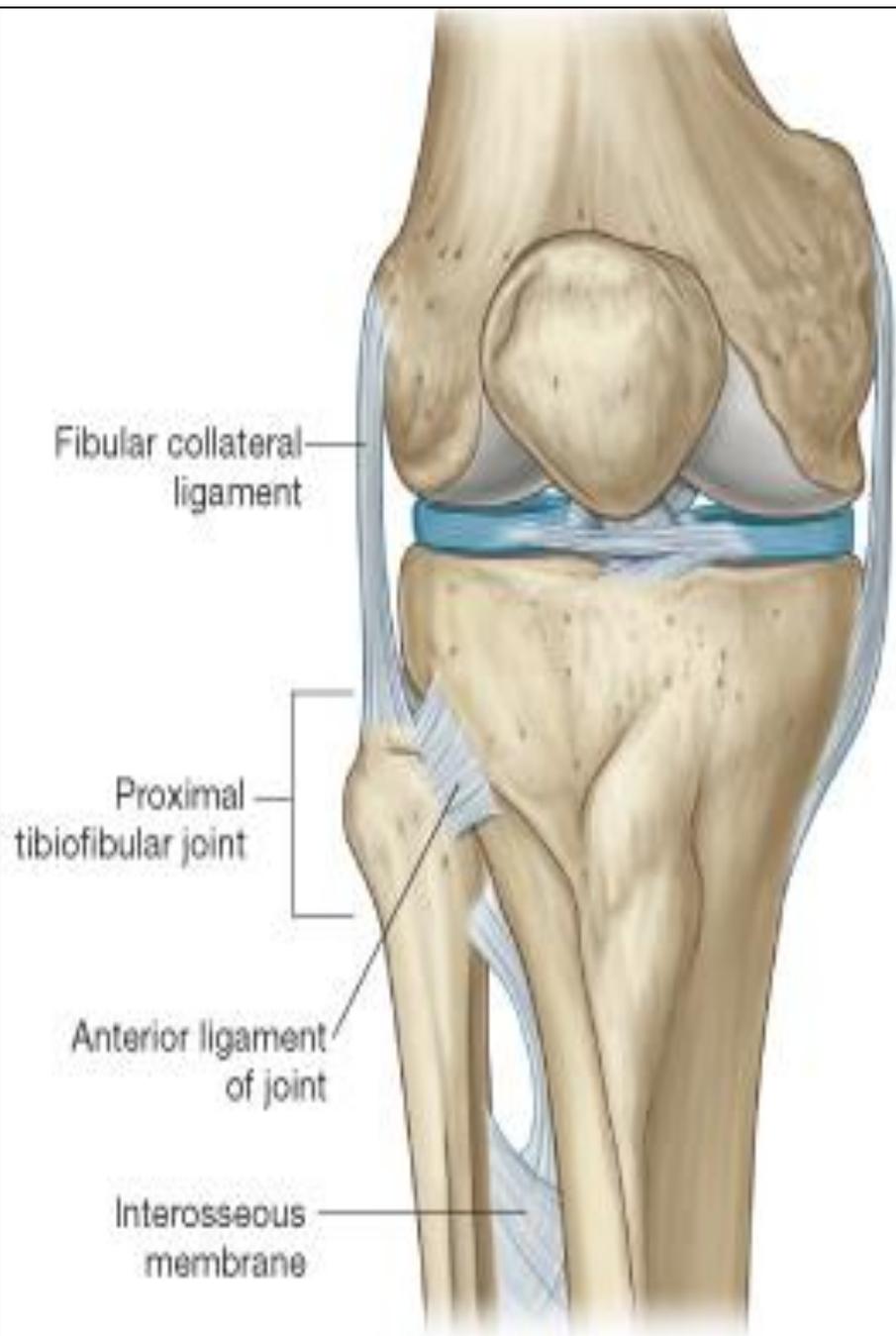
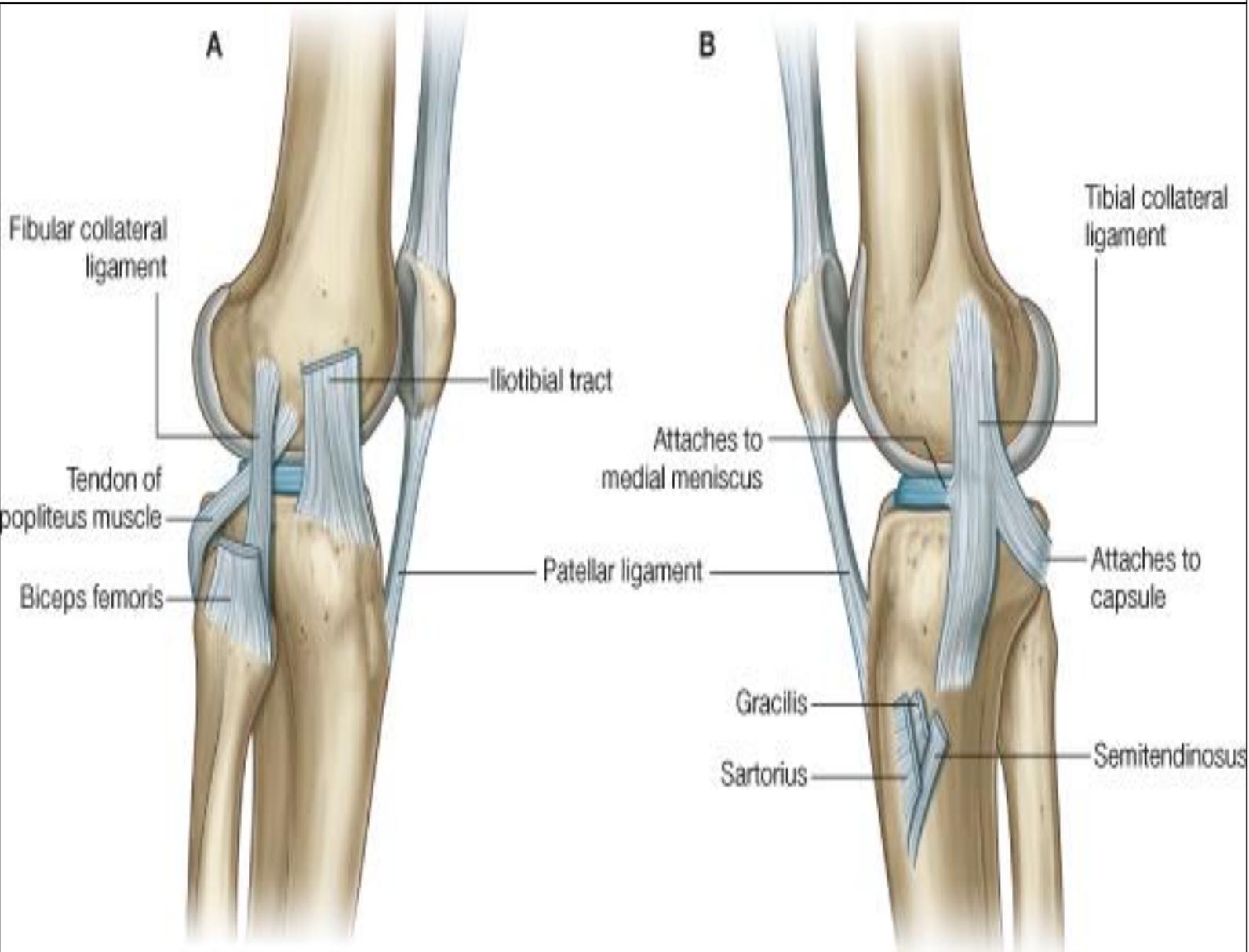
Knee Joint

Type : Modified hinge synovial joint.

Articular Surfaces : Condyles of the femur , condyles of tibia and the Patella.







1. Ligamentum patellae :

- It extends from the apex of the patella to tibial tuberosity.

2. Tibial (medial) collateral ligament:

- It Lies on the medial side of the joint.
- Attachments: above to the medial femoral epicondyle and Below to medial condyle of the tibia.

It is firmly attached to joint capsule.

3. Fibular (lateral) collateral ligament:

- It Lies on the lateral side of the joint
- Attachments: above to the lateral femoral epicondyle and to the head of fibula
- It is separated from the joint capsule by the tendon of popliteus.

The 2 collateral ligaments are responsible for the side to side stability of the extended knee.

The two menisci (medial and lateral)

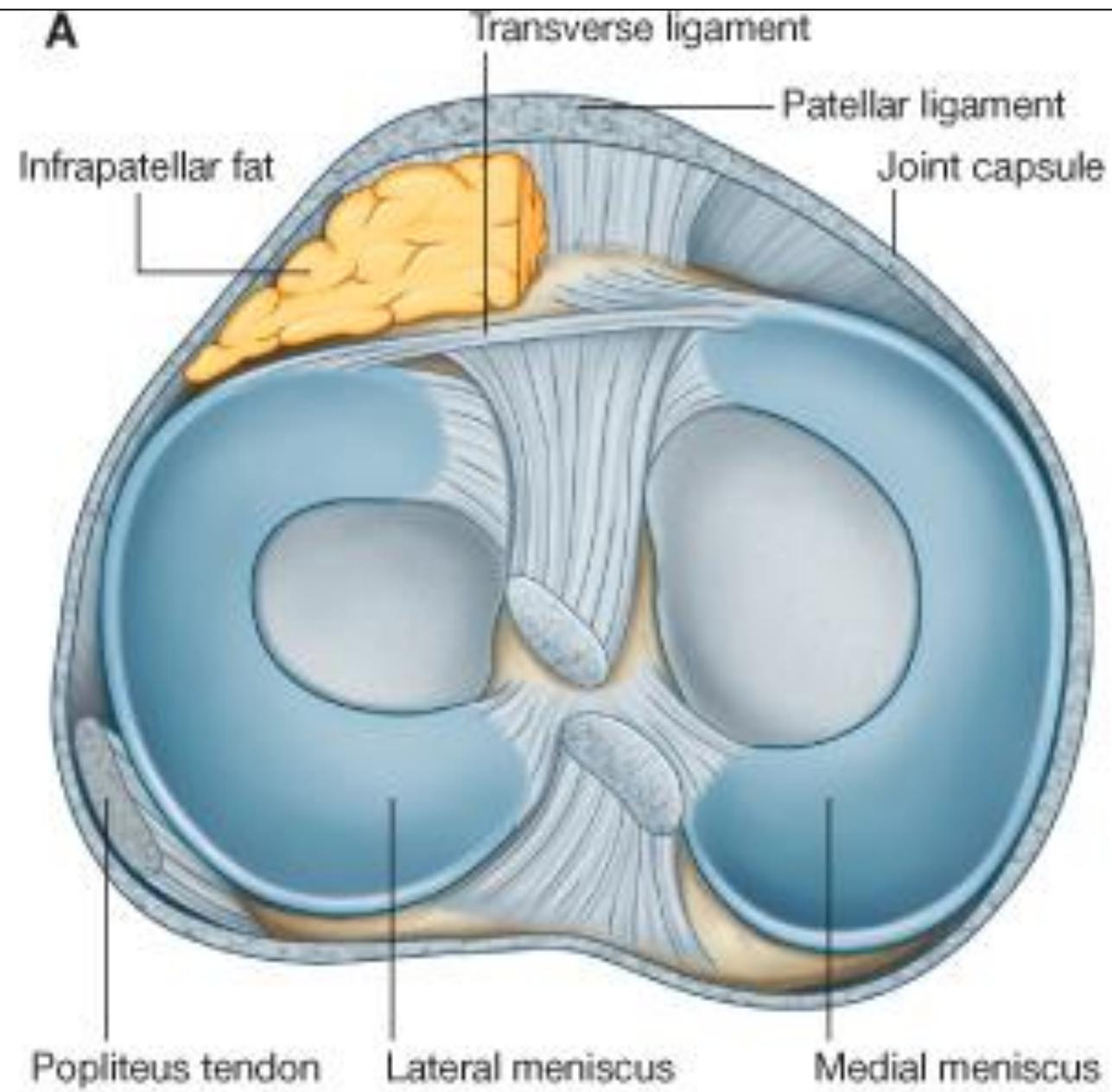
Function :

- They facilitate rotation of the femur on the tibia
- They are shock absorption.

Difference between the two meniscus

Lateral meniscus	Medial meniscus
O shaped	C shaped
It is separated from the fibular collateral ligament by the tendon of popliteus.	It is attached to tibial collateral ligament.
It is free to move on the tibia, so that it is less susceptible to injury.	It is relatively fixed, so that is more susceptible to injury.

A



Infrapatellar fat

Transverse ligament

Patellar ligament

Joint capsule

Popliteus tendon

Lateral meniscus

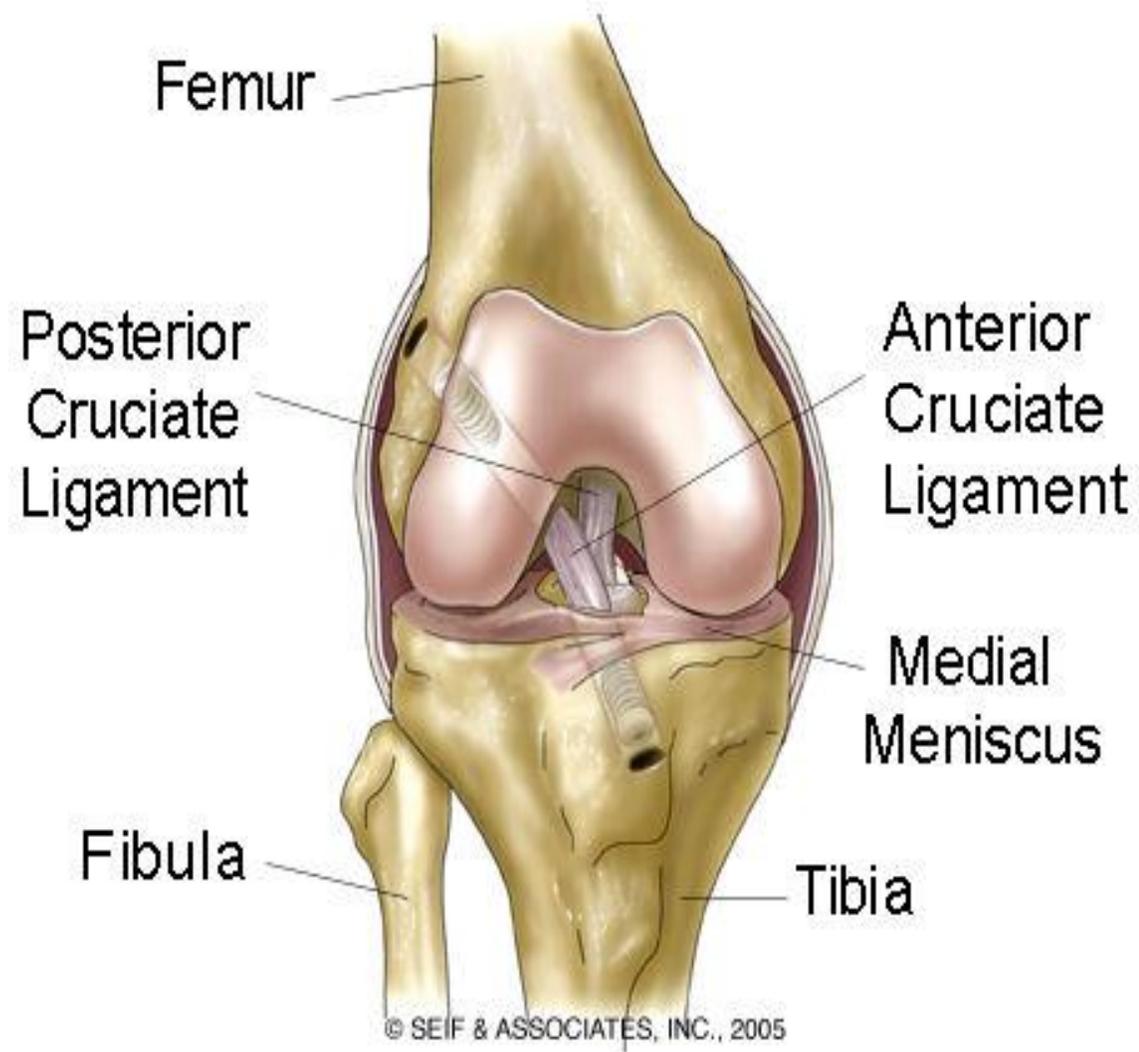
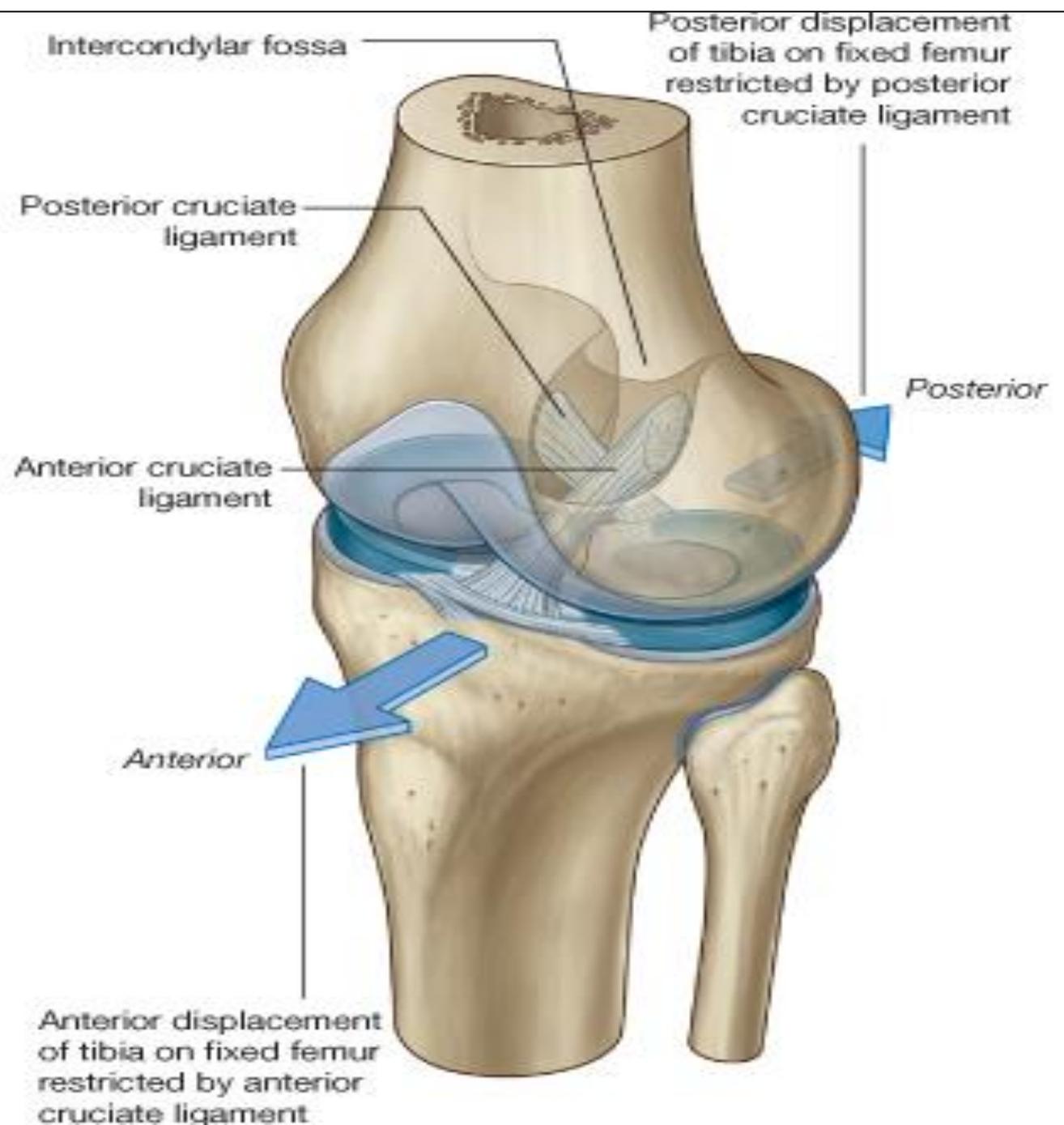
Medial meniscus

The two cruciate ligaments (anterior and posterior)

Function : provide antero-posterior stability of the knee joint.

Difference between anterior and posterior cruciate ligaments

	Anterior cruciate ligament	Posterior cruciate ligament
Attachments	Anterior part of intercondylar area to the lateral femoral condyle.	Posterior part of intercondylar area to the medial femoral condyle.
Functions	<ul style="list-style-type: none">• Prevents Anterior displacement of the tibia.• It becomes tense near full extension.	<ul style="list-style-type: none">• Prevents Posterior displacement of the tibia.• It becomes tense in full flexion
	It prevent Posterior displacement of the femur	It prevent Anterior displacement of the femur It is the main stabilizer of the femur during walking down stairs



Unhappy Triad

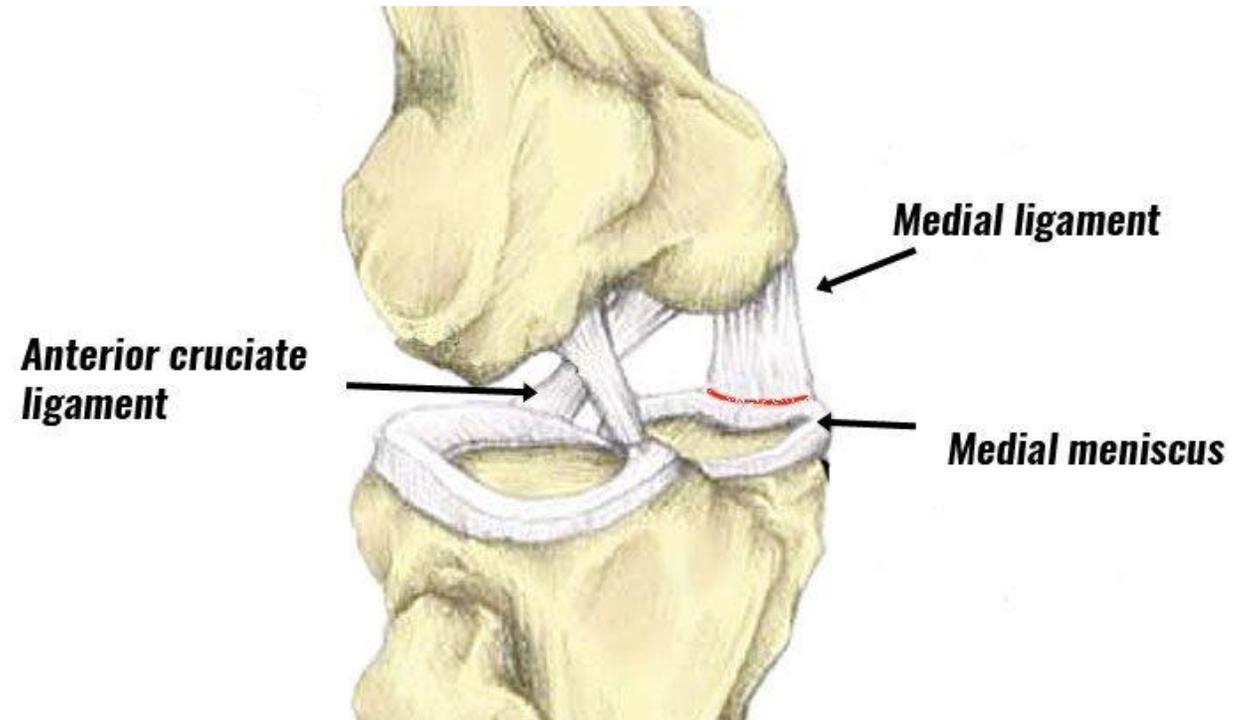


Injury of :

1. Medial meniscus
2. Tibial (medial) collateral ligament
3. Anterior cruciate ligament

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Movements of the joint

Flexion	Extension
Mainly by the hamstring Assisted by gracilis and sartorius	Quadriceps femoris. Assisted by muscle attached to Iliotibial tract
Medial rotation	Lateral rotation
Semimembranosus and semitendinosus. Assisted by gracilis	Biceps femoris

Tibiofibular Articulations (read only)

1) Superior tibiofibular joint :

Type: plane synovial joint

Articular surfaces : Head of fibula and the fibular facet at inferolateral aspect of the lateral tibial condyle.

2) Inferior tibiofibular joint:

Type: Fibrous (syndesmosts)

Articular surfaces : Fibular notch of the tibia and the lower end of the fibular shaft.

Movement of the tibiofibular joints :

They allow movement of fibula during movement of the ankle.

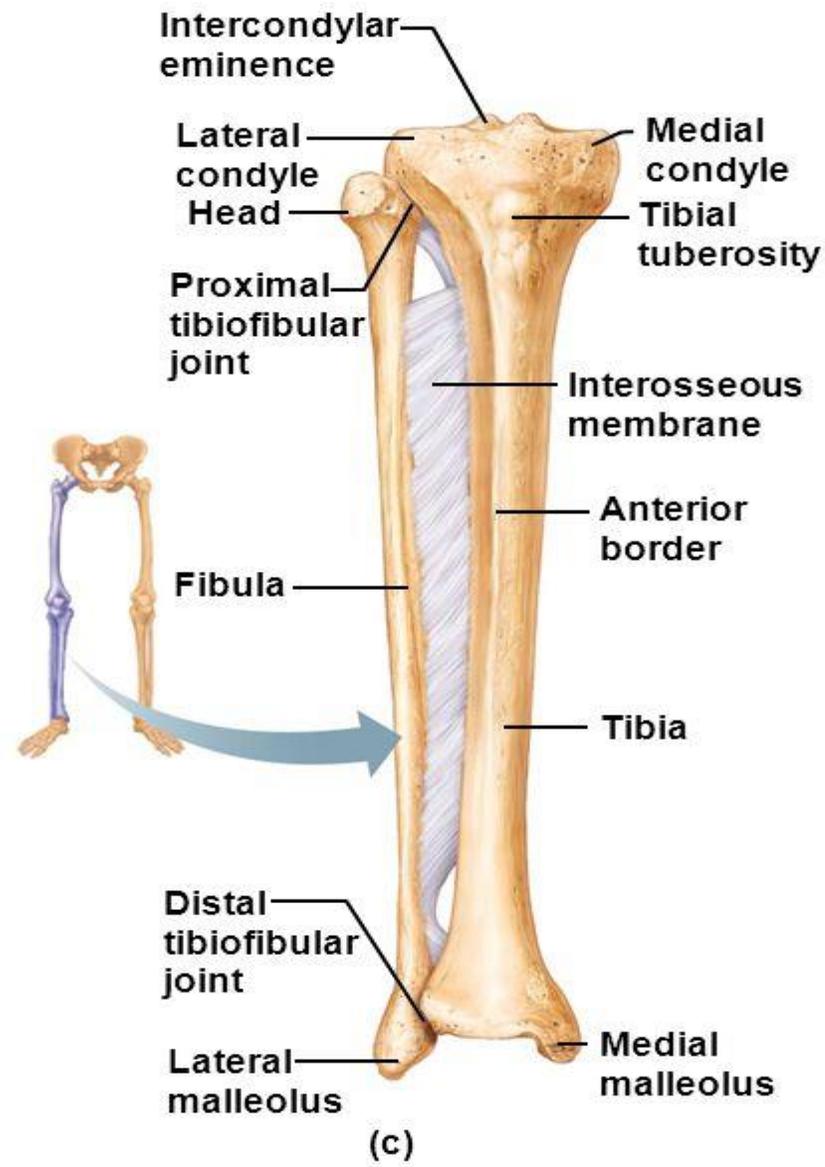
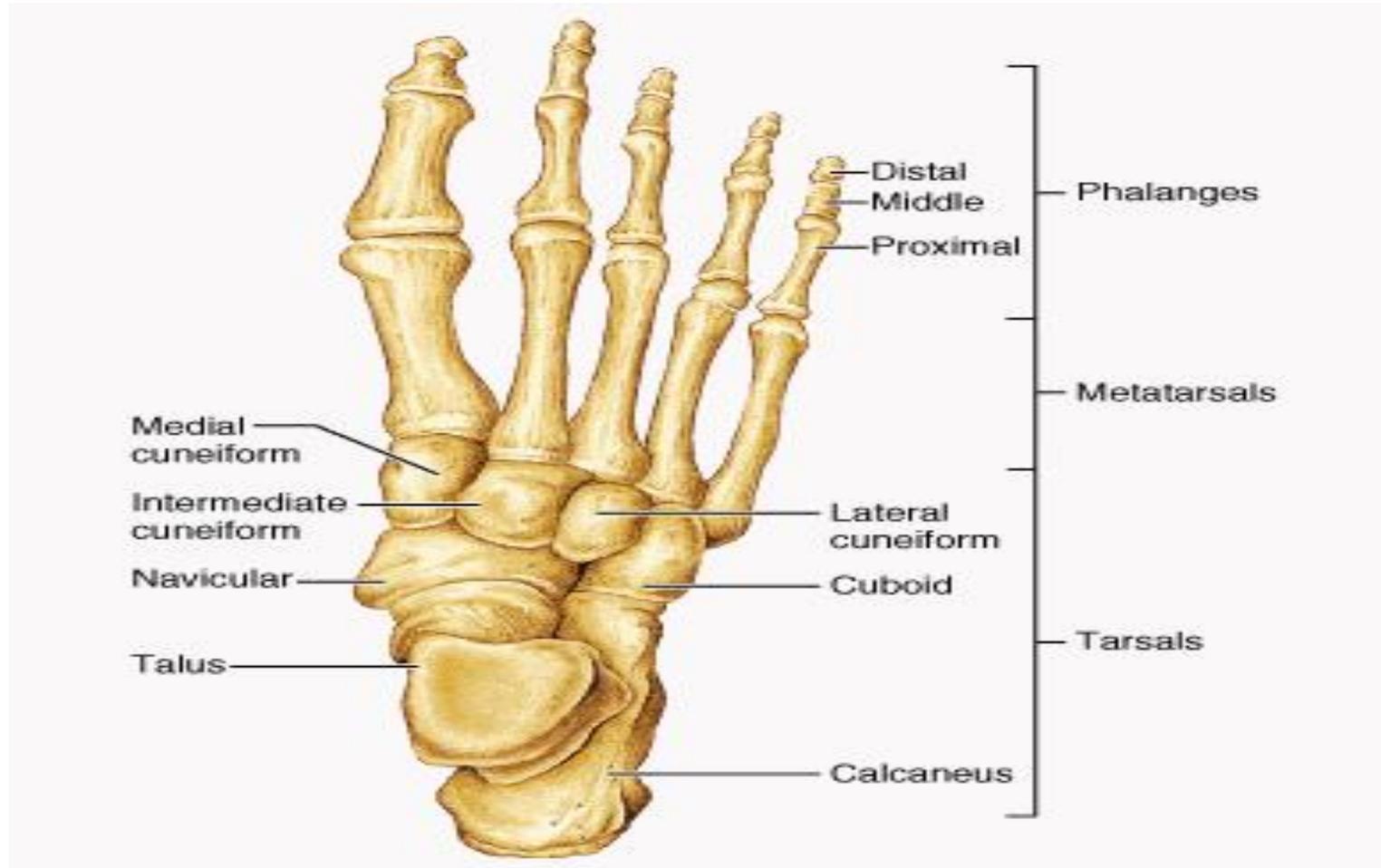


Figure 5.27c

Bones of the Foot



Ankle Joint

Type: Hinge synovial joint.

Articular surfaces :

- Above: lower end of tibia and the medial malleolus, lateral malleolus of fibula .
- Below: the trochlear surface of the body of the talus.

Supporting ligaments:

(1) Medial (deltoid) ligament

Attachment : Medial malleolus to navicular bone, talus and plantar calcaneo-navicular (spring) ligament.

(2) Lateral ligament: has 3 bands :

- Anterior talofibular ligament
- Posterior talofibular ligament
- Calcaneofibular ligament:

Tibia

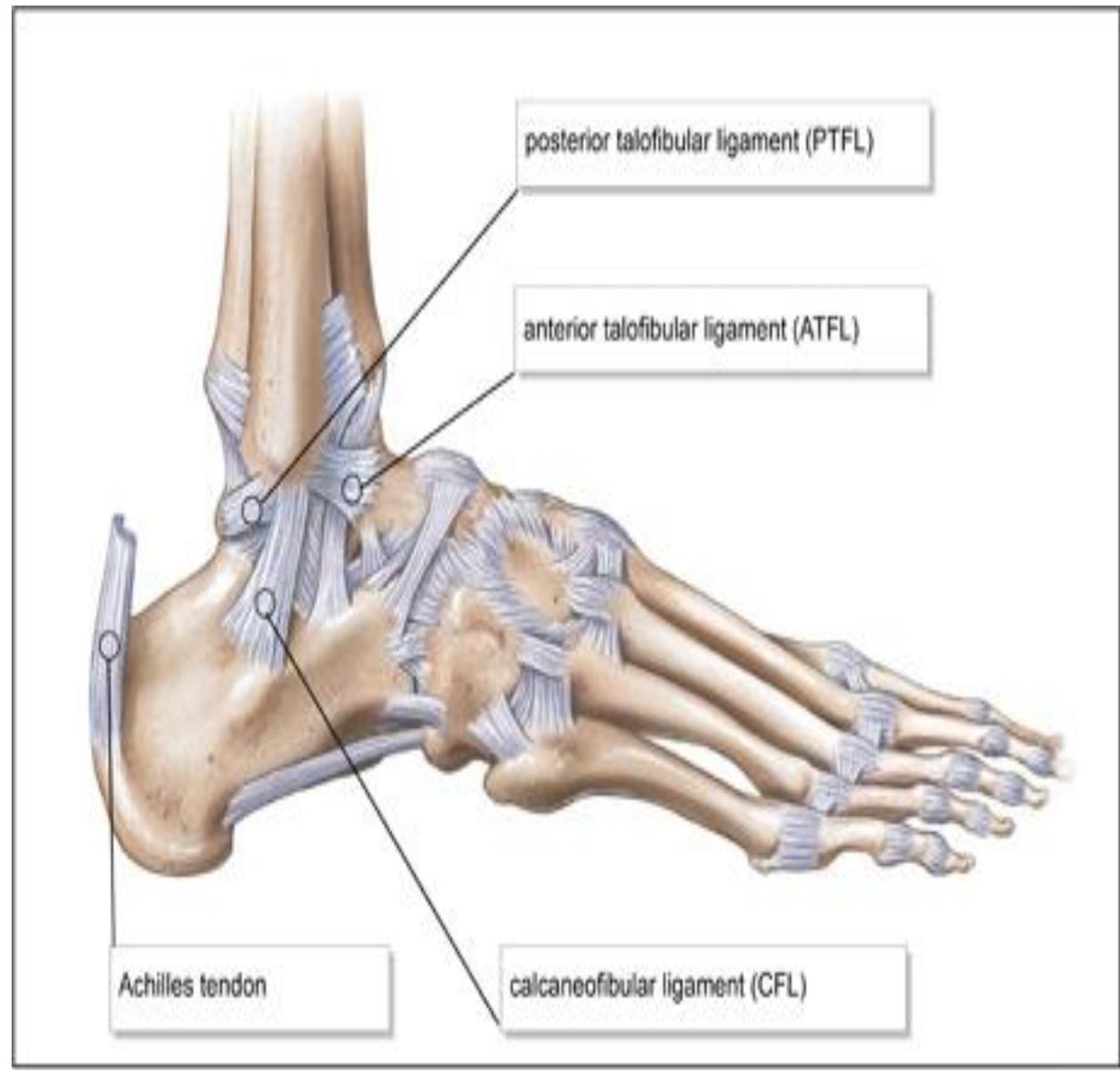
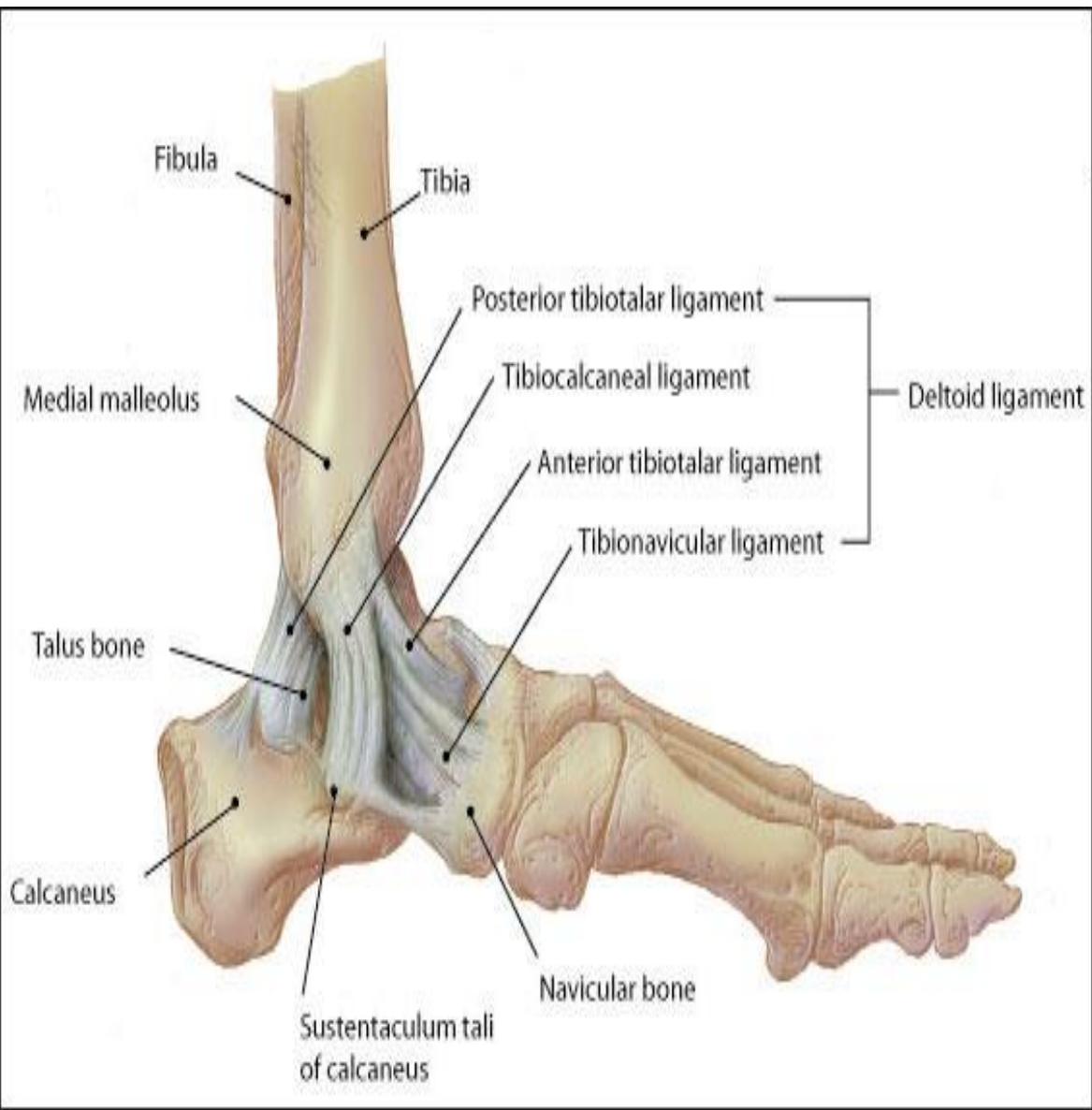
Fibula

Medial
malleolus

Lateral malleolus

Talus

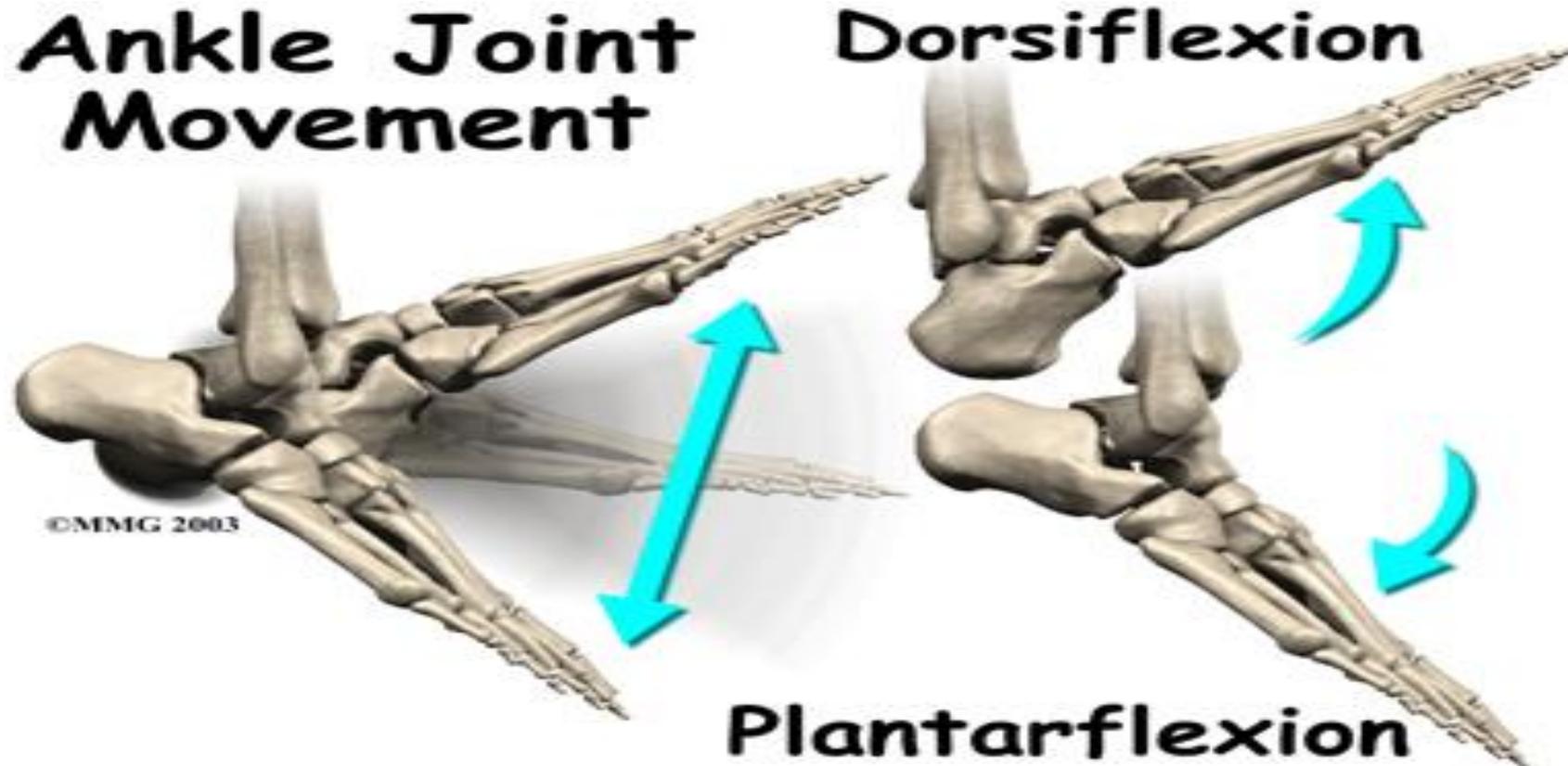




Movements

Dorsiflexion: Anterior muscles of the leg

Plantar flexion : Lateral and posterior group of leg muscles



Joints of the Foot

Subtalar (between the talus and the calcaneum) **and Mid tarsal joints**
(talocalcaneonavicular and the calcaneocuboid)

Type : Plane Synovial

Movements :

Inversion and eversion

Inversion is much more free than eversion why ?

(L. malleolus is lower than the M. malleolus).

Thank you