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Section:b

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Assignment: viva (anatomy)

**Q. Write a complete note on hip joint?**

### Hip joint

The hip joint is the articulation between the hemispherical head of the femur and the cup shaped acetabulum of the os coxae. The articular surface of the acetabulum is horse shoe shaped and is efficient inferiorly at the acetabular notch. This cavity of the acetabulum is deepened by the presence of a fibrocartilaginous rim called the acetabular labrum. The labrum bridges across the acetabular notch and is called the transverse acetabular ligament. The articular surfaces are covered with hyaline cartilage.

### Types

The hip joint is a synovial ball and socket joint.

### Capsule

The capsule encloses the joint and attaches to the acetabular labrum medially, laterally.

it attaches to the intertrochanteric line of the femur in front and half way along the posterior aspect of the neck of the bone behind. At its attachment to the intertrochanteric line in front, some of its fibers, accompanied by blood vessels, reflect upward along the neck as bands called retinacula. Those blood vessels supply the head and neck of the femur.

### Ligaments

#### Iliofemoral ligament

The iliofemoral ligament is a strong, inverted Y-shaped Ligament. Base attaches to the anteroinferior iliac spine above. Below, the two limbs of the Y attach to the upper and the lower parts of the intertrochanteric line of the femur. This Strong ligament prevents overextension during standing.

#### Pubofemoral ligament

The pubofemoral ligament is a triangular. The base of the ligament attaches to the superior ramus of the pubis, and apex attaches below to the Lower part of the intertrochanteric line. This ligament limits **extension** and abduction.

#### Ischiofemoral ligament

The ischiofemoral ligament is spiral shaped and is attached to the body of the ischium near the acetabular margin. The fibers pass upward and laterally and attach to the greater trochanter. This ligament limits extension.

### Transverse acetabular ligament

The transverse acetabular ligament is formed by the acetabular labrum as it bridges and acetabular notch into a tunnel through which the blood vessels and nerves enter the joint.

### Ligament of the head of the femur

The ligament of the head of the femur is flat and triangular. It attaches by its apex to the pit on the head of the femur (fovea capitis) and by its base to the transverse ligament and margins of the acetabular notch. It lies within the joint and is ensheathed by synovial membrane.

### Synovial membrane

The synovial membrane lines the capsule and attaches 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 and 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, between the pubofemoral and iliofemoral ligament, and forms the psoas bursa deep to the psoas tendon.

### Blood supply

The arteries supplying the hip joint include the following.

### Retinacular branches

The retinacular branches of the medial and lateral circumflex femoral arteries.

### Artery to the head of the femur

The retinacular arteries, especially those from the medial circumflex femoral artery, are the major supply to the head and neck of the femur and the hip joint. The artery to the head of the femur is a variably sized branch of the obturator artery. It transverse the ligament of the head of the femur and supplies the head of the femur. It may from anastomoses with the retinacular arteries.

### Nerve supply

Femoral, obturator, and sciatic nerves and the nerve to the quadratus femoris supply the area.

### Movements

The hip joint has a wide range of movements. The strength of the joint depends largely on the shape of the bones taking part in the articulation and on the strong ligaments. When the knee is flexed, flexion of the hip is limited by the anterior surface of the thigh coming into contact with the anterior wall. When the knee is extended, flexion is limited by the tension of the hamstring group of muscles. Extension, which is the movement of the flexed thigh backward to the anatomic position, is limited by the tension of the iliofemoral, pubofemoral, and ischiofemoral ligaments. Abduction is limited by the tension of the pubofemoral ligament, and abduction is limited by contact with the opposite limb and by the tension in the ligament of the head of the femur. Lateral rotation is limited by the tension in the iliofemoral and pubofemoral ligaments and the ischiofemoral ligament limits medial rotation.

### Flexion

Flexion is performed by the iliopsoas, rectus femoris, and sartorius and also by the adductor muscles.

#### Extension

Extension is performed by the gluteus maximus and the hamstring muscles.

#### Abduction

Abduction is performed by the gluteus medius and minimus, assisted by the sartorius, tensor fasciae latae, and piriform.

#### Adduction

Adduction is performed by the adductor Longus and brevis and the adductor fibers of the adductor Magnus. These muscles are assisted by the pectineus and the gracilis.

#### Lateral rotation

Lateral rotation is performed by the piriformis, obturator internus and externus, superior and the inferior gemelli, and quadratus femoris, assisted by the gluteus maximus.

#### Medial rotation

Medial rotation is performed by the anterior fibers of the gluteus medius and the gluteus minimus and the tensor fasciae latae.

#### Circumduction

Circumduction is a combination of the previous movements. The extensor group of muscles is more powerful than the flexor group, and the lateral rotators are more powerful than the medial rotators.

#### Important relations

##### Anteriorly

Iliopsoas, pectineus and the rectus femoris muscles. The iliopsoas and pectineus separate the femoral vessels and nerves from the joint.

##### Posteriorly

The obturator internus, the gemelli, and the quadratus femoris muscles separate the joint from the sciatic nerve.

##### Superiorly

Piriformis and gluteus minimus.

##### Inferiorly

Obturator externus tendon.