

وسهلا



أهلا

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الأستاذ الدكتور يوسف حسين

رئيس قسم التشريح والأنسجة والأجنة

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

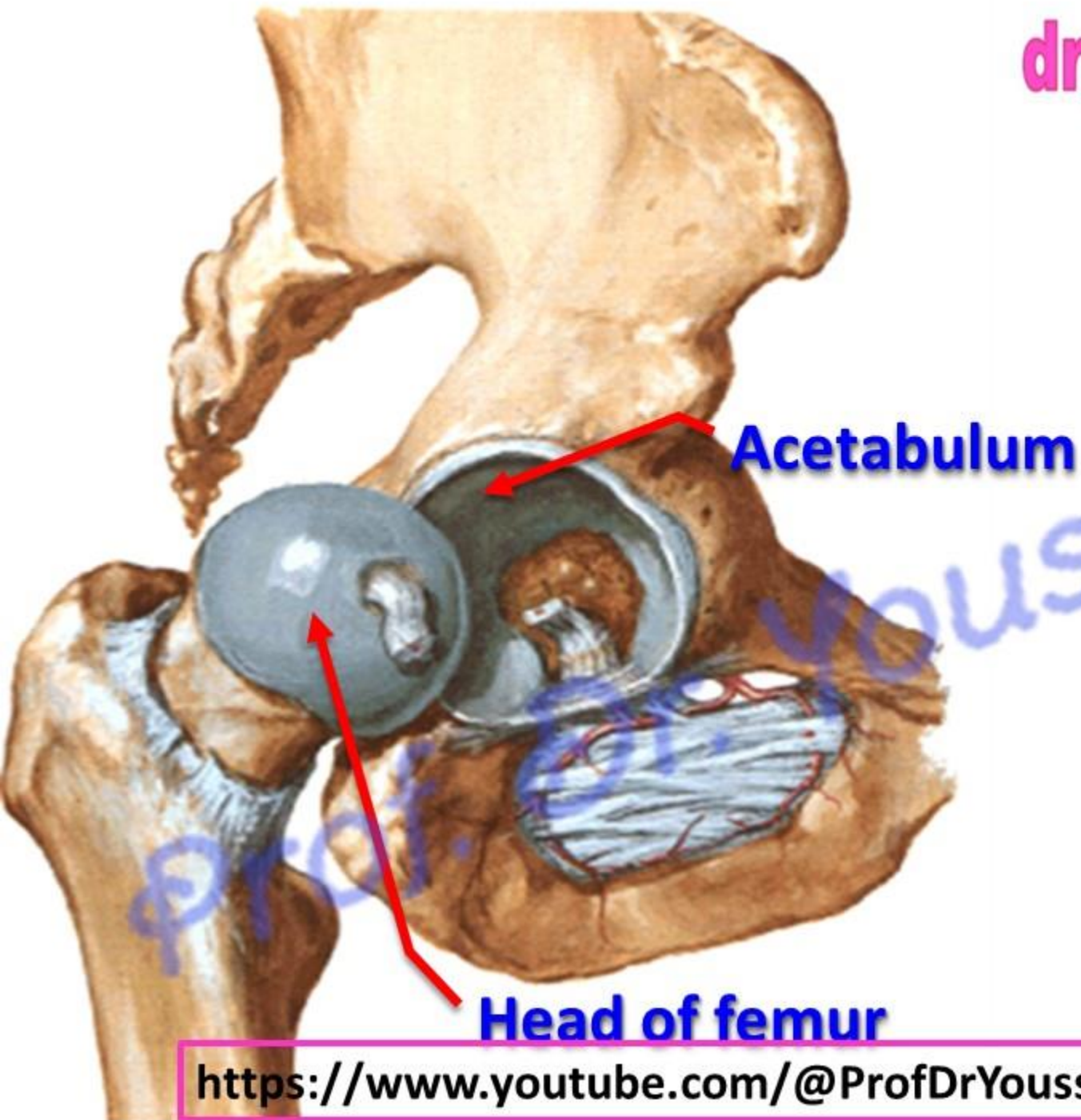
Prof. Dr. Youssef Hussein Anatomy - YouTube

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Hip Joint

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>



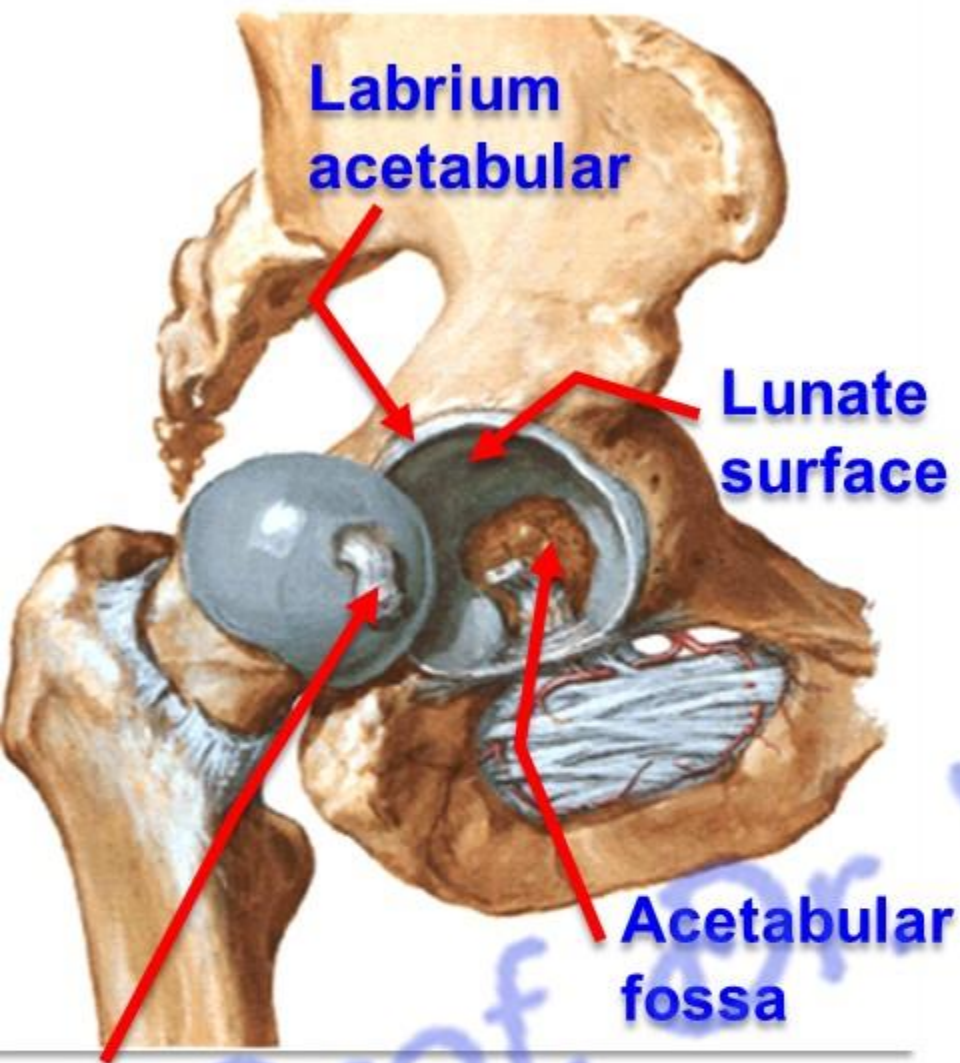
• **Hip Joint**

1- Type: Synovial joint, and polyaxial (ball and socket).

2- Articular surfaces:

a- Head of the femur.

b- Lunate surface of the acetabulum of hip bone.



**Ligament of
Head of femur**

- **Acetabulum of hip bone**

- This is a **cup-shaped depression** on the lateral side of the hip bone.
 - The inferior margin of the acetabulum shows **acetabular notch**.
 - Its floor shows
 - A- C-shaped **articular** strip called the **lunate surface**.
 - B- **Non-articular** area called the **acetabular fossa**.
- Labrum Acetabular**; ring of fibrocartilage fixed to margin of acetabulum to increase depth of the cavity.

- **Head of the femur**

- It forms more than half (about two-thirds) of a sphere.
- There is a small depression called fovea that gives attachment to the ligament of the head of the femur.

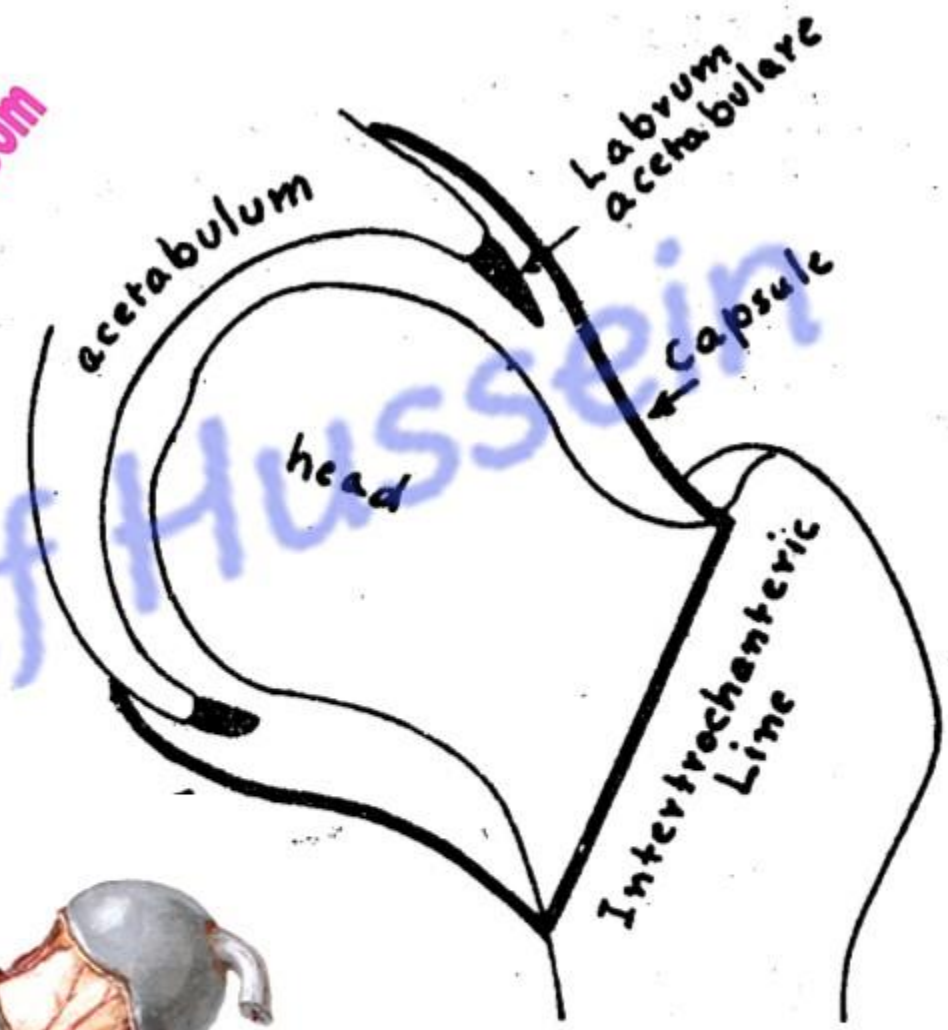
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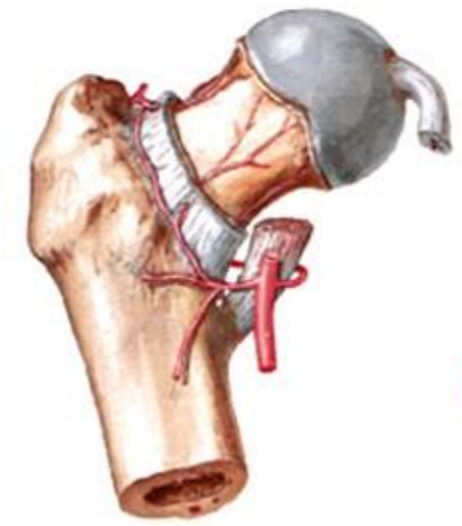
Attachment of capsule



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Post. view



Ant. view

- **Attachment of the Capsule**

1- **Hip bone**: to the margin of the acetabulum **outside the labrum acetabular**.

2- **Femur**:

a- **Anteriorly**, to the intertrochanteric line.

b- **Posteriorly**, to the neck of the femur **one cm medial** to intertrochanteric crest.

- Accordingly, the **neck** is partly intracapsular and partly extracapsular.
- The fibers of the capsule are arranged **longitudinally parallel** to the neck of the femur
- Some of the deep fibers of the capsule are arranged **circularly** around the neck forming the **zona orbicularis**.
- Many of the fibers of the capsule are reflected medially to cover the **intracapsular** part of the neck called **retinacula of the neck**. They keep the bony fragments close together in cases of fractures of the neck of the femur.
- **Synovial membrane** covers all non-articular surfaces inside the capsule

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Ligaments of Hip Joint

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- **Iliofemoral ligament:**

- It is the **strongest** ligament of the body.

- ** **Site; anterior** to the capsule.

- ** **Shape;** Y- shaped.

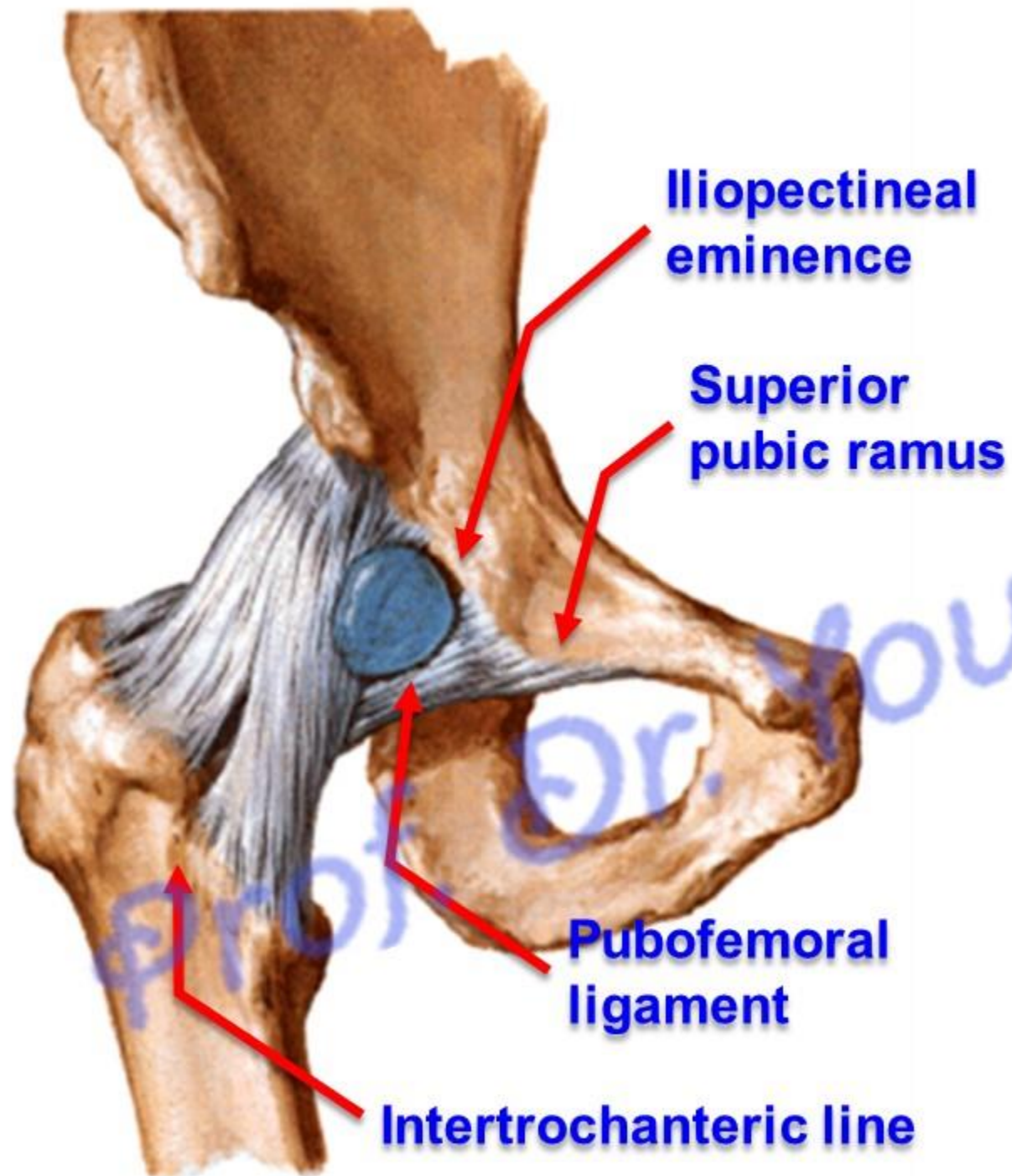
- ** **Attachment;**

- 1- Apex attached to the lower part of **anterior inferior iliac spine.**

- 2- Two bands are attached to the **intertrochanteric line.**

- ** **Functions,** Prevents hyperextension of the hip joint.

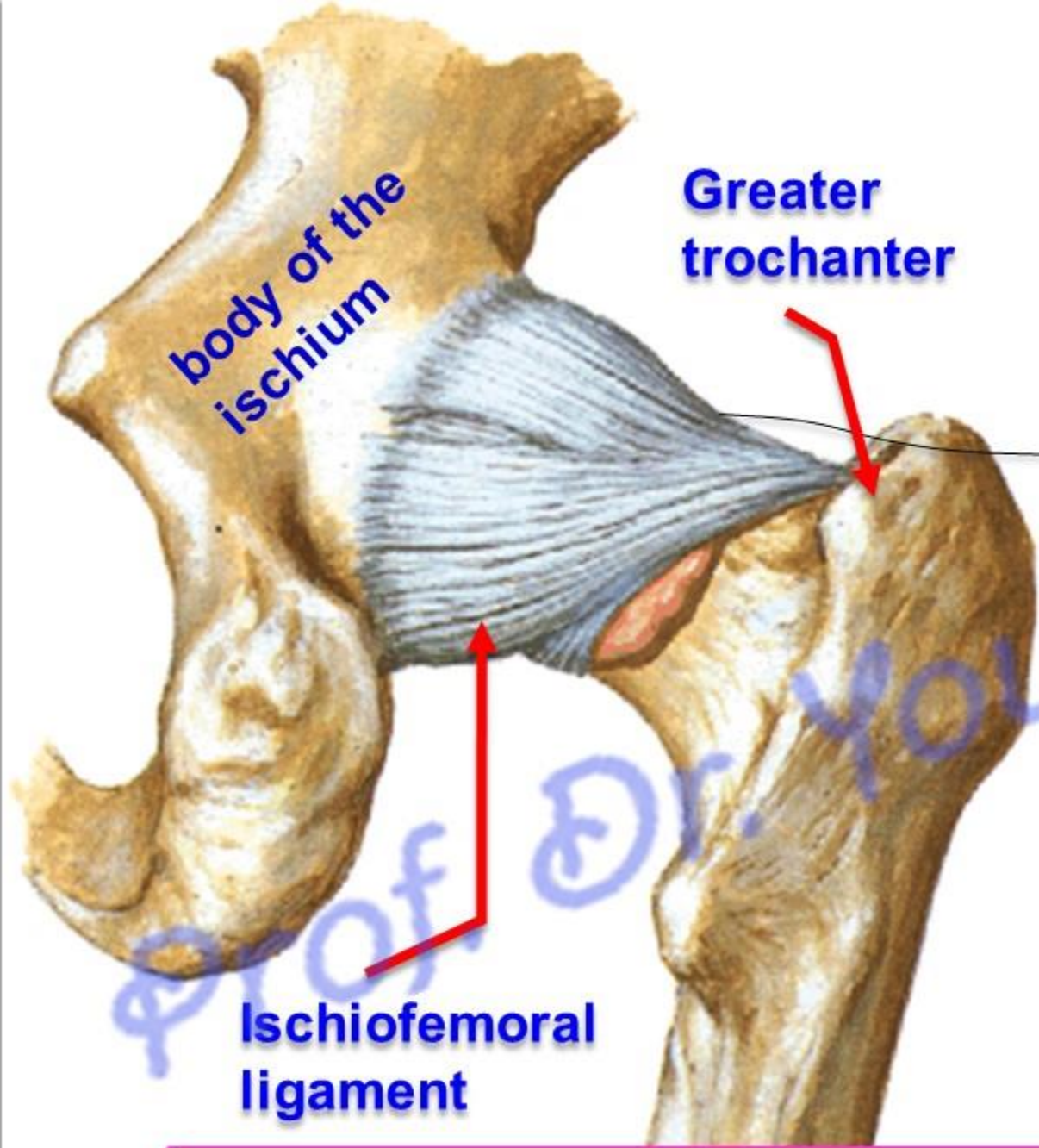




Pubofemoral ligament:

- ** **Site**, medial to capsule.
- ** **Shape**: triangular
- ** **Attachment**;
 - 1- Hip, **iliopectineal eminence and superior pubic ramus.**
 - 2- Femur, **intertrochanteric line.**
- ** **Function**, Prevents over abduction of the hip joint.

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- **Ischiofemoral ligament:**

- ** **Site;** on the **back** of the capsule.
- ** **Shape:** spiral ligament
- ** **Attachment,**
 - 1- **Hip,** the body of the **ischium.**
 - 2- **Femur,** to the greater trochanter.

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- **Transverse acetabular ligament:**

- **Attachments**, margins of acetabular notch.
- It converts the notch into foramen for passage of nerve & vessel to the joint.

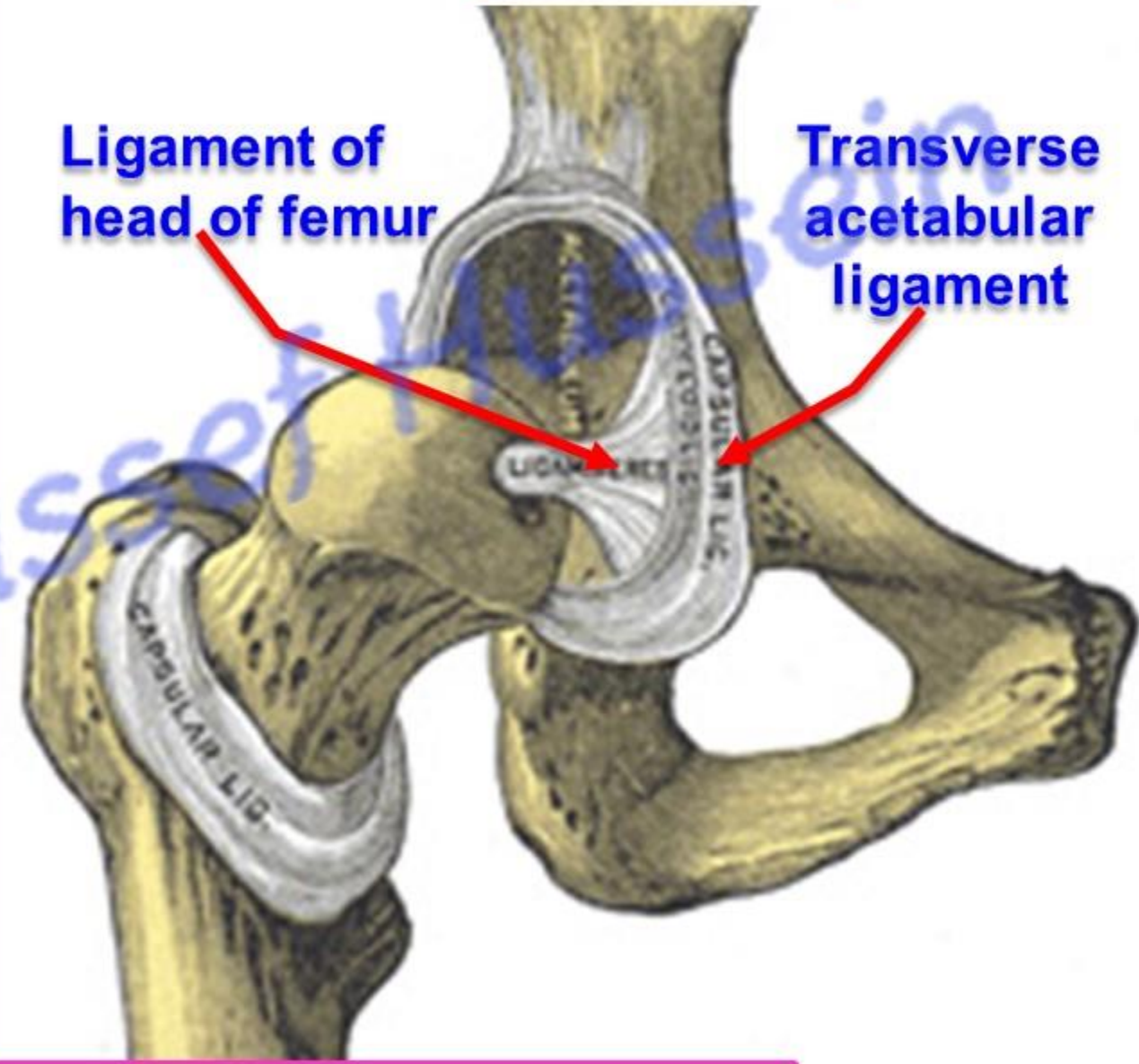
- **Ligament of head of the femur:**
(ligamentum teres)

- **Shape**, It is a triangular ligament and covered by a synovial membrane.

- ** **Attachment;**

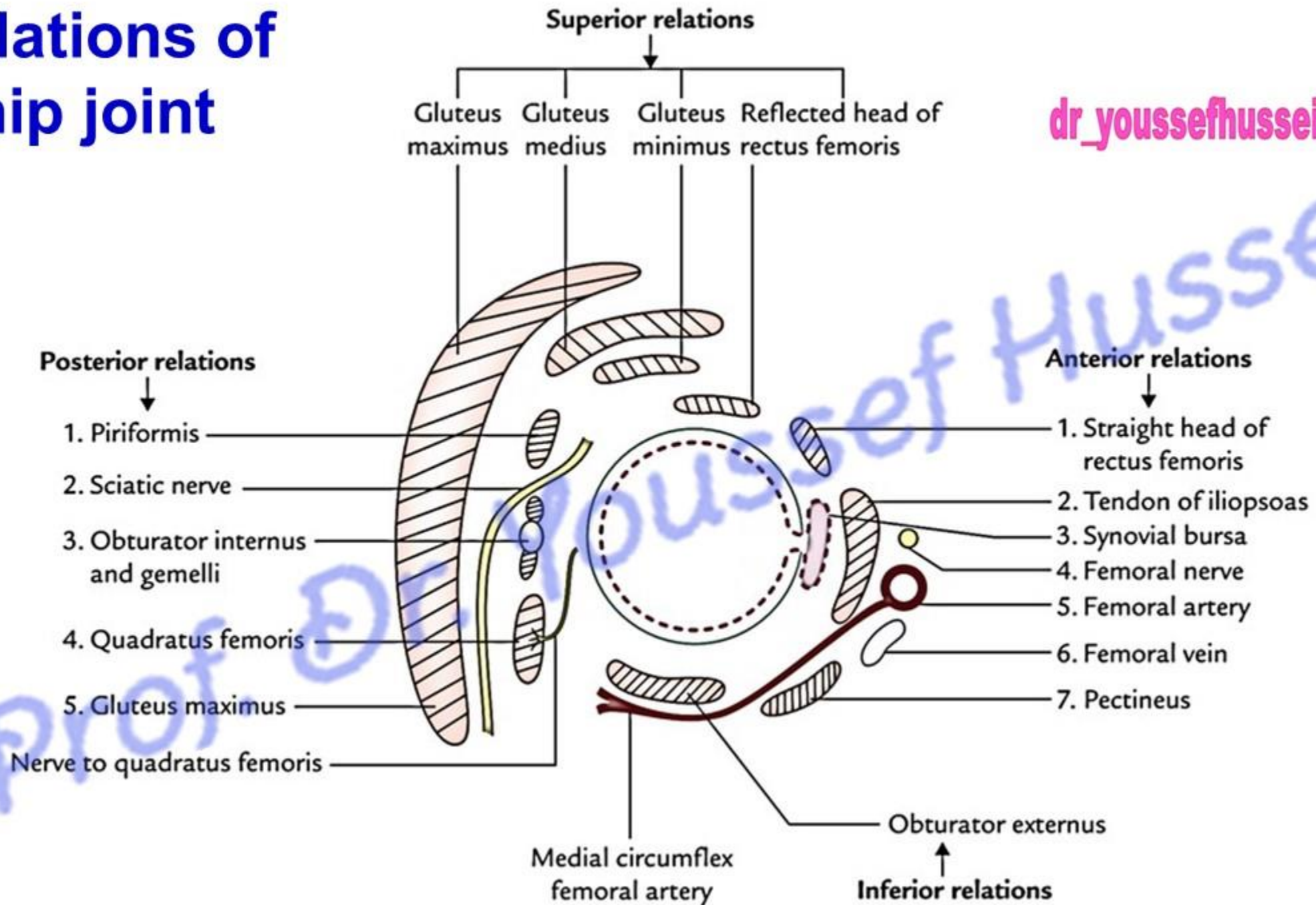
- **Apex:** to fovea of head of the femur.
- **Base** to transverse acetabular ligament.

- ** **Functions;** carries blood supply to head of the femur.



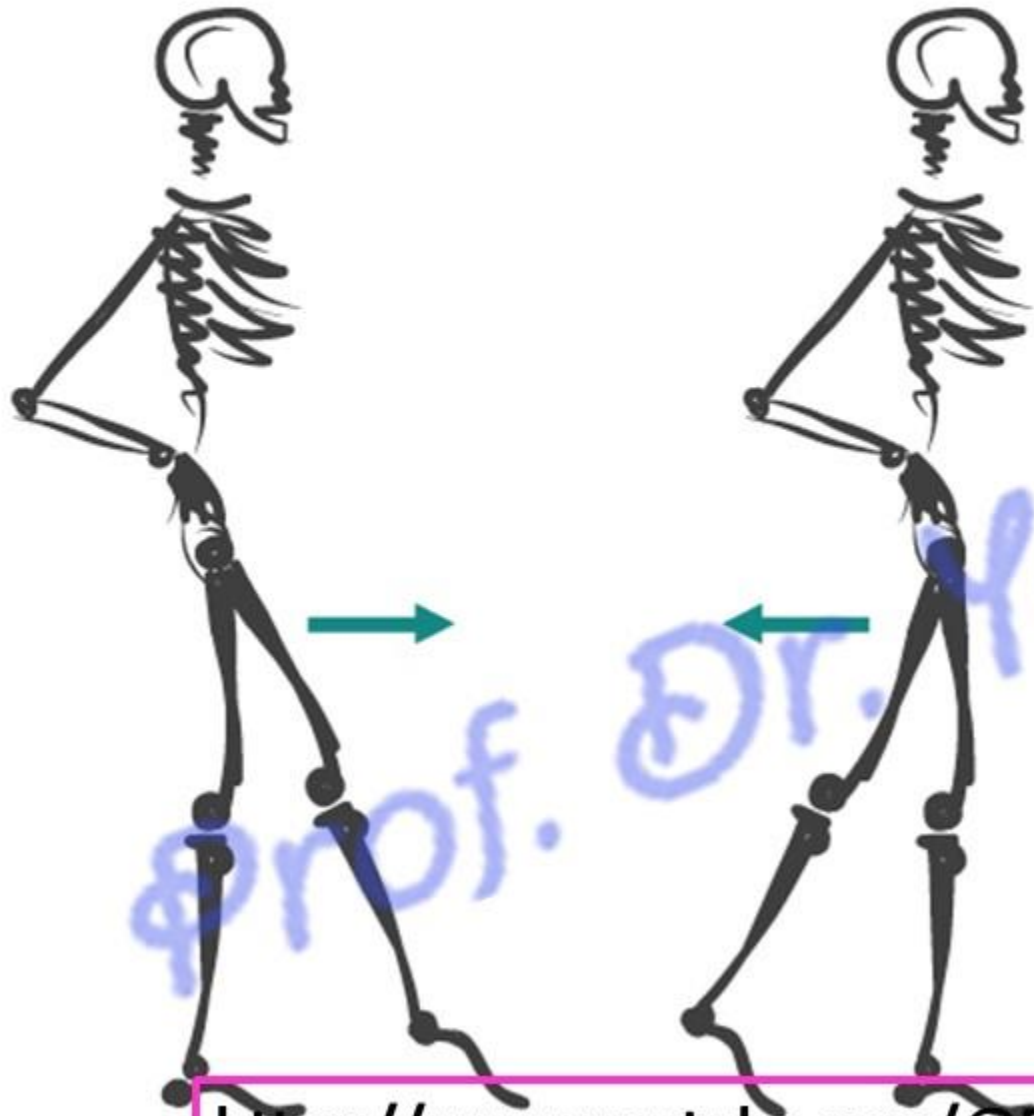
Relations of hip joint

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FLEXION

EXTENSION



❖ **Movements of the hip joint**

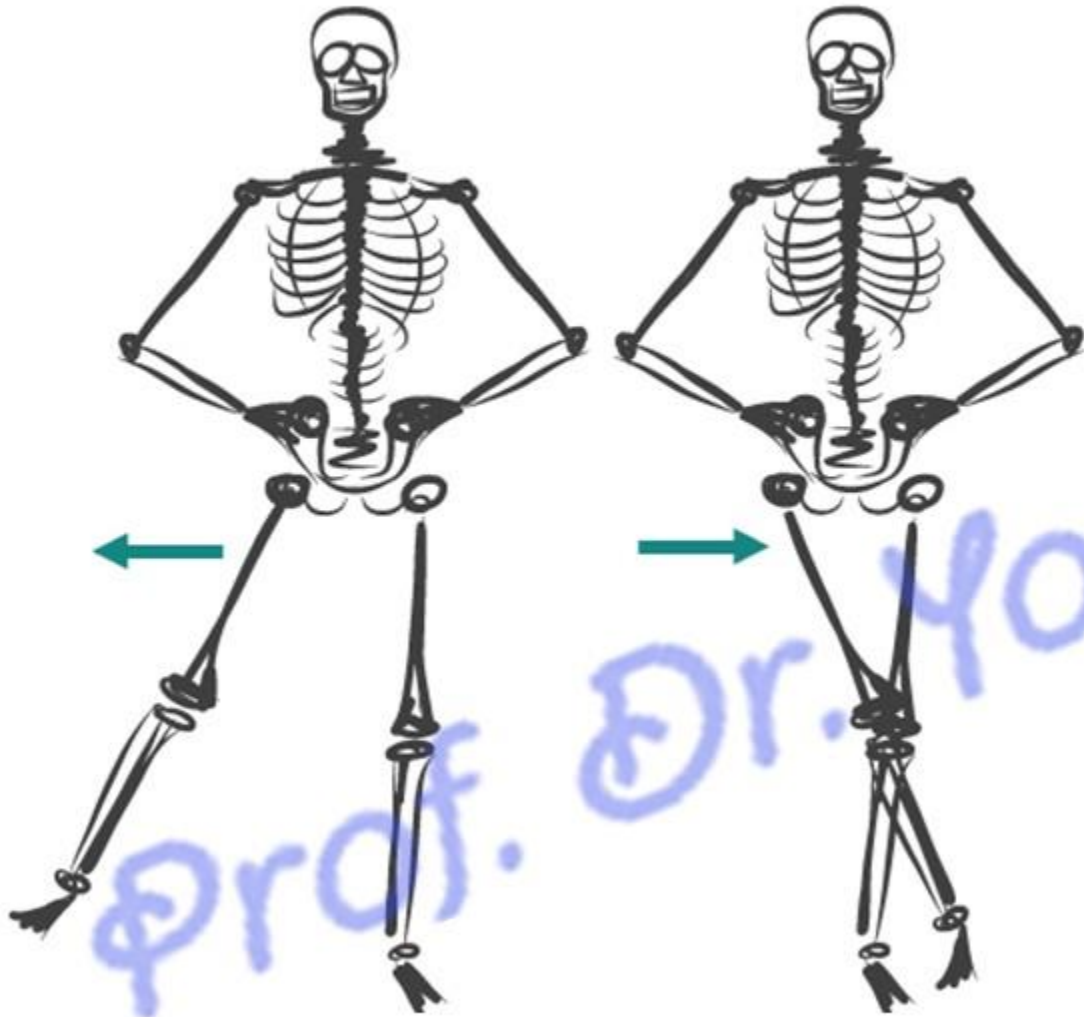
- **Flexion:** mainly by psoas major and iliacus.
 - helped by sartorius, rectus femoris and pectineus.
- **Extension:** mainly by gluteus maximus.
 - helped by the hamstrings.
- **Flexion and extension occur around a transverse axis.**

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ABDUCTION

ADDUCTION



❖ **Movements of the hip joint**

- **Adduction:** mainly by adductor longus, brevis and magnus.
- helped by pectineus and gracilis.
- **Abduction:** mainly by glutei medius and minimus.
- helped by tensor fasciae latae and sartorius.
- **Abduction and adduction occurs around anteroposterior axis**

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❖ Movements of the hip joint

- **Medial rotation:** mainly by of the glutei medius and minimus.

- helped by tensor fasciae latae.

- **Lateral rotation:** by

1) Piriformis.

2) Obturator internus.

3) 2 Gemilli,

4) Quadratus femoris.

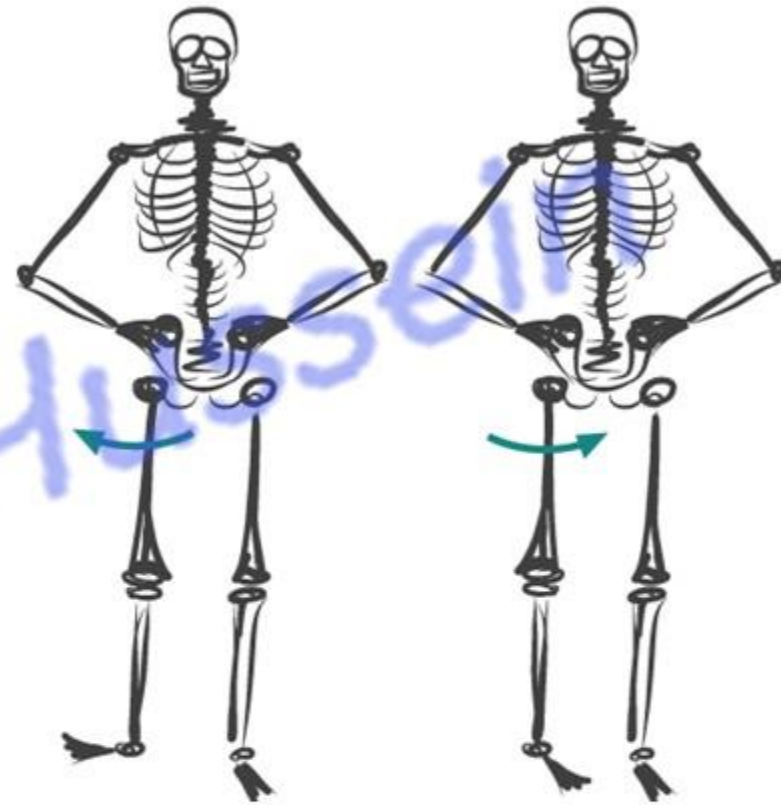
5) Obturator externus.

- **Circumduction;** combination of flexion, abduction, extension and adduction done in succession.

- The rotation of thigh occurs around a vertical axis passes from head of femur to medial condyle of the femur.

Lateral rotation

Medial rotation



❖ Blood supply

- Arterial supply (anastomoses around the neck of the femur)
 - 1- **A**scending branch of the medial circumflex femoral artery.
 - 2- **A**scending branch of the lateral circumflex femoral artery.
 - 3- **A**cetabular branch of the obturator artery.
 - 4- Superior **gluteal** artery.
 - 5- Inferior **gluteal** artery.

❖ Nerve supply of the hip joint

- 1- Femoral nerve (Nerve to rectus femoris).
- 2 - Obturator nerve (anterior branch).
- 3- Nerve to quadratus femoris (sacral plexus).

• Nelaton's line

- a line drawn from the **anterior superior iliac spine** to the **ischial tuberosity**. This line normally passes on the top of the greater trochanter.

- **Dislocation of the hip joint**, the top of the greater trochanter is raised above the line.

• Stability of the hip joint

- It is very strong and stable joint due to the following factors:

- 1- The depth of acetabulum to accommodate greater part of head of the femur.
- 2- The strong ligaments around the joint.
- 3- The strong muscles around the joint.



ASIS

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Abduction by
gluteus medius
and minimus

Flexion by
iliacus and psoas major

Spasm of thigh
muscles

Pull of
adductors

(a)

(b)

Fracture of the upper part of femur

- **Proximal segment:**
- Flexion and lateral rotation by iliopsoas
- Abduction by gluteus medius, minimus
- **Distal segment** is pulled medially by the adductor muscles.

• Neck of the femur

- It is long and oblique position allows the lower limb to swing easily clear of the pelvis.
- In cases of **fracture of the neck** of the femur, the distal fragment rotated laterally by the iliopsoas.
- Femoral head liable to avascular necrosis.

Gower sign

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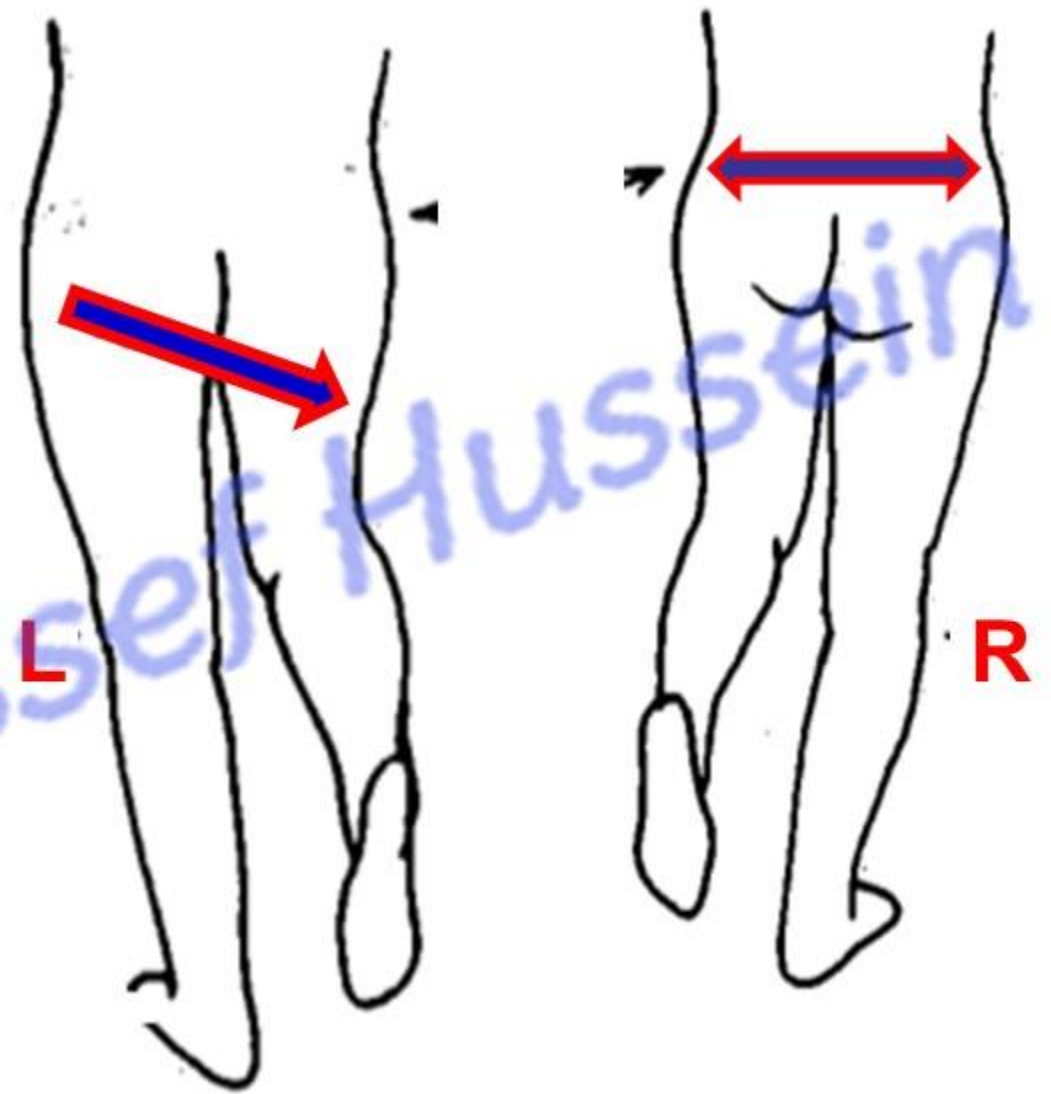
- **Injury of inferior gluteal nerve: Paralysis of the gluteus maximus** muscle leading to difficult in climbing up stairs and rising from the floor is squatting position.

- **Gower's sign**, in Paralysis of the muscle the patient Cannot stand without support, he rises slowly supporting his hand on his leg then on his thigh. He climbs on himself

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❖ Trendelenburg's sign

- **Paralysis of left superior gluteal nerve**
- When standing on **normal right lower limb**: right glutei medius and minimus contracted to **prevent tilting** of the pelvis to the affected left side
- When standing on the **affected left limb**: pelvis **tilting to the normal right** side due to loss of actions of left glutei medius and minimus



Paralysis of glutei medius and minimus:

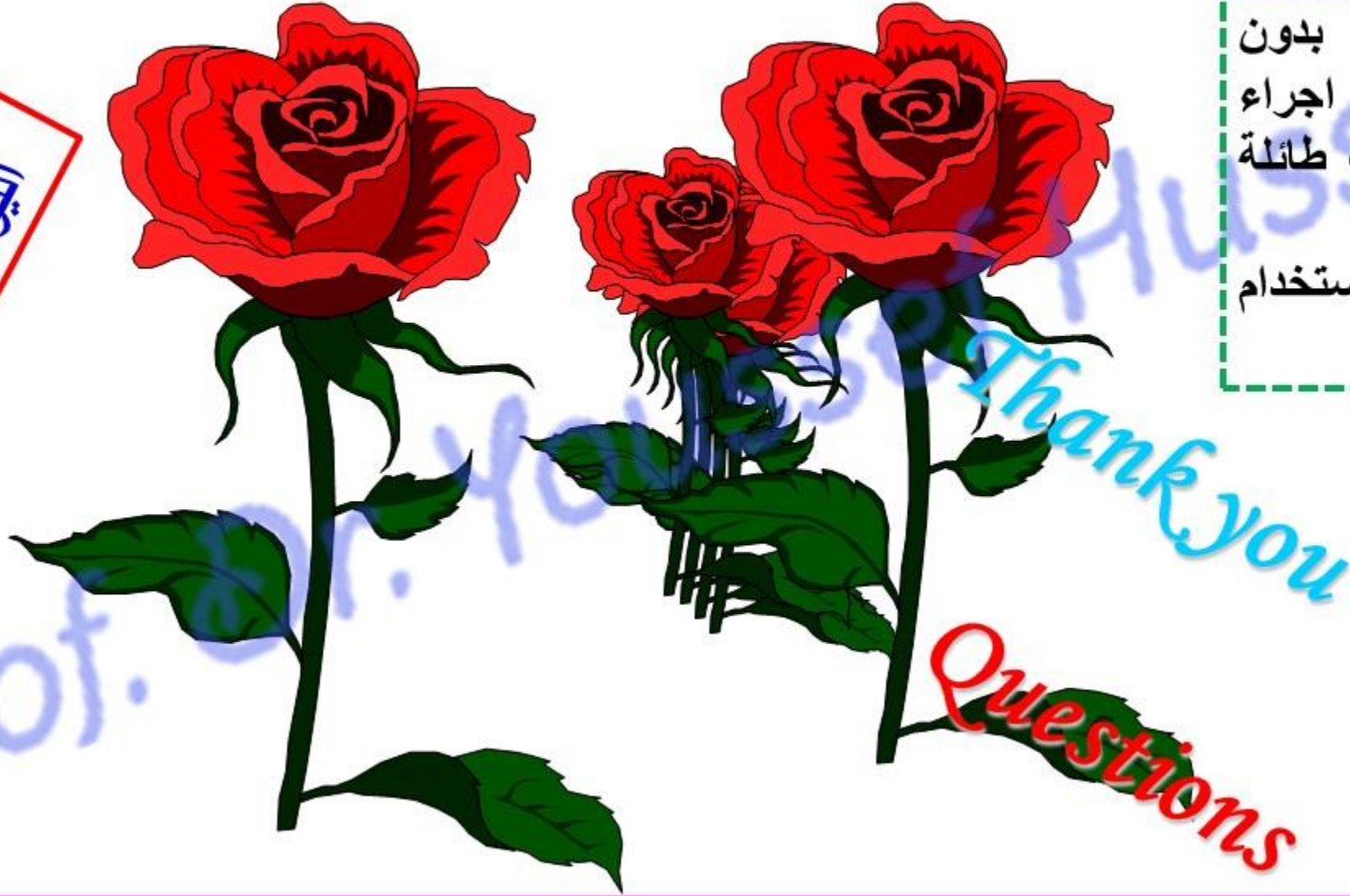
- 1) **One side** paralysis leads to **lurching gait**.
- 2) **Both sides** paralysis lead to **waddling gait** (from side to side like the duck).

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