HIP JOINT
Articulation

- The hip joint is the articulation between the hemispherical head of femur and the cup shaped acetabulum of the hip bone.

- The articular surface of the acetabulum is horseshoe shaped and is deficient inferiorly at the acetabular notch.
Articulation

- The cavity of acetabulum is deepened by the presence of a fibrocartilaginous rim called acetabular labrum

- The labrum bridges across the acetabular notch and is here called the transverse acetabular ligament

- The articular surfaces are covered with hyaline cartilage
Type & Capsule

- It is a synovial ball and socket joint
- The capsule encloses the joint and is attached to the acetabular labrum medially
- Laterally it is attached to the intertrochanteric line of the femur in front and along the posterior aspect of the neck of the bone behind
Iliofemoral Ligaments

- It is a strong, inverted Y-shaped ligament
- Its base is attached to the anterior inferior iliac spine above
- Below the two limbs of Y are attached to the upper and lower parts of the intertrochanteric line of the femur
- The strong ligament prevents overextension during standing
Pubofemoral Ligament

- It is a triangular ligament
- The base of the ligament is attached to the superior ramus of the pubis
- The apex is attached below to the lower part of the intertrochanteric line
- This ligament limits extension and abduction
Ischiofemoral Ligament

- It is a spiral shaped ligament
- Attached to the body of the ischium near the acetabular margin
- Fibers pass upward and laterally and attached to the greater trochanter
- This ligament limits the extension
Transverse Acetabular Ligament

- It is formed by the acetabular labrum as it bridges the acetabular notch.

- It converts the notch into a tunnel through which blood vessels and nerves enter the joint.
Ligament of Head of Femur

- It is flat and triangular ligament
- It is attached by its apex to the pit on the head of the femur (fovea capitis)
- Attached by its base to the transverse ligament and the margins of the acetabular notch
- It lies within the joint and is ensheathed by synovial membrane
Synovial Membrane

- The synovial membrane lines the capsule
- It is attached to the margins of the articular surfaces
- It covers the portion of the neck of the femur that lies within the joint capsule
- It ensheathes the ligament of the head of the femur
Synovial Membrane

- It covers the pad of fat contained in the acetabular fossa

- A pouch of synovial membrane frequently protrudes through a gap in the anterior wall of the capsule

- Forms the psoas bursa beneath the psoas tendon
Nerve Supply

- Femoral nerve
- Obturator nerve
- Sciatic nerve
- Nerve to the quadratus femoris
Movements

- The hip joint has a wide range of movement but less so than the shoulder joint.

- Some of the movement has been sacrificed to provide strength and stability.

- The strength of the joint depends largely on the shape of the bones taking part in the articulation and on strong ligaments.
Movements

- When the knee is flexed, flexion is limited by the anterior surface of the thigh coming in contact with the anterior abdominal wall.

- When the knee is extended, flexion is limited by the tension of the hamstring muscles.

- Abduction is limited by the tension of the pubofemoral ligament.
Movements

- Adduction is limited by contact with the opposite limb and by the tension of the ligament of the head of the femur

- Lateral rotation is limited by the tension in the iliofemoral and pubofemoral ligaments

- Medial rotation is limited by the ischiofemoral ligament
Movements

- **Flexion:** It is performed by the iliopsoas, rectus femoris, sartorius, also by adductor muscles.

- **Extension:** it is performed by the gluteus maximus and the hamstring muscles.

- **Abduction:** It is performed by the gluteus medius and minimus, assisted by sartorius, tensor fasciae latae, and piriformis.
Movements

- **Adduction:** It is performed by the adductor longus and brevis and the adductor fibers of the adductor magnus

- **Lateral rotation:** It is performed by the piriformis, obturator internus and externus, superior and inferior gamelli

- **Medial rotation:** It is performed by the anterior fibers of gluteus medius and gluteus minimus and the tensor fasciae latae

- **Circumduction:** It is a combination of the previous movements
 Movements

- The extensor group of muscles is more powerful than the flexor group

- The lateral rotators are more powerful than the medial rotators
Relations

- Anteriorly: Iliopsoas, pectineus, and rectus femoris
- Posteriorly: The obturator internus, the gemelli, and the quadratus femoris muscle separate the joint from sciatic nerve
- Superiorly: Piriformis and gluteus minimus
- Inferiorly: Obturator externus tendon