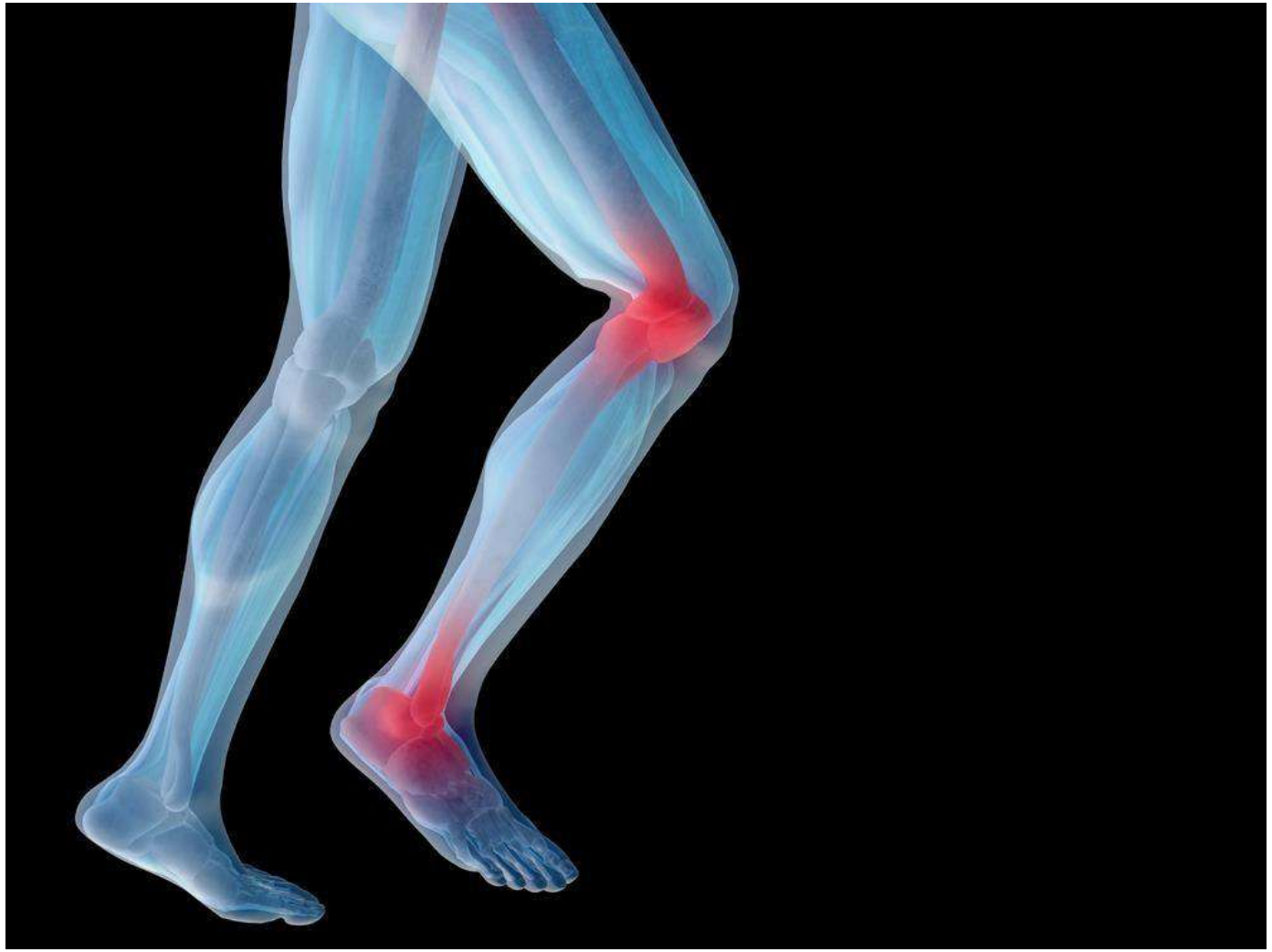
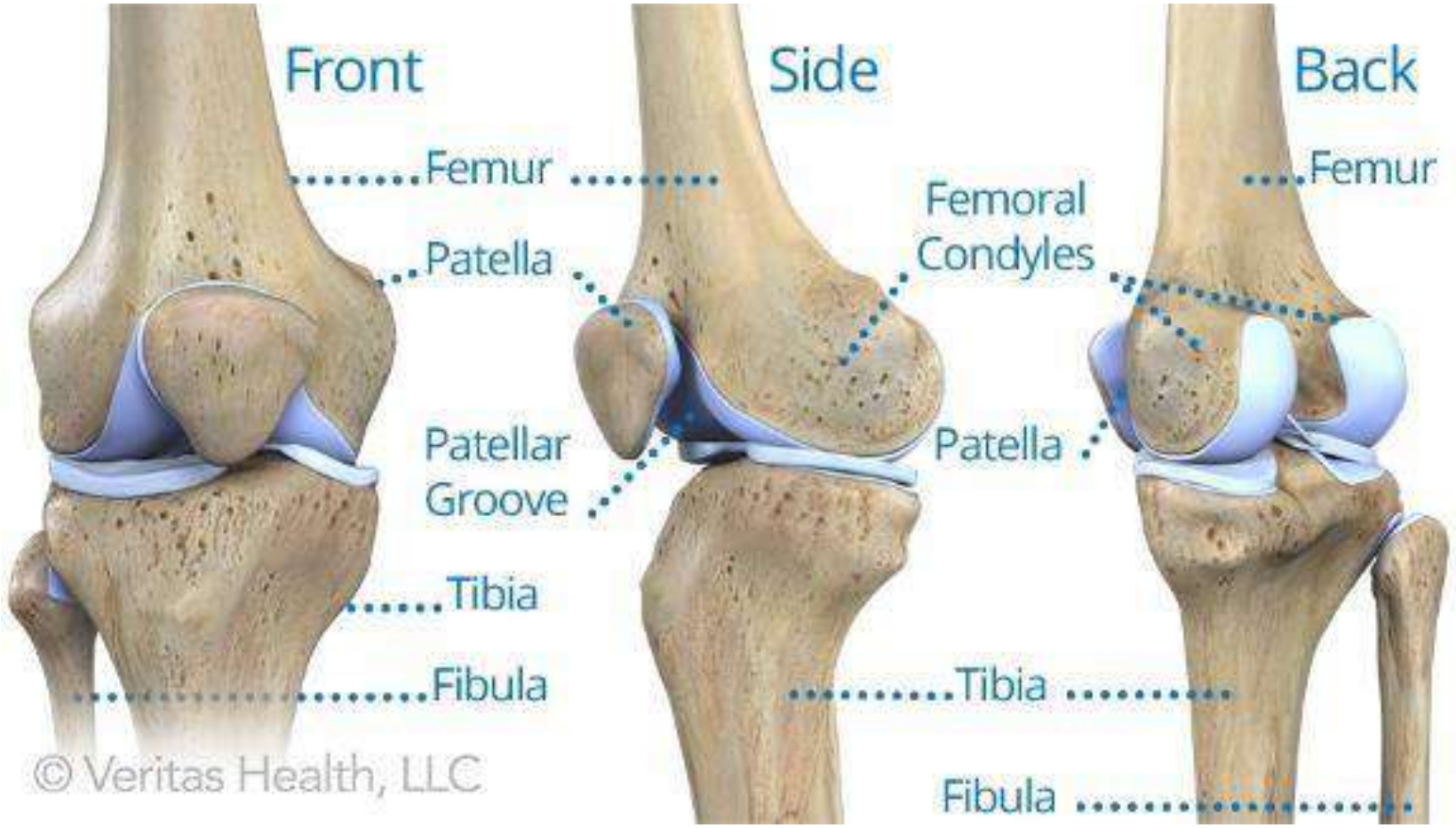
Leg



Bones of the knee



Ligaments of the knee

- There are four main ligaments in the knee connect the femur to the tibia

Functions:

ACL: prevents anterior moving of the tibia relative to the femur

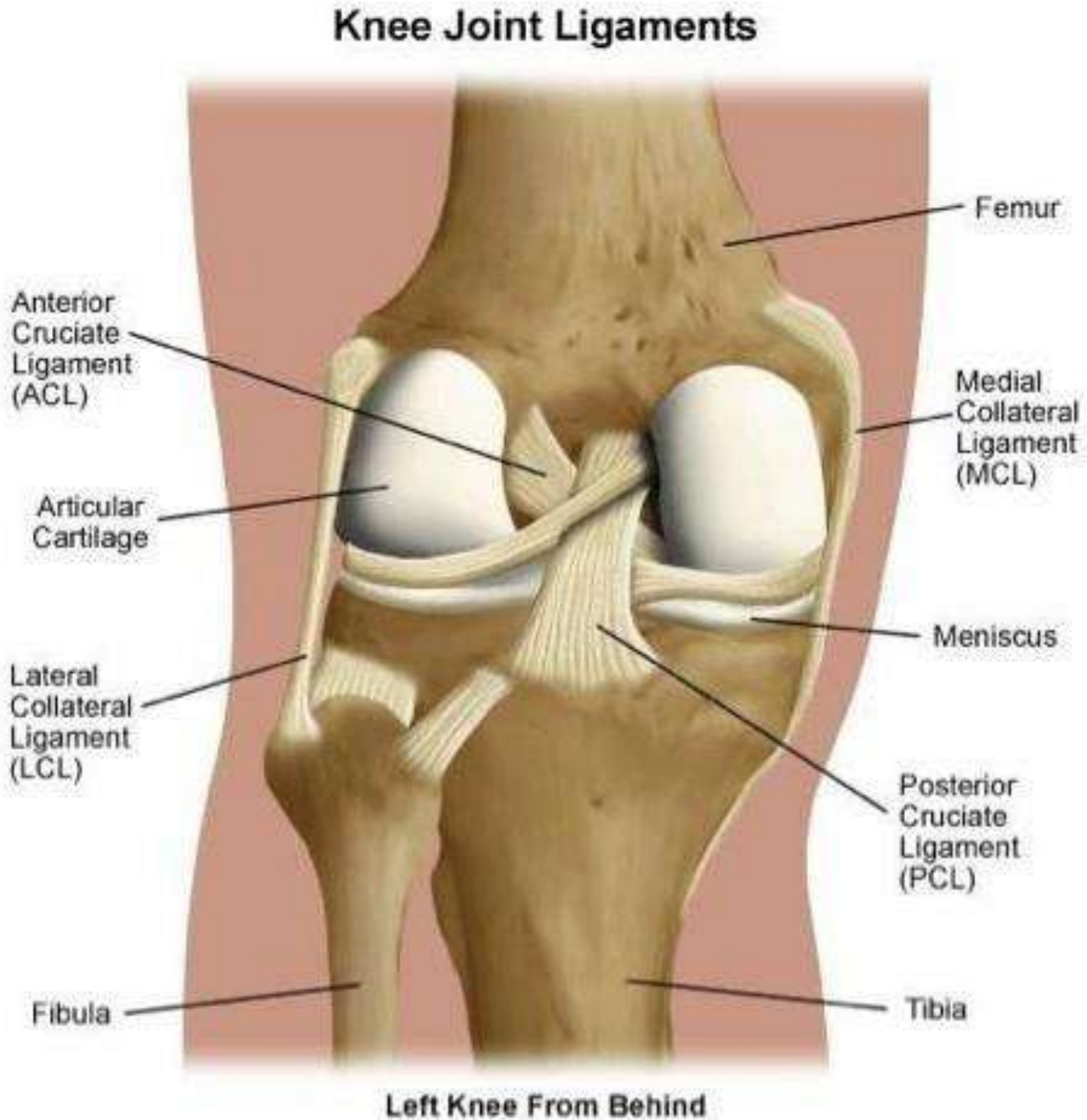
PCL: prevents posterior moving of the tibia relative to the femur

LCL : resists varus angulation

Provide restraint to axial rotation

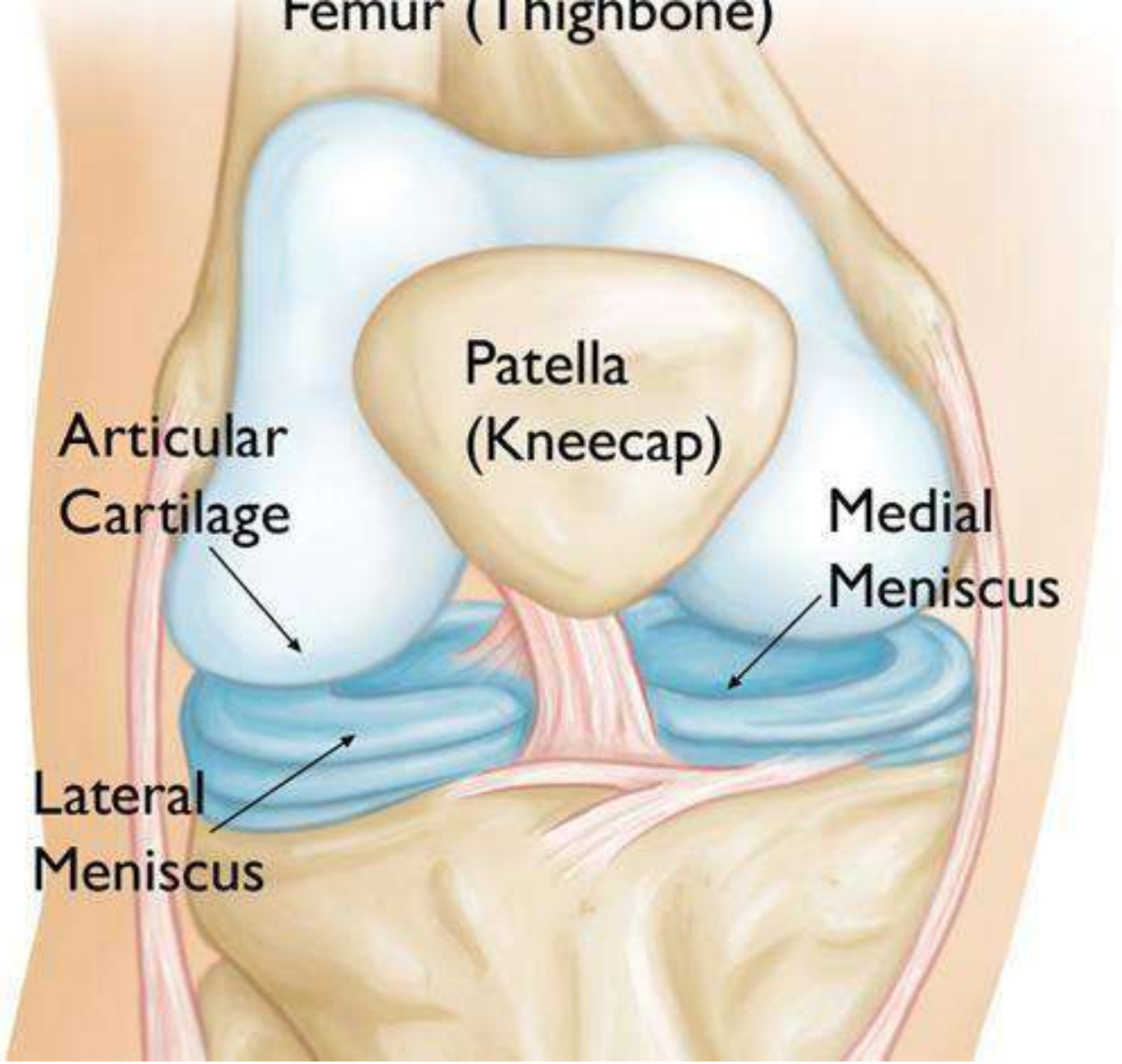
MCL: resists valgus angulation

Provide restraint to axial rotation



Meniscus

- The menisci are C-shaped cartilages
- Disperse the weight of the body
- Reduce friction during movement
- Meniscus tear is one of the most common knee injuries
- Torn meniscus occurs by forceful twisting especially when putting your full weight on it
- Degenerative meniscus tear related to aging (wear&tear)



Knee joint

Synovial hinge joint

Two main joints:

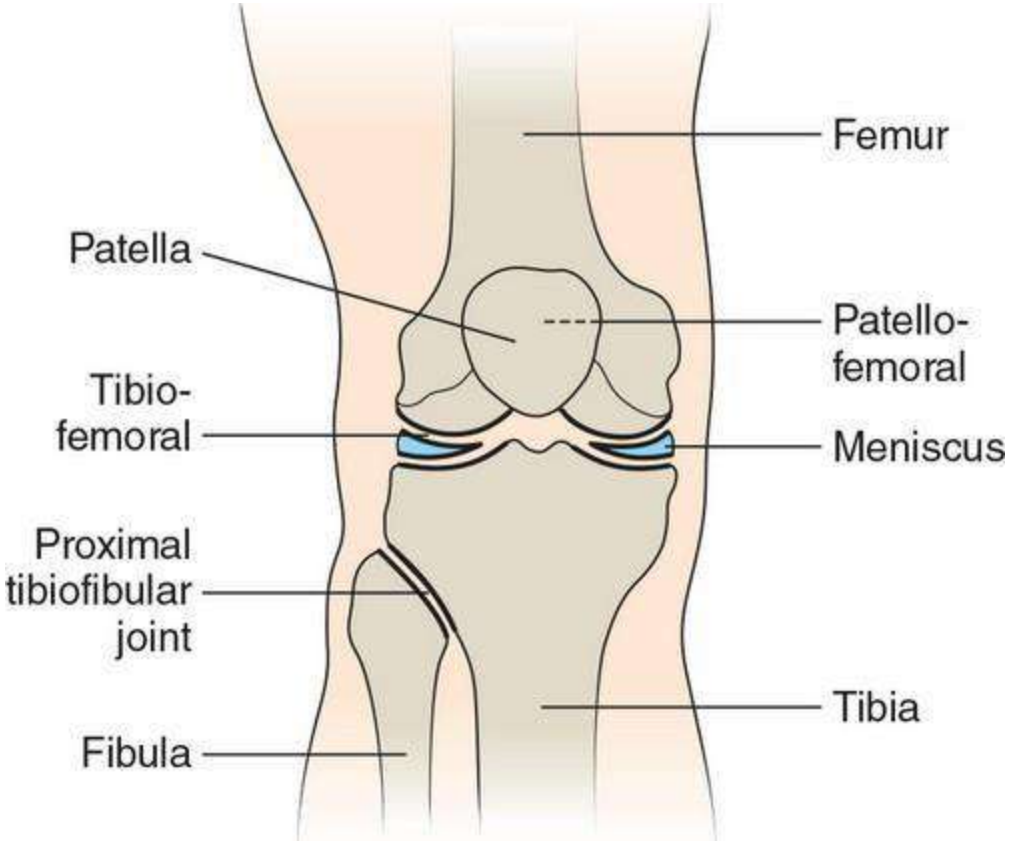
1.Tibiofemoral joint

Tibia meets the Femur

2.Patellofemoral joint

Patella meets the Femur

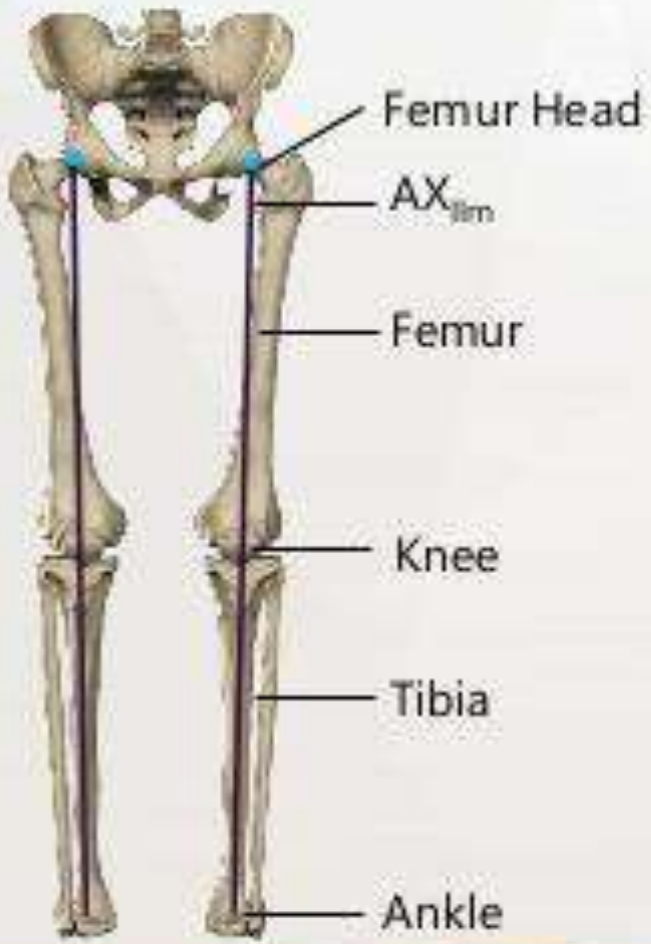
These two joints work together

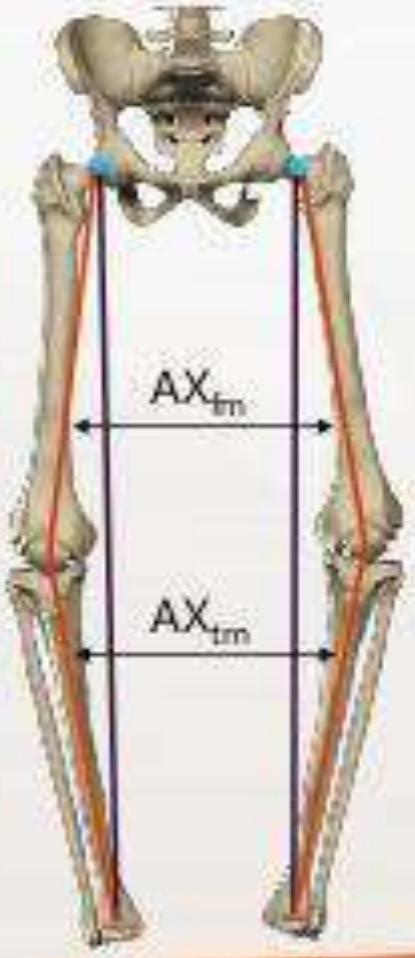


Patellofemoral Joint



MECHANICAL VALGUS/ VARUS ALIGNMENT

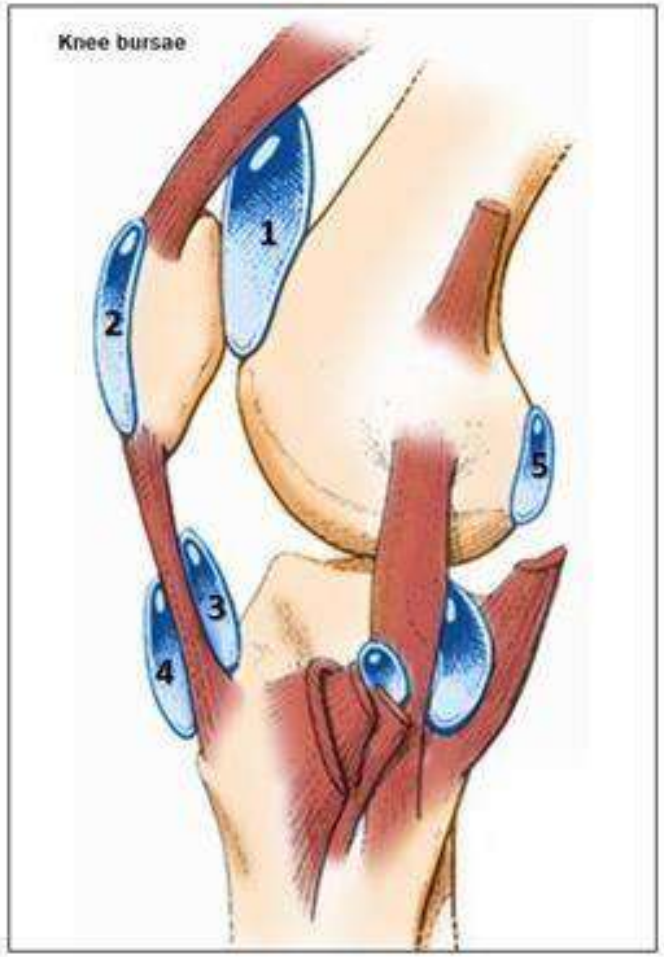


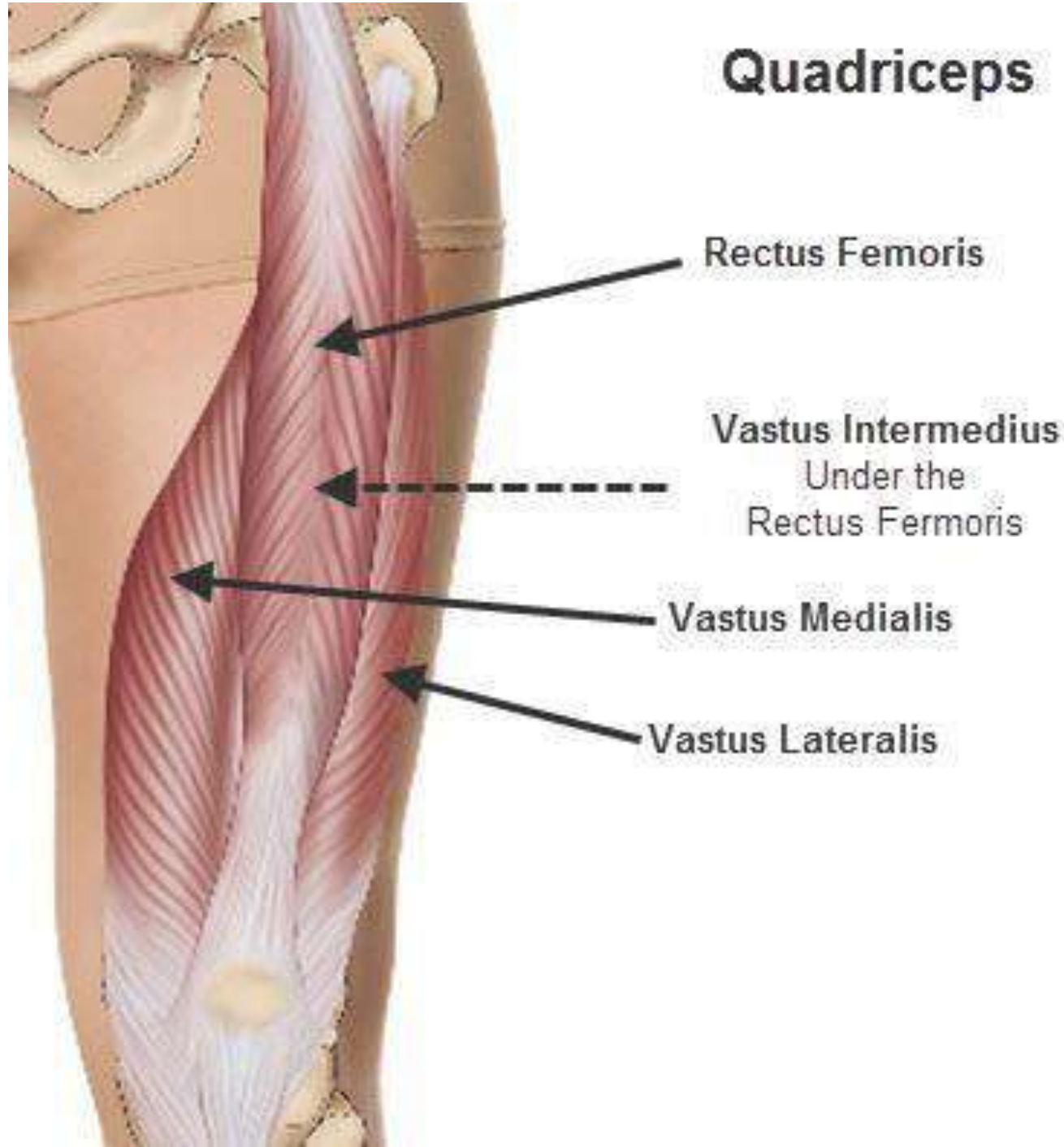




Bursae Related to Knee

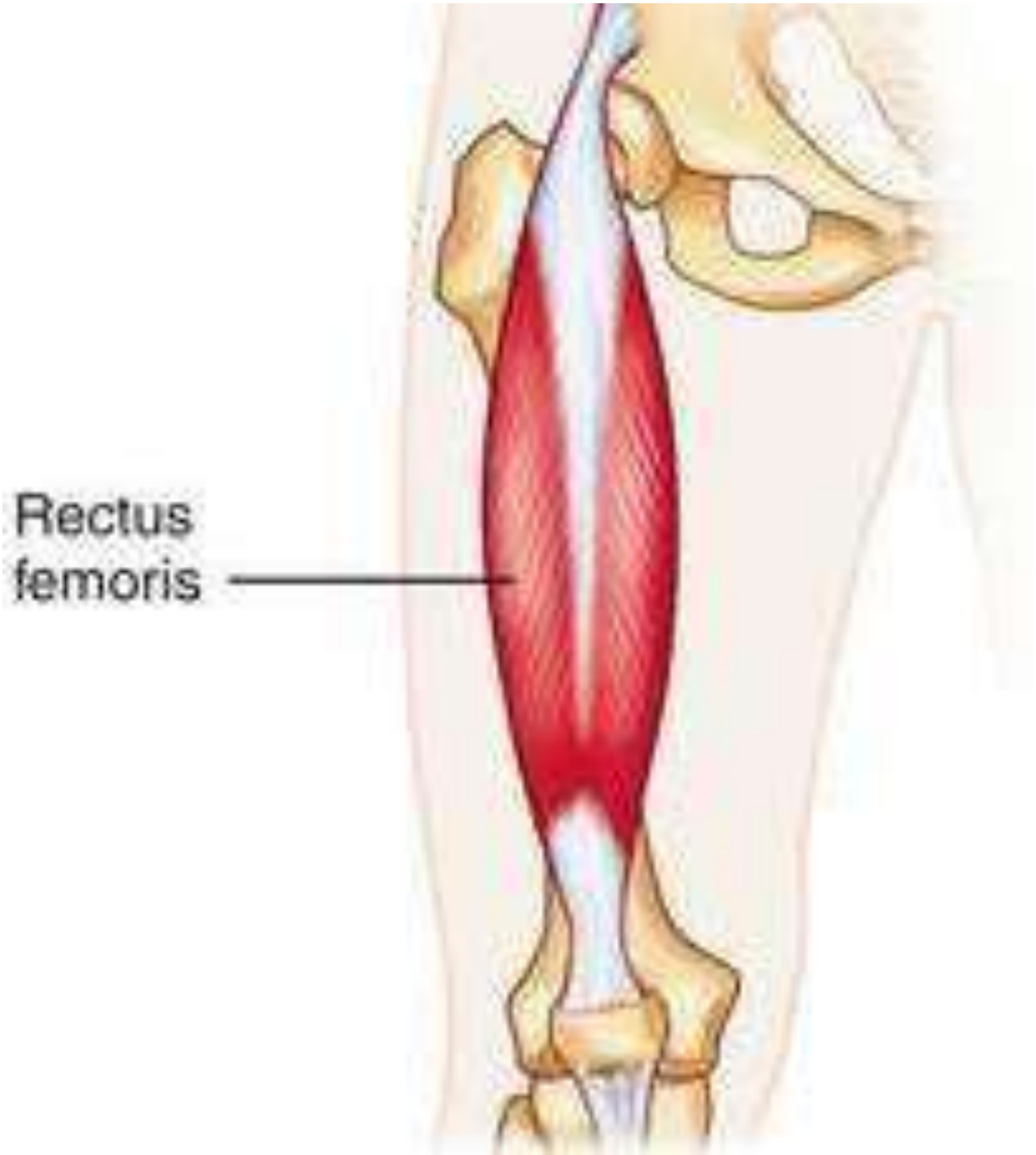
1. **Suprapatellar bursa:** between femur & quadriceps tendon, communicates with synovial membrane of knee joint
2. **Prepatellar bursa:** between patella & skin.
3. **Deep infrapatellar bursa:** between tibia & ligamentum patella.
4. **Subcutaneous infrapatellar bursa:** between tibial tuberosity & skin.
5. **Popliteal bursa:** between popliteus tendon & capsule, communicates with synovial membrane of knee joint.



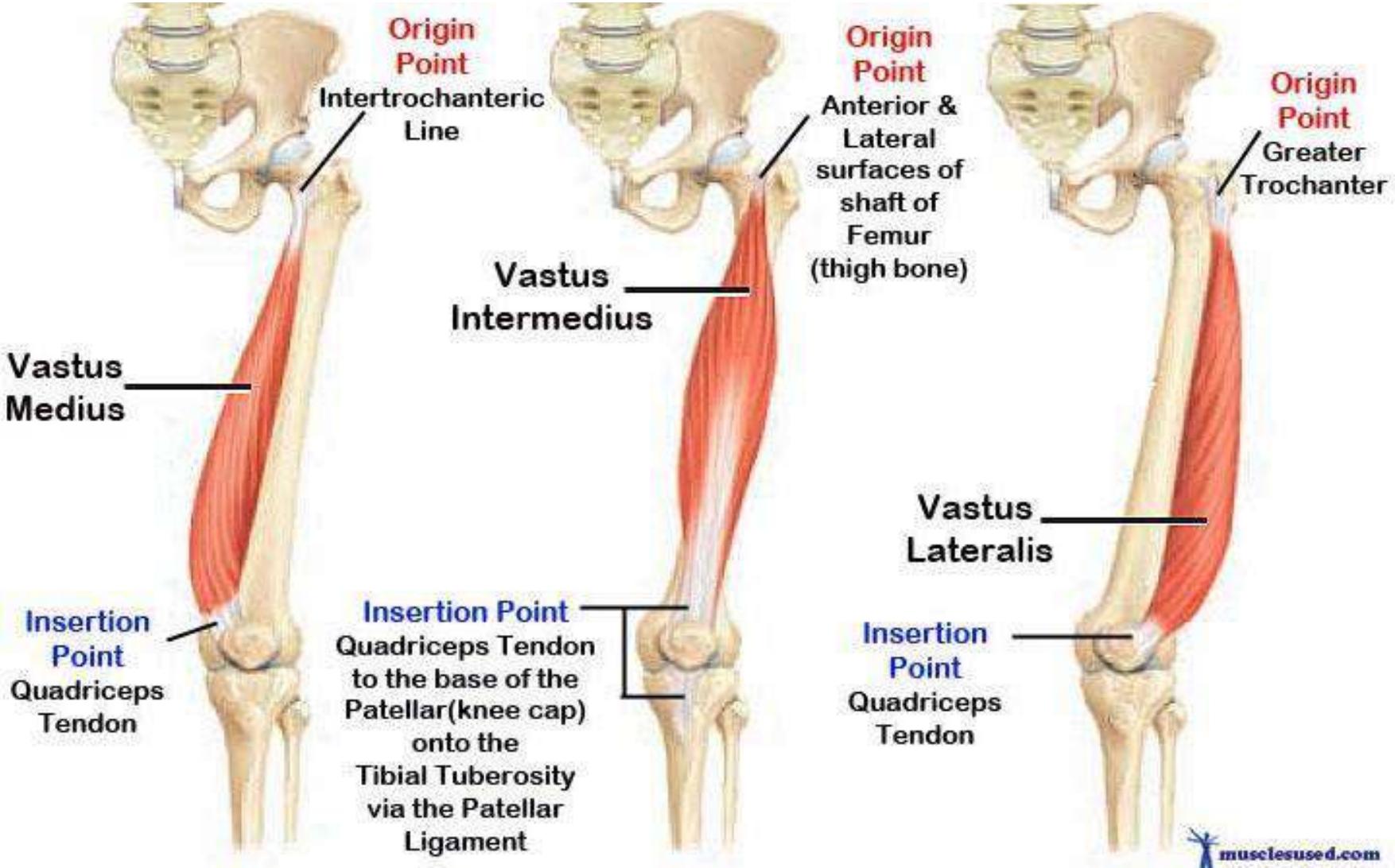

Quadriceps
Rectus Femoris
Vastus Intermedius
Under the
Rectus Fermoris
Vastus Medialis
Vastus Lateralis

Quadriceps

- **Origin:** Anterior Inferior Iliac Spine (AIIS)
- **Insertion:** Tibial Tuberosity
- **Action:** flexes the hip and extends the knee
- **Innervation:** Femoral nerve

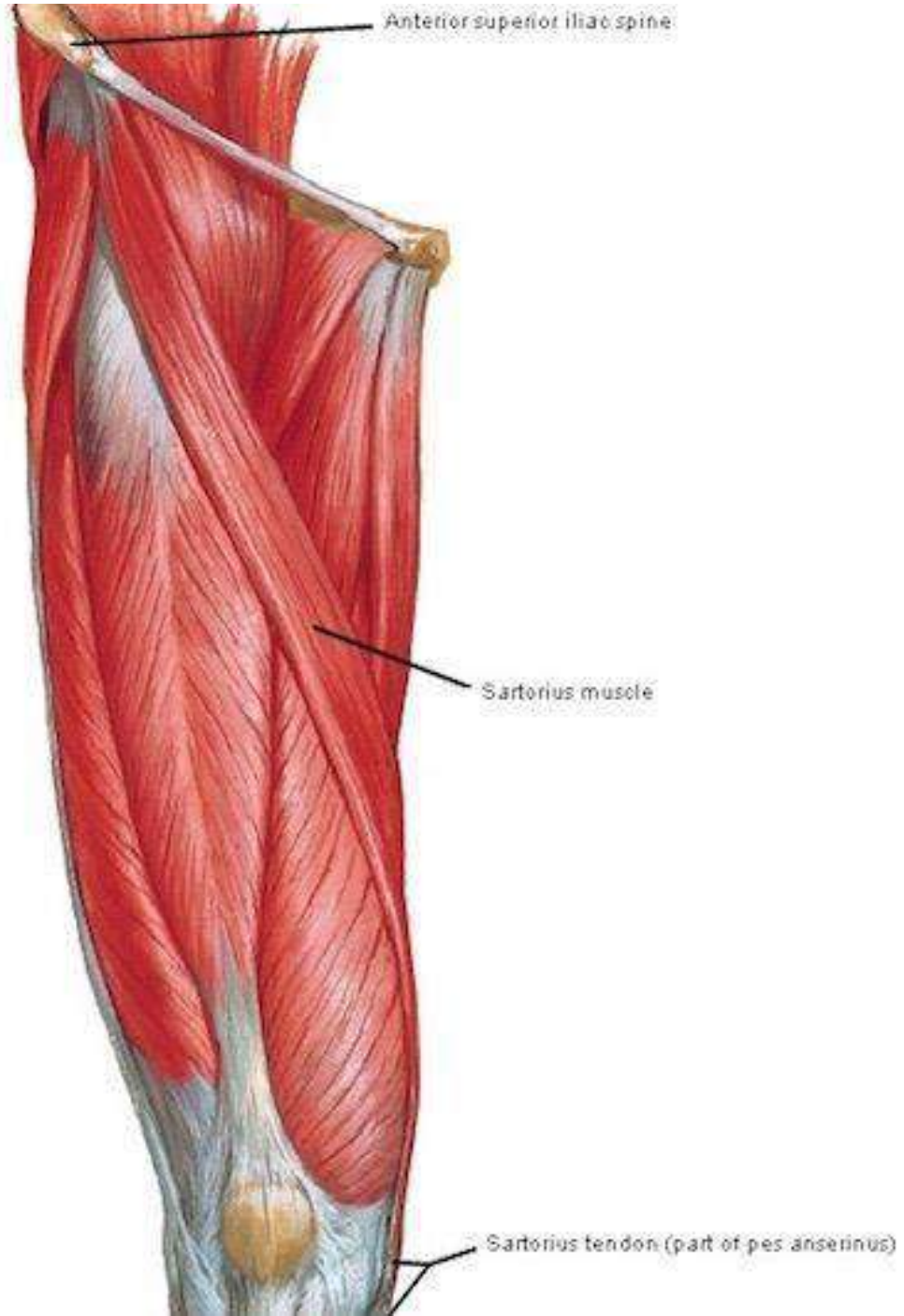


Quadriceps


Origin Point
Intertrochanteric Line
Vastus Medius
Insertion Point
Quadriceps Tendon
Origin Point
Anterior & Lateral surfaces of shaft of Femur (thigh bone)
Vastus Intermedius
Insertion Point
Quadriceps Tendon to the base of the Patellar(knee cap) onto the Tibial Tuberosity via the Patellar Ligament
Origin Point
Greater Trochanter
Vastus Lateralis
Insertion Point
Quadriceps Tendon
musclesused.com

Sartorius

- **Origin:** Anterior Superior Iliac Spine (ASIS)
- **Insertion:** Tibia
- **Action:** flex the hip and the knee
- **Innervation:** Femoral nerve



Tensor fasciae latae

➢**Origin**

Iliac crest

➢**Insertion**

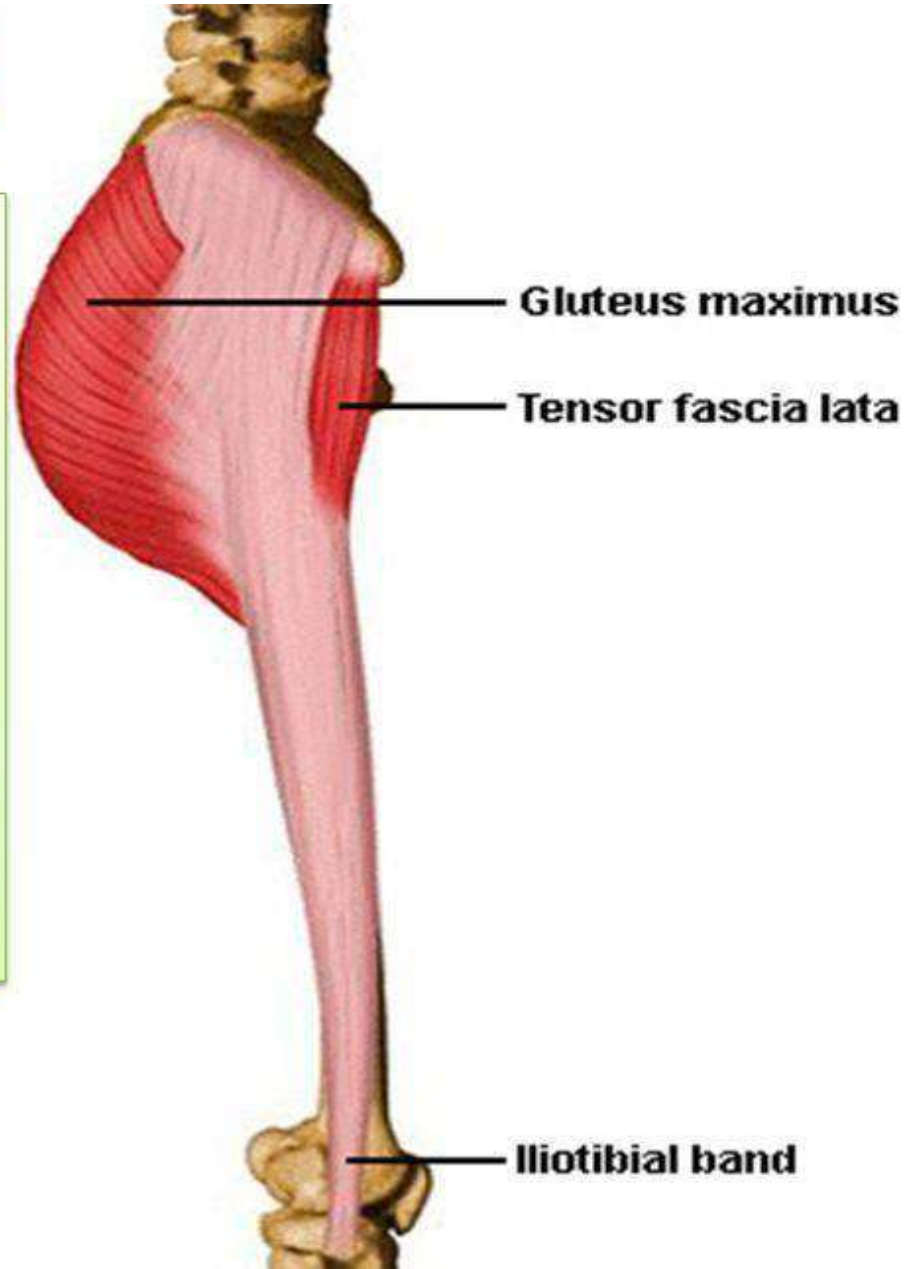
Iliotibial tract

➢**Action**

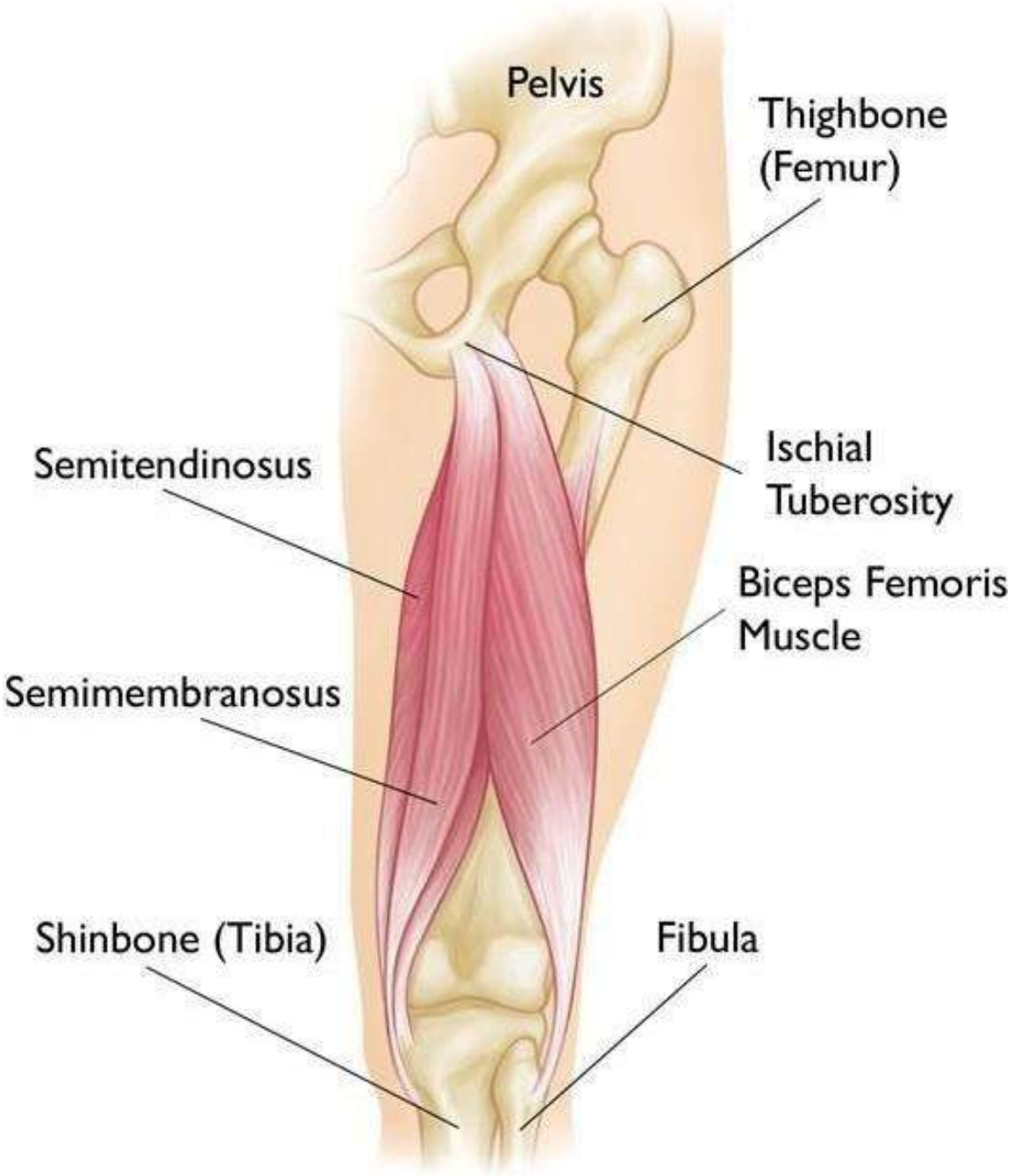
Assist gluteus maximus in extending the knee joint

➢**Nerve supply**

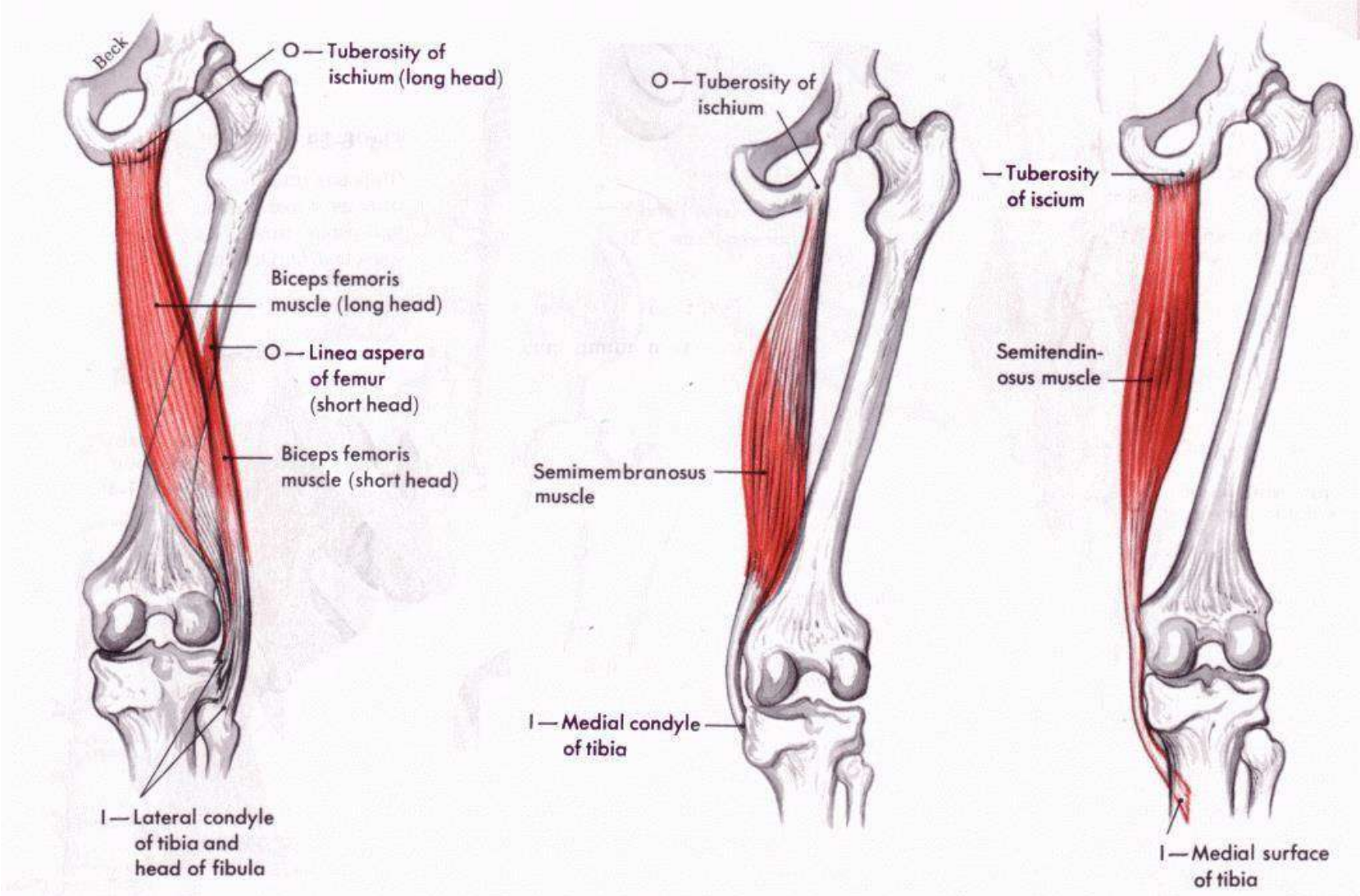
***Superior gluteal nerve* L4,5**



Hamstrig


Pelvis
Thighbone (Femur)
Ischial Tuberosity
Semitendinosus
Biceps Femoris Muscle
Semimembranosus
Shinbone (Tibia)
Fibula

Hamstring

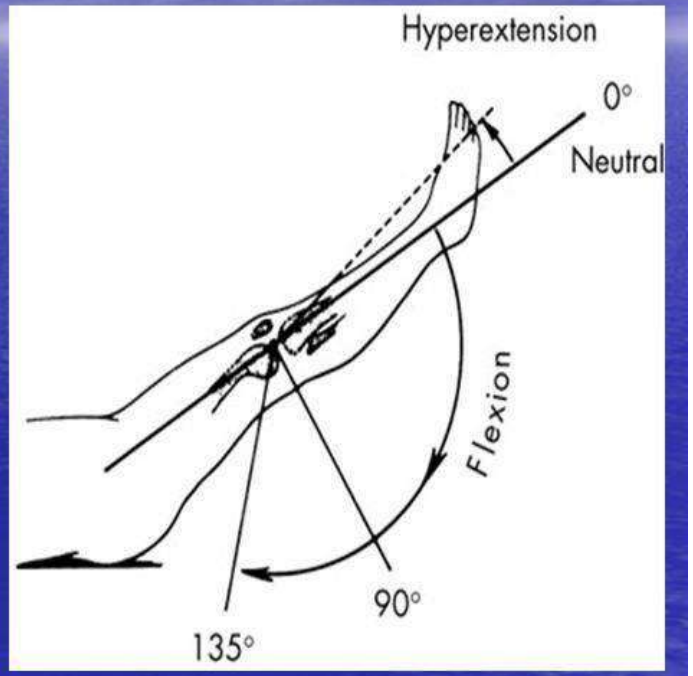


Hamstring group of thigh muscles: biceps femoris, semitendinosus, and semimembranosus.

ROM of the knee joint

Range of Motion (knee joint)

- Flexion: 135°
- Hyperextension: 0°-10°
  - "Screw Home" = approx. 10° external rotation to align condyles
- With knee flexed 30° or more:
  - 30° internal rotation & 45° external rotation



Valgus knee



Varus knee

