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الأستاذ الدكتور يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب - جامعة الزقازيق - مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

مساعد العميد لشؤون الطلاب والامتحانات - كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

Dr. Youssef Hussein Anatomy اليوتيوب

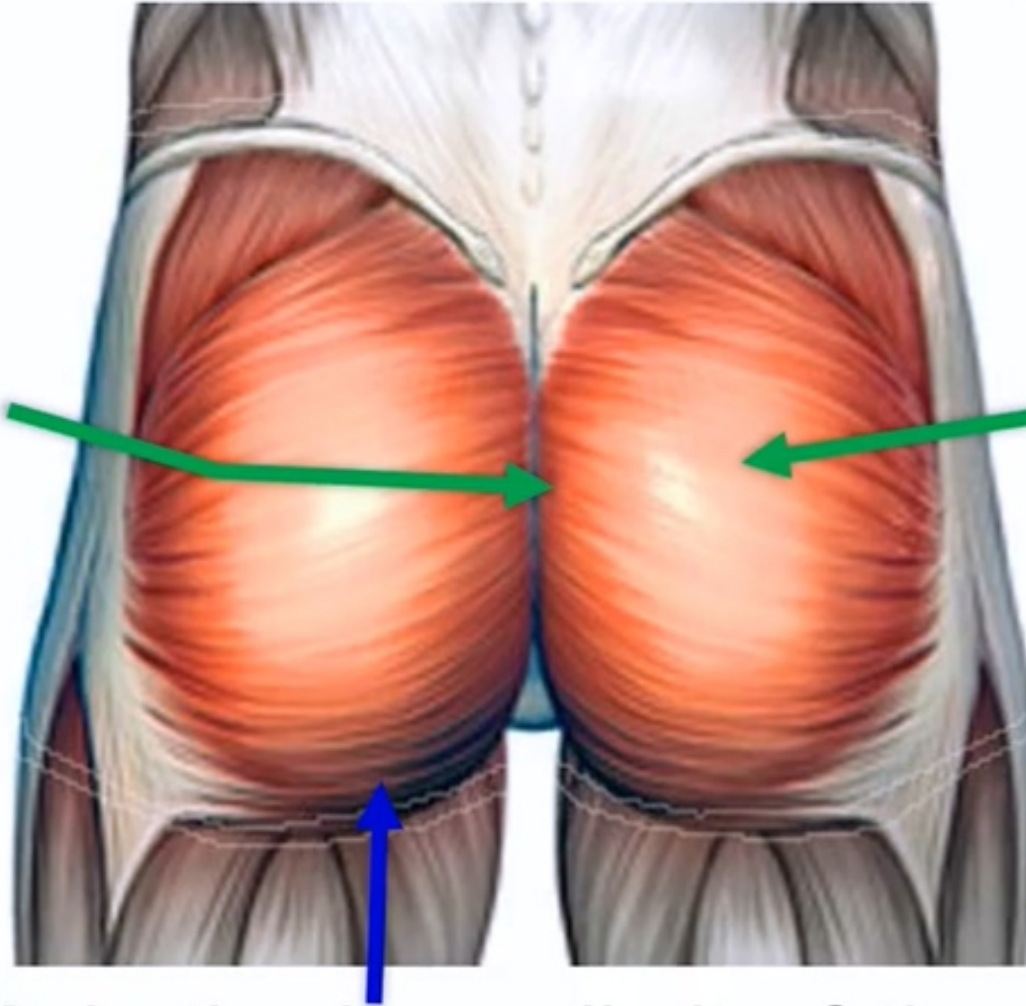
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Gluteal region

- **Natal cleft**, is a median cleft between two buttocks.

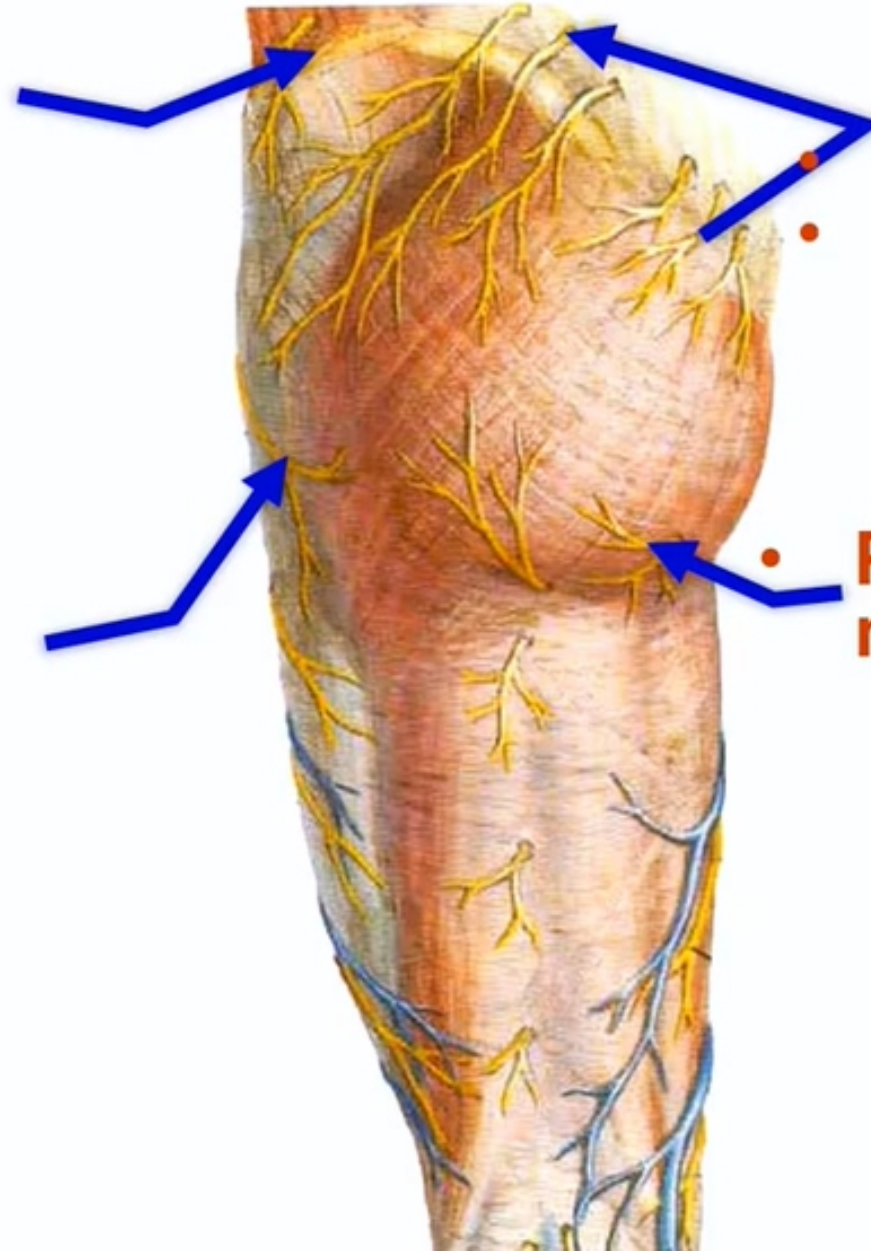


Buttock, is a smooth rounded elevation in the lower and posterior part of the gluteal region

- **Gluteal fold**, is the lower limit of the gluteal region.

❖ Cutaneous nerves of gluteal region dr_youssefhussein@yahoo.com

- **Upper lateral**
Subcostal (T12)
and
iliohypogastric
(L1) Nerve
- **Lower lateral**
Lateral cutaneous
nerve of thigh
(L2&3)

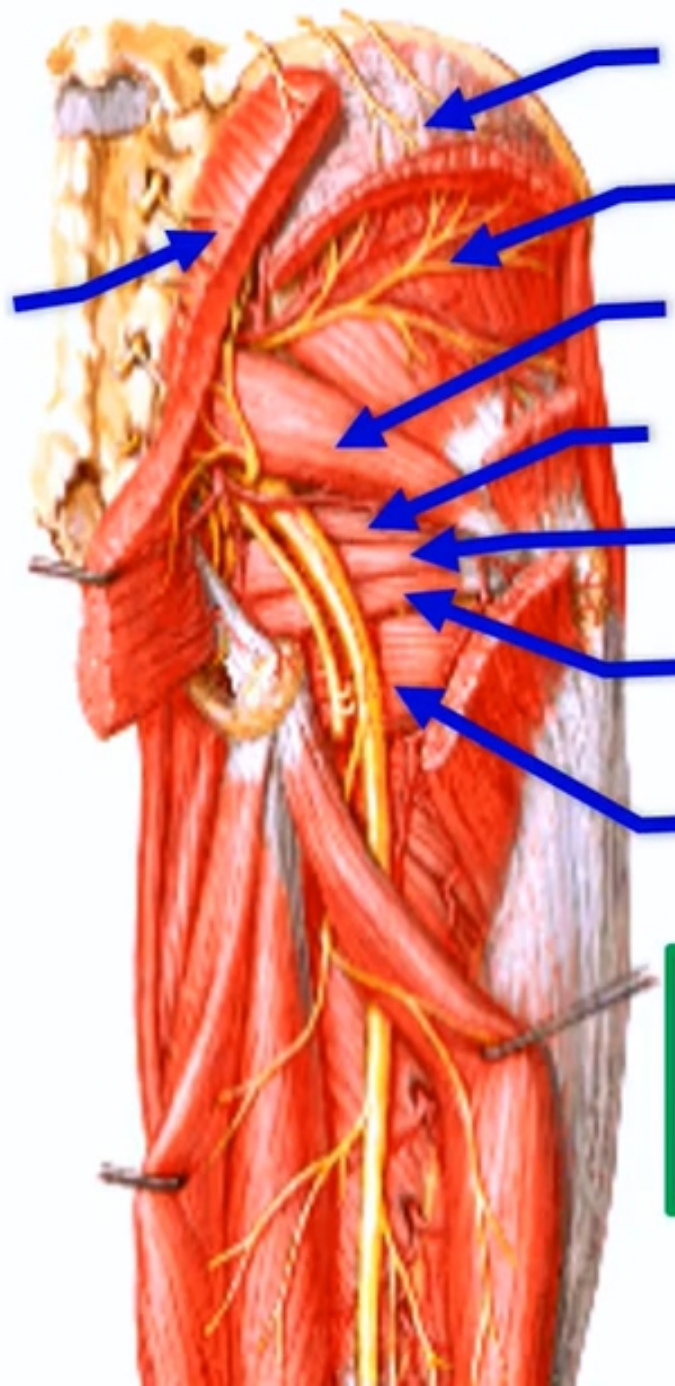


- **Upper medial**
Dorsal rami L1,2&3
Dorsal rami S1,2&3
- **Lower medial**
Posterior cutaneous
nerve of thigh (S1,2&3)

Lateral

Medial

**Gluteus
maximus**



Gluteus medius

Gluteus minimus

Piriform

Superior gemellus

Obturator internus

Inferior gemellus

Quadratus femoris

**❖ Muscles of the
gluteal region**

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❖ Muscles of the gluteal region

Their nerve supply

- 1- **Gluteus maximus** (inferior gluteal nerve L. 5 & S 1, 2)
- 2- **Gluteus medius** (superior gluteal nerve L. 4, 5 & S. 1)
- 3- **Gluteus minimus** (superior gluteal nerve)
- 4- **Tensor fascial lata** (superior gluteal nerve)
- 5- **Lateral rotator muscles and stabilizer of hip joint**
 - 1- **Piriformis** (N to piriform S. 1, 2)
 - 2- **Superior Gemillus** (from N to Ob Int)
 - 3- **Obturator Internus** (N to Ob Int L. 5 & S 1, 2)
 - 4- **Inferior Gemillus** (from N to Quad Fem)
 - 5- **Quadratus Femoris** (N to Quad Fem L. 4, 5 & S. 1)

N.B: All nerves are branches of the sacral plexus

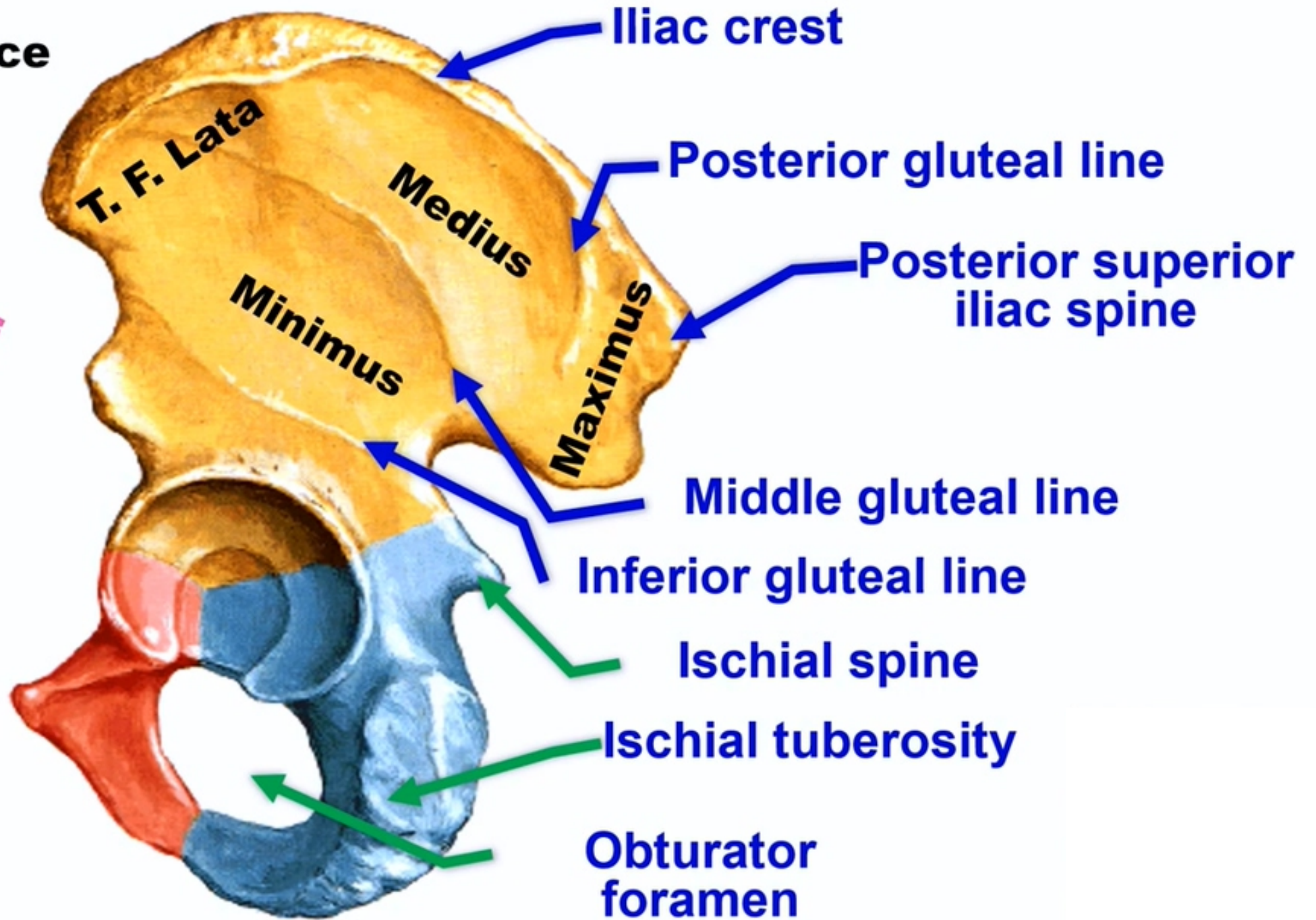
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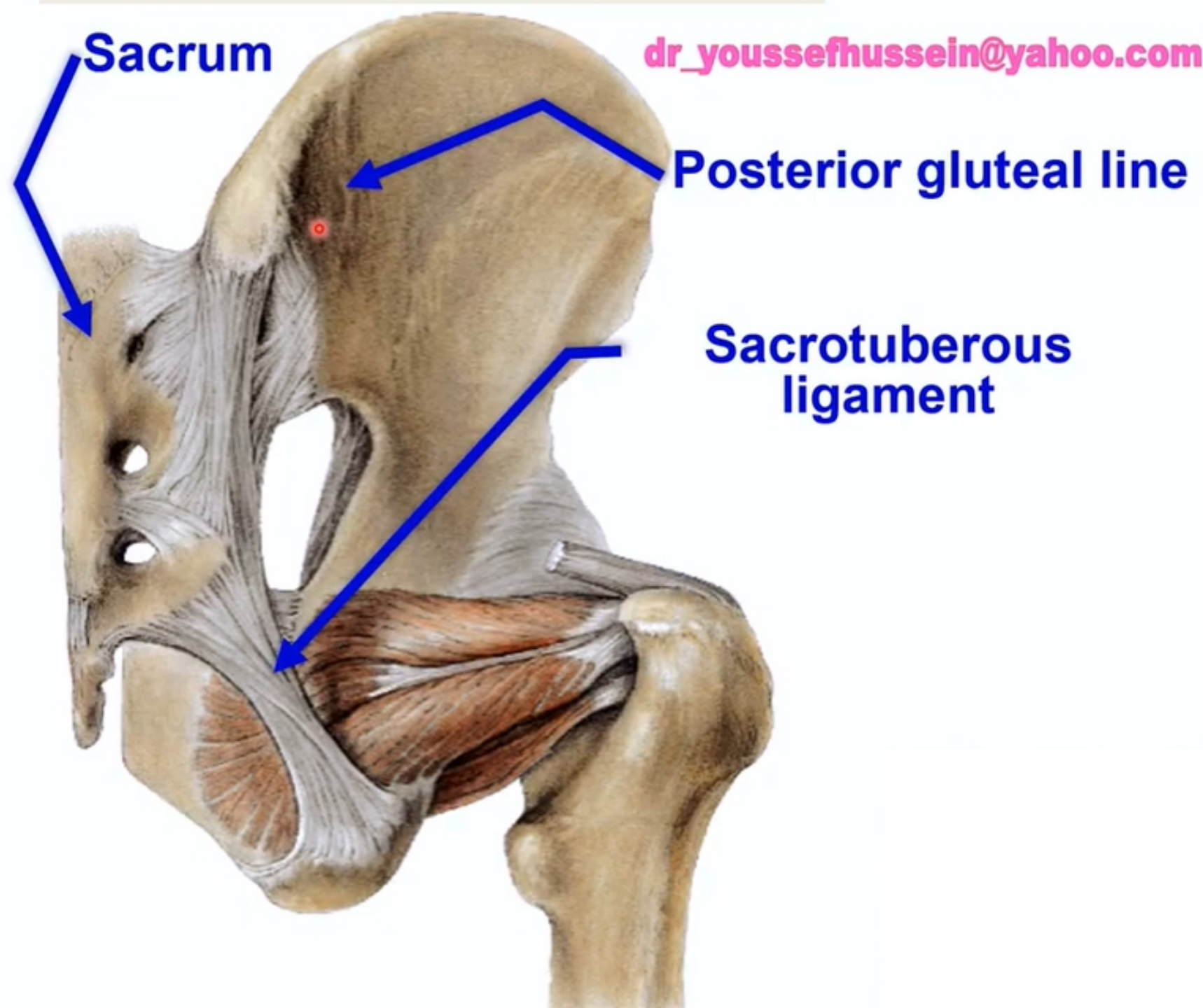
Gluteus maximus

**gluteal surface
of hip bone**



Origin of Gluteus Maximus

- 1- Gluteal surface of ilium behind posterior gluteal line.
- 2- Back of the sacrum and sacrotuberous ligament.



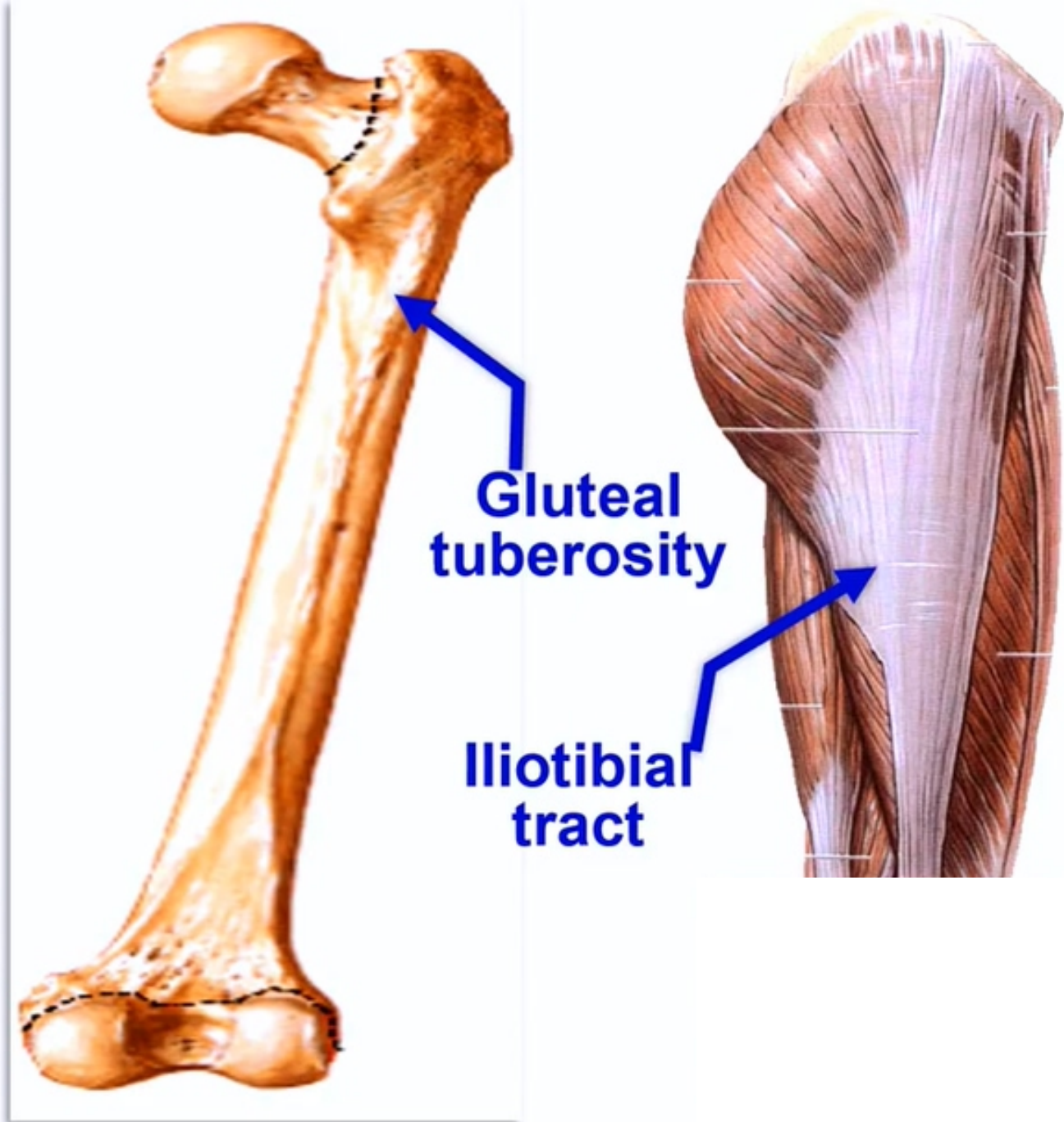
**** Insertion:**

- 1- Superficial 3/4 into the iliotibial tract.
- 2- Deep 1/4 into gluteal tuberosity of the femur.

**** Nerve supply:** inferior gluteal nerve.

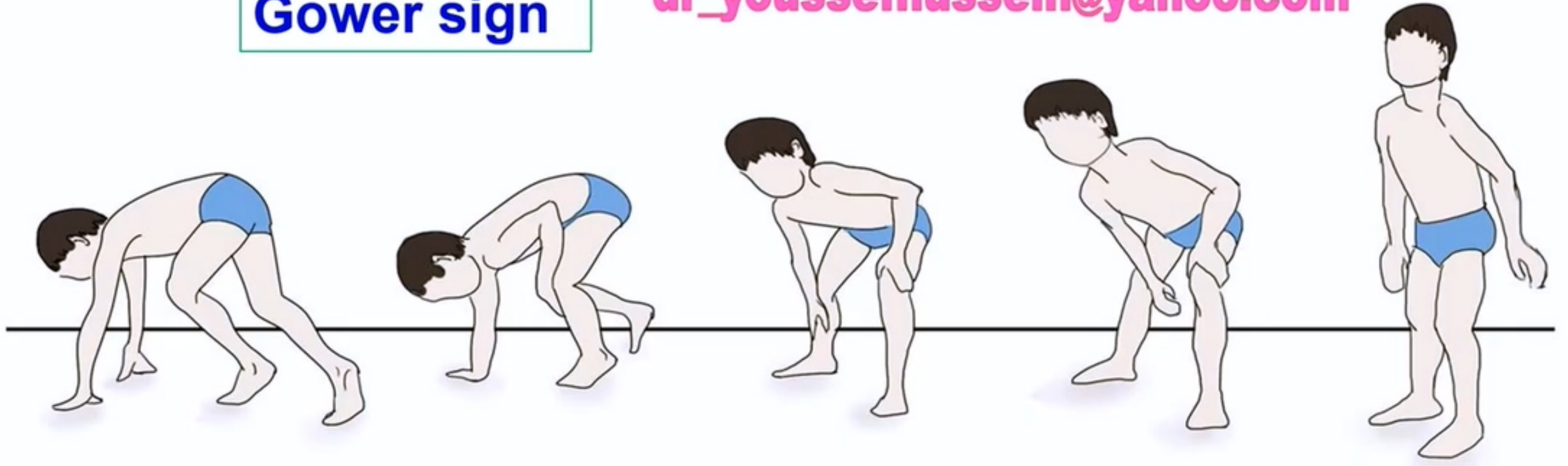
**** Actions:**

- 1- The main extensor of the hip joint.
- 2- Antigravity
- 3- Through the iliotibial tract, it stabilizes the femur on the tibia (maintains knee extended during standing when quadriceps is relaxed).
- 3- It is used when forced is needed as in climbing stairs, running, lifting heavy weight from ground and rising from squatting position.



Gower sign

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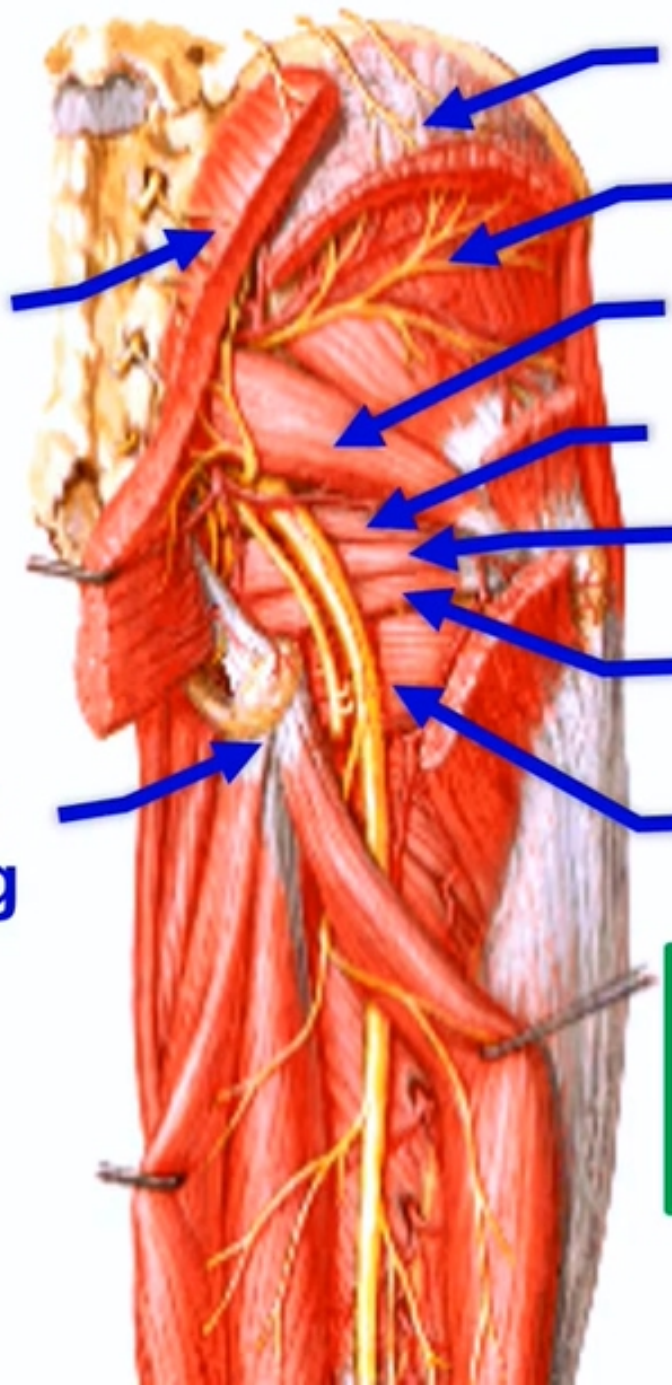


- **Injury of inferior gluteal nerve: Paralysis of the gluteus maximus** muscle leading to difficult in climbing up stairs and rising from the floor is squatting position.

- **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

Gluteus maximus

Origin of hamstring



Gluteus medius

Gluteus minimus

Piriform

Superior gemellus

Obturator internus

Inferior gemellus

Quadratus femoris

❖ Muscles deep to gluteus maximus

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Nerves Deep

Superior gluteal nerve

Inferior gluteal nerve

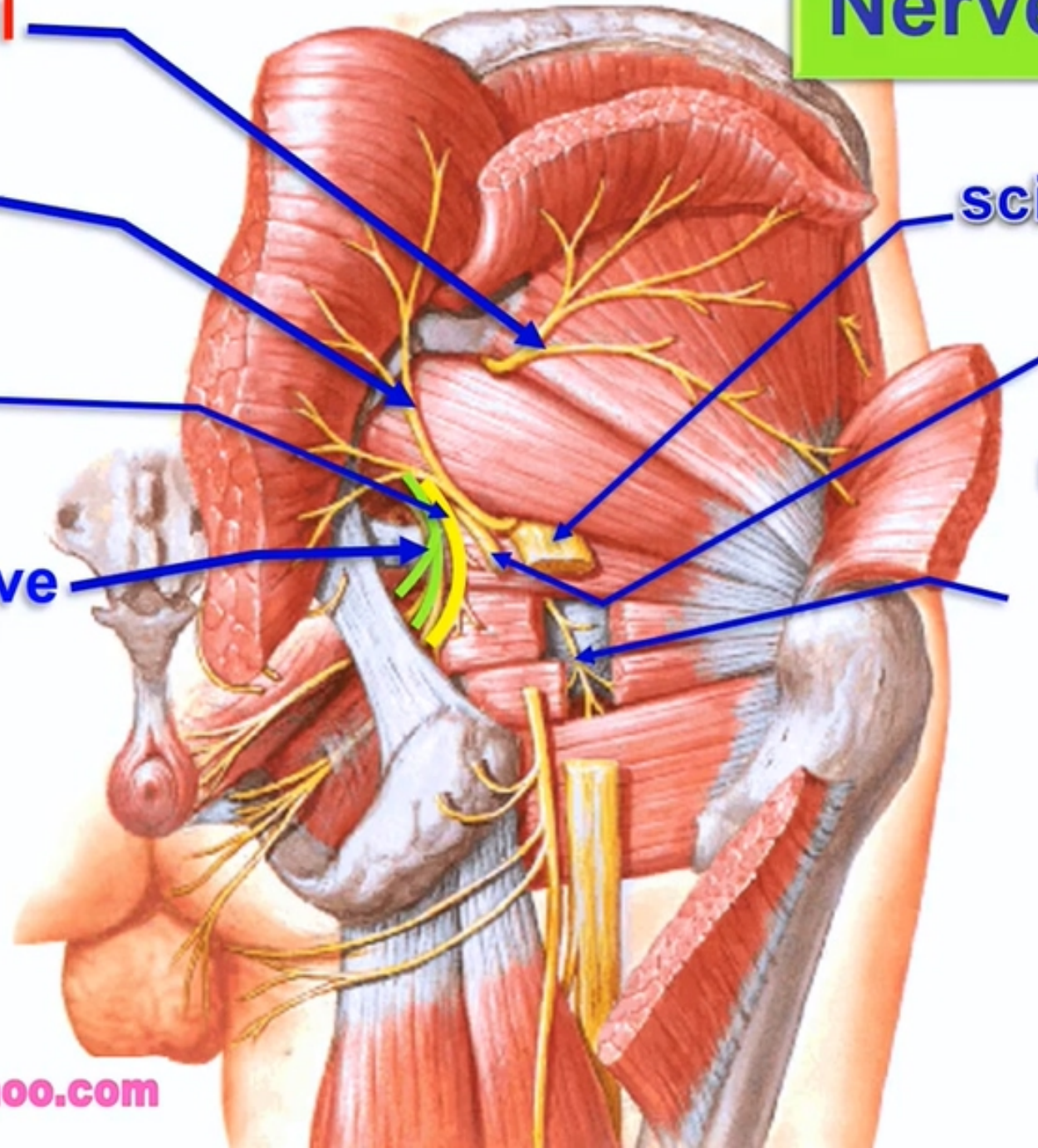
Nerve to the obturator internus

Pudendal nerve

sciatic nerve

posterior cutaneous nerve of thigh

Nerve to Quadratus femoris



Deep relations of Gluteus Maximus

- Vessels

- **Bones:** Ischial spine, Ischial tuberosity and Greater trochanter.

- **Joints:** Hip and sacroiliac joints.

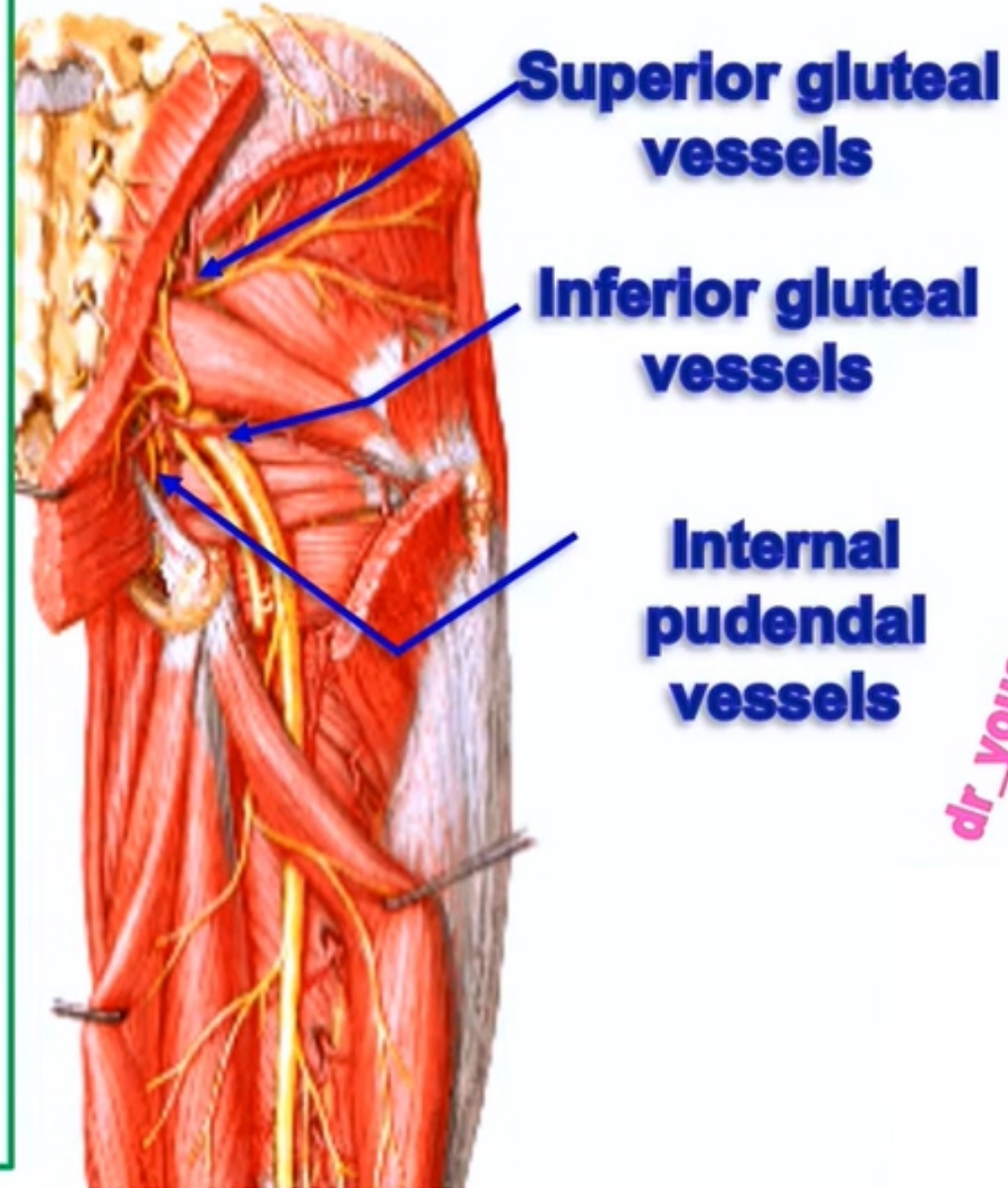
- **Ligaments:** Sacrotuberous and sacrospinous ligaments.

- Bursae: ◦

1- A bursa between the muscle and **ischial tuberosity**.

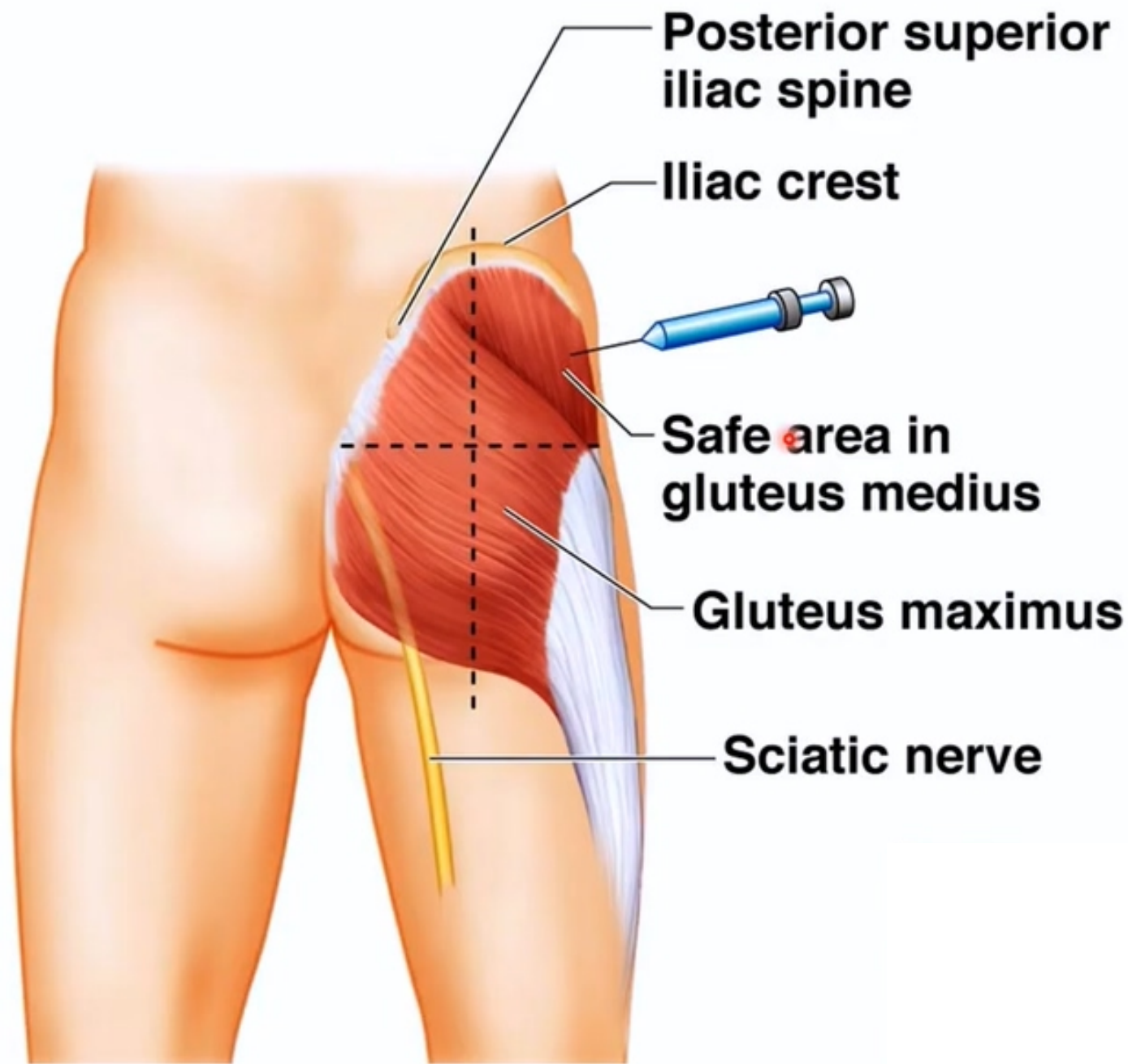
2- A bursa between the muscle and **greater trochanter**.

3- A bursa between the muscle and **vastus lateralis**.



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**** Intramuscular Injections** in the upper outer quadrant of the gluteal region to avoid Injection in the sciatic nerve.



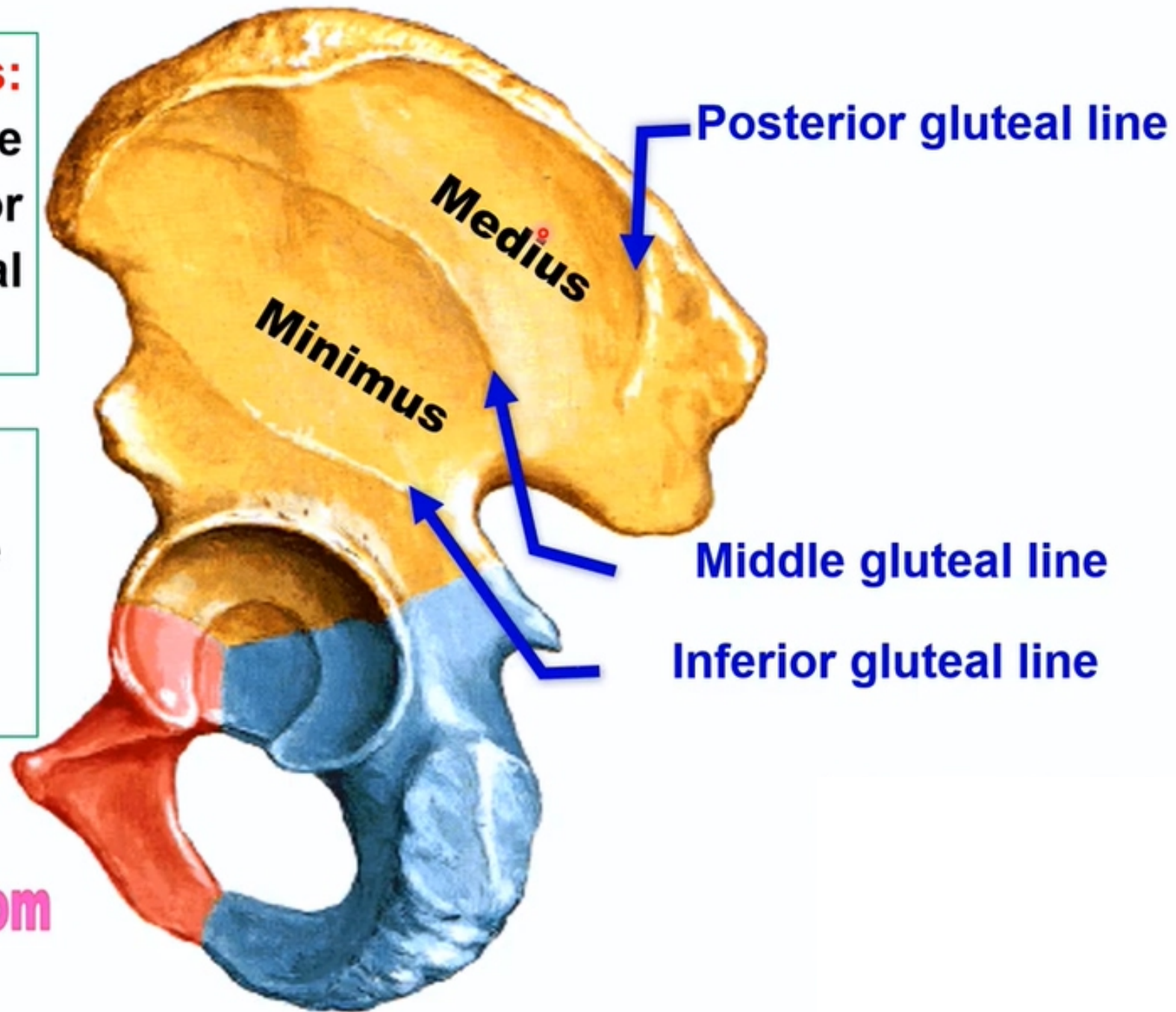
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Gluteus medius & Minimus

**** Origin of gluteus medius:**
from the gluteal surface of the ilium between posterior gluteal line and Middle gluteal line.

Origin of gluteus minimus:
from the gluteal surface of the ilium between the middle and inferior gluteal lines.



- **Insertion of gluteus medius:** into the oblique ridge on the lateral surface and upper edge of the greater trochanter.

- **Insertion of gluteus minimus:** into the anterior surface of the greater trochanter.



- **Gluteus medius**

- **Gluteus minimus**

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Actions of both muscles

1- Abduction and medial rotation of the thigh.

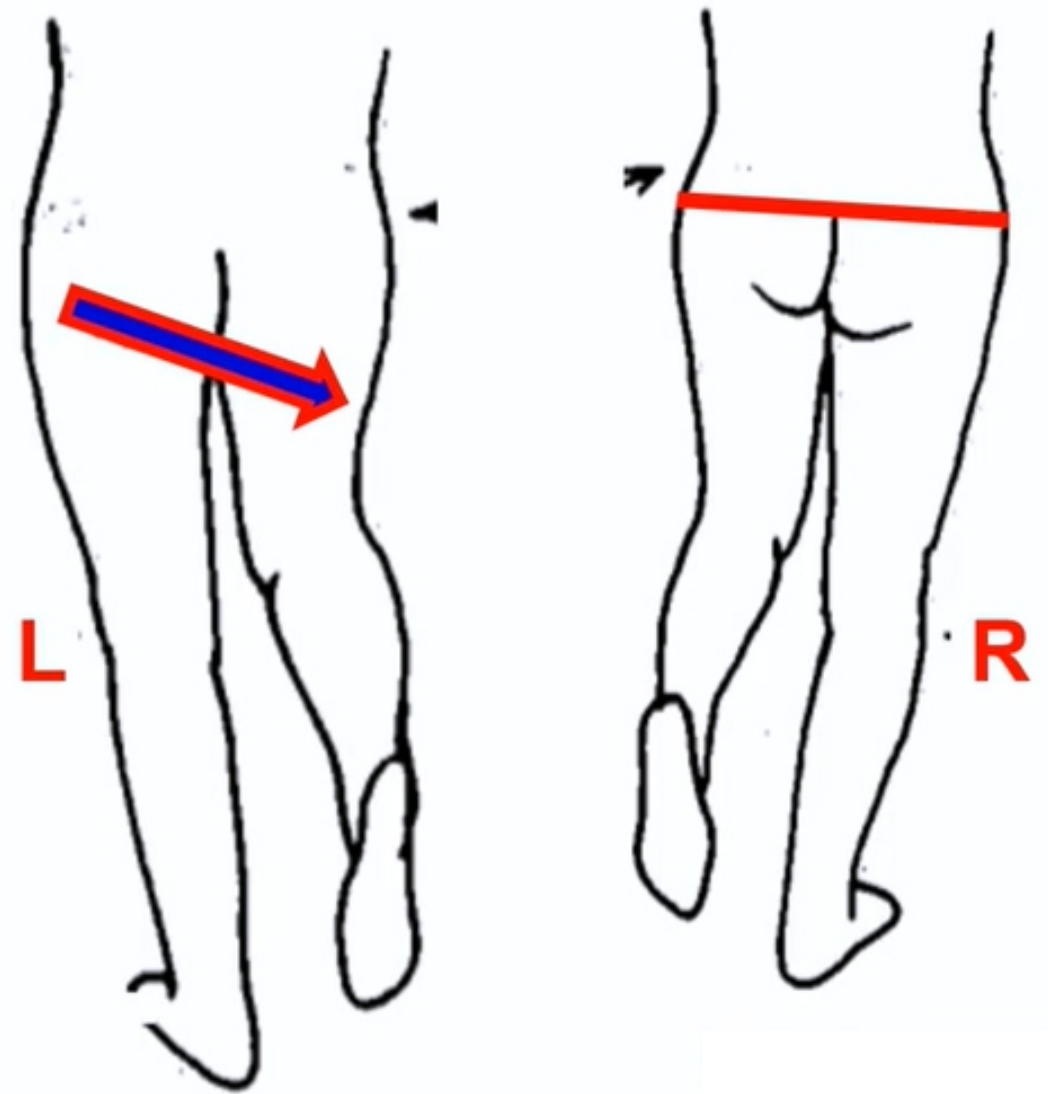
2- Prevent tilting of pelvis to unsupported side when the leg is raised from the ground.

❖ Trendelenburg's sign

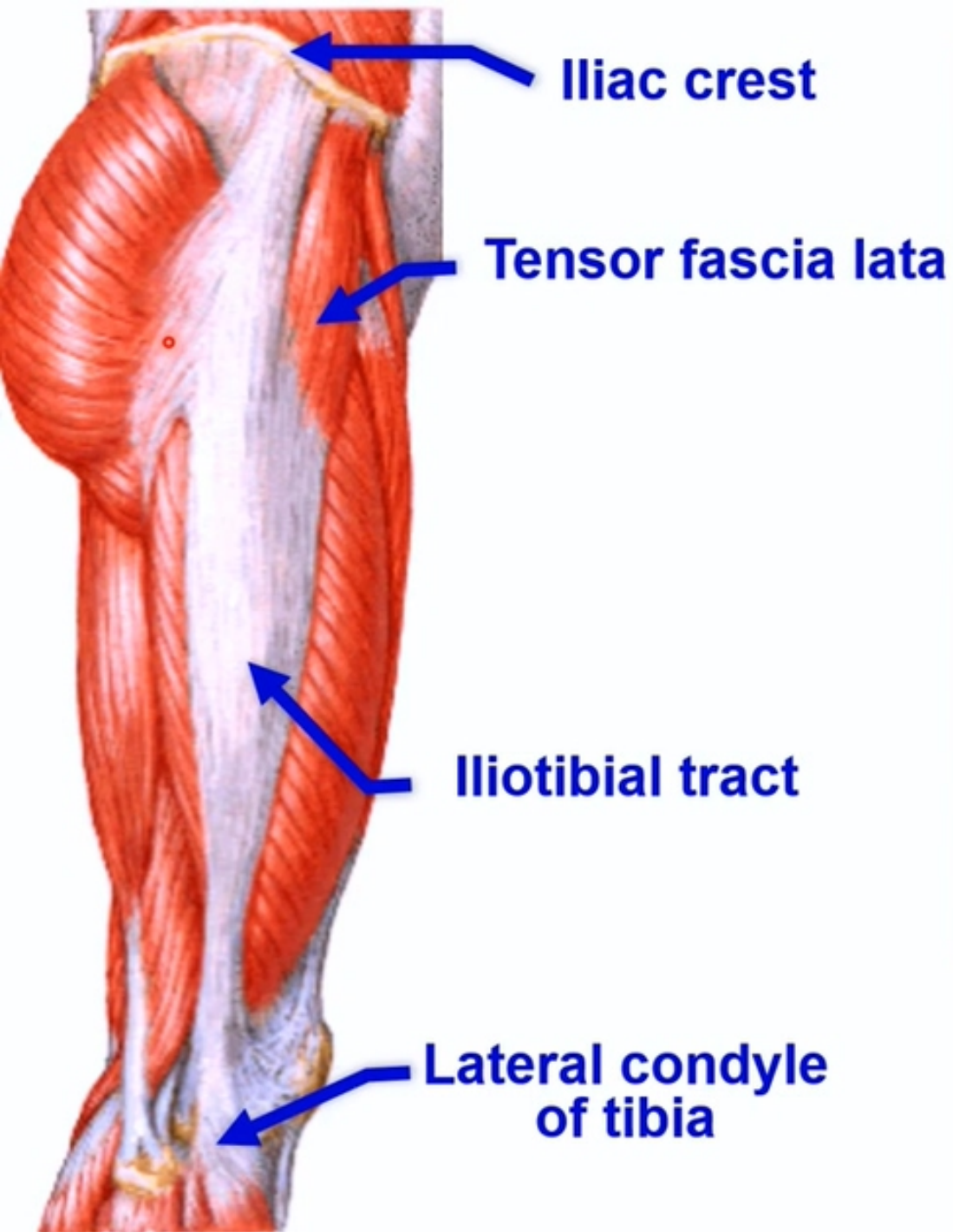
- **Paralysis of left superior gluteal nerve**
- When standing on **normal right lower limb**: right glutei medius and minimus contracted to **prevent tilting** of the pelvis to the affected left side
- When standing on the **affected left limb**: pelvis **tilting to the normal right** side due to loss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

** **Origin:** from the anterior part of the outer lip of the iliac crest.

** **Insertion:** into the iliotibial tract that attached to the anterolateral surface of the lateral condyle of the tibia.

** **Actions;**

- Stabilizes femur on the tibia during standing position to maintain erect posture.

- Steady pelvis on head of femur

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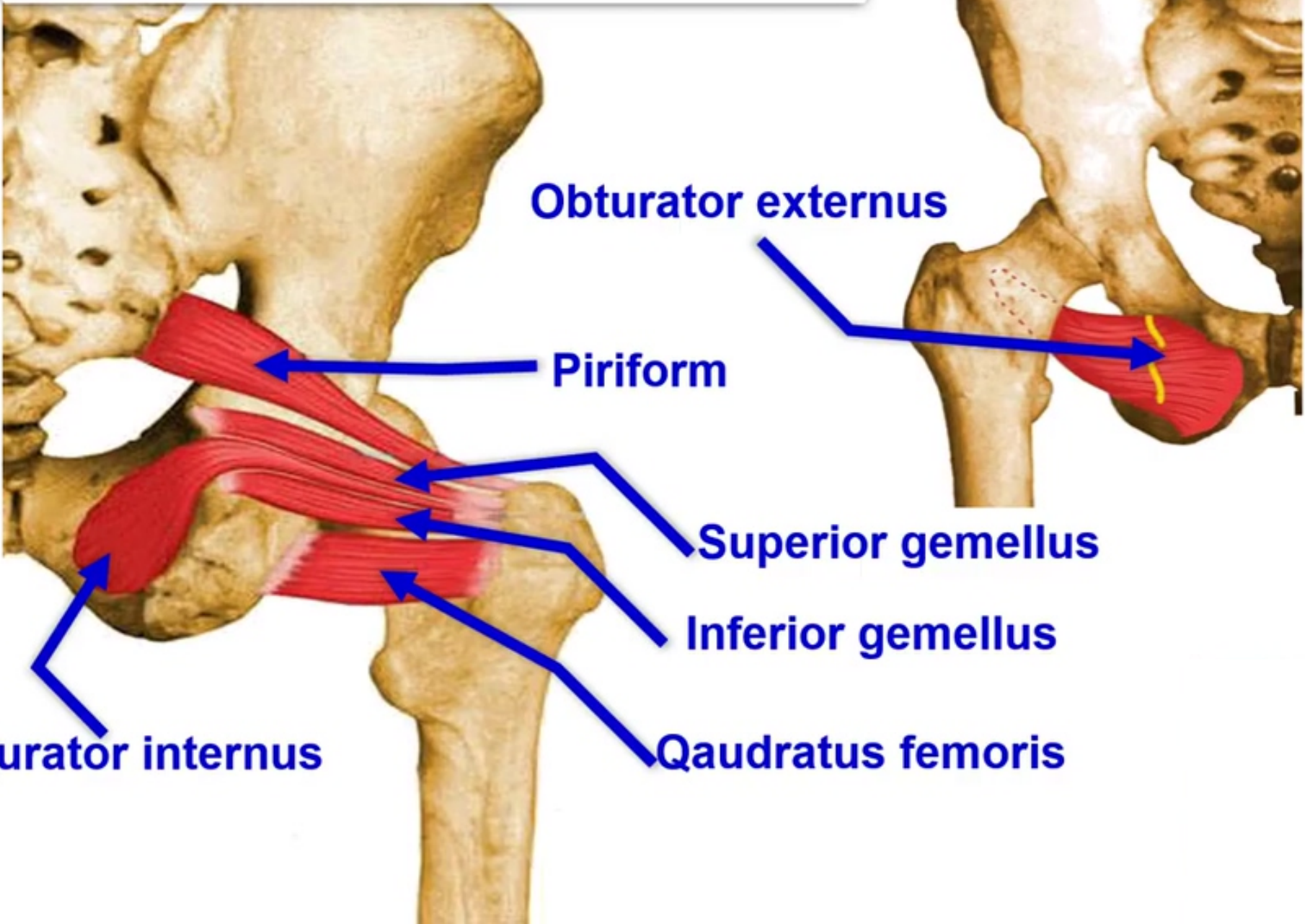
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**Lateral rotator
of thigh**

Lateral rotators of the thigh



Obturator externus

Piriform

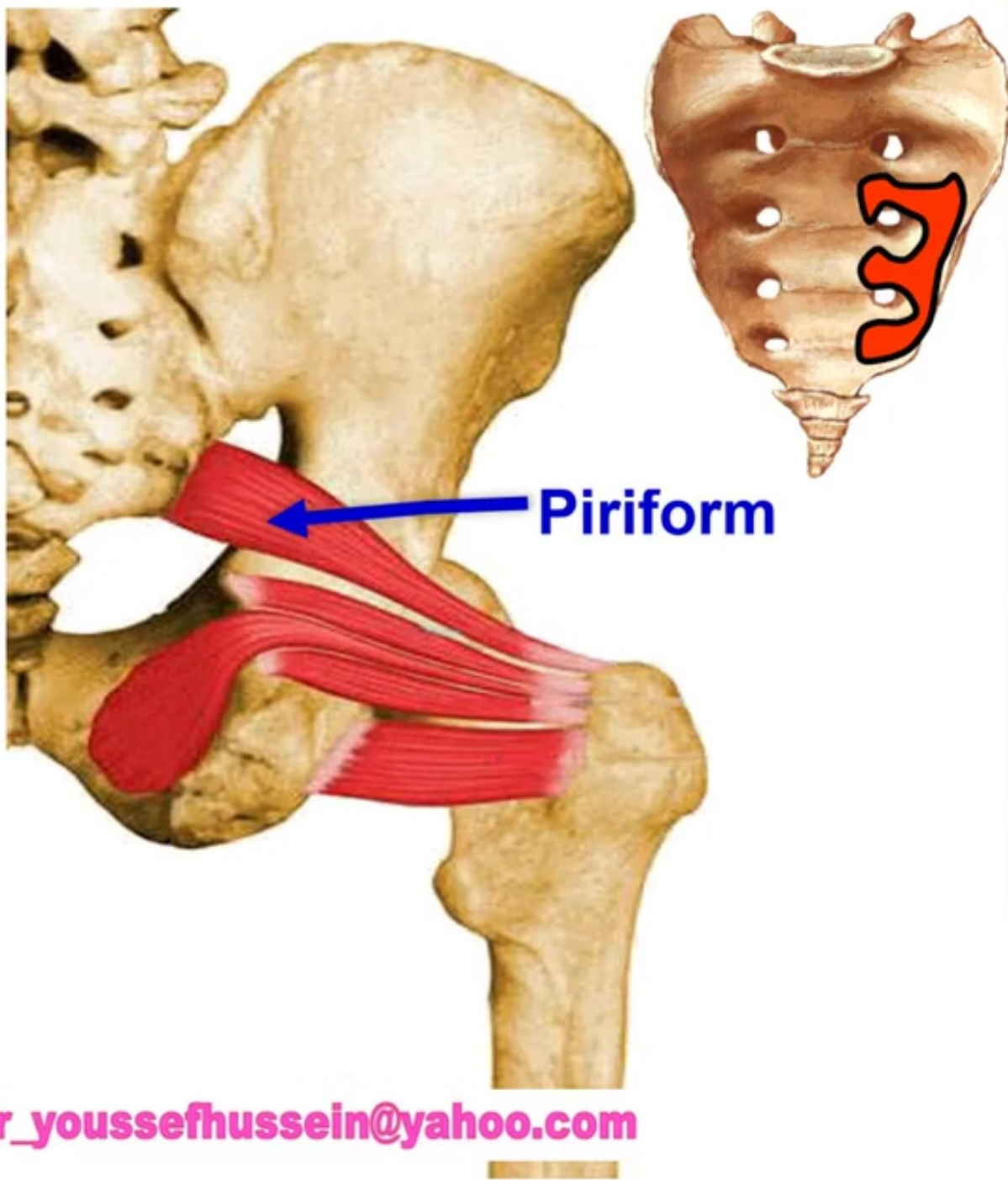
Superior gemellus

Inferior gemellus

Qaudratus femoris

Obturator internus

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❖ Piriformis

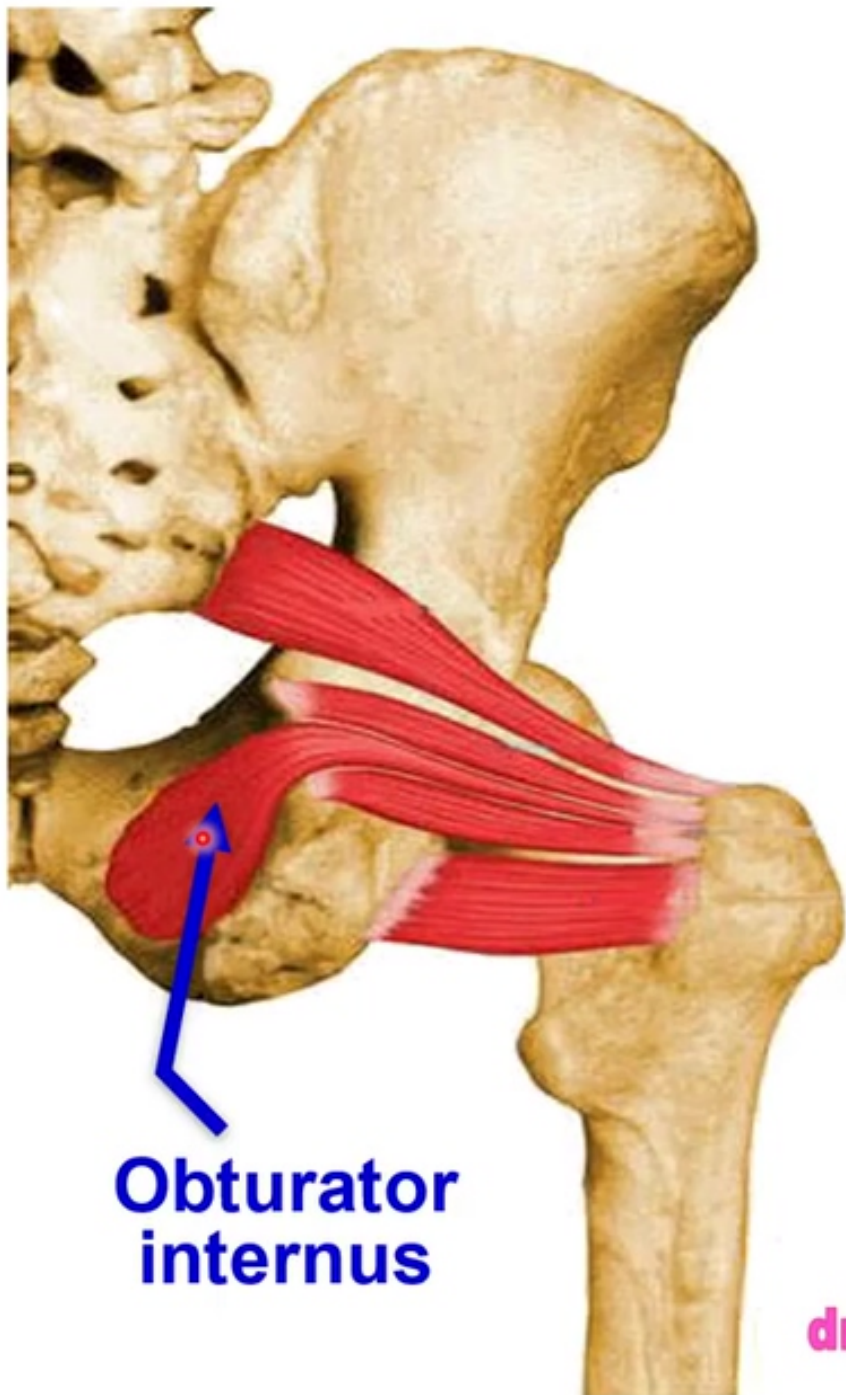
** **Origin:** from the pelvic surface of the middle 3 pieces of the sacrum.

** **Insertion:** The muscle passes out through the greater sciatic foramen and inserted into the **top** of the greater trochanter.

** **Nerve supply:** ventral rami of S1, 2.

** **Action:**

- 1- Lateral rotation of the extended thigh.
- 2- Stabilization of the hip joint.



**Obturator
internus**

❖ **Obturator Internus**

**** Origin:**

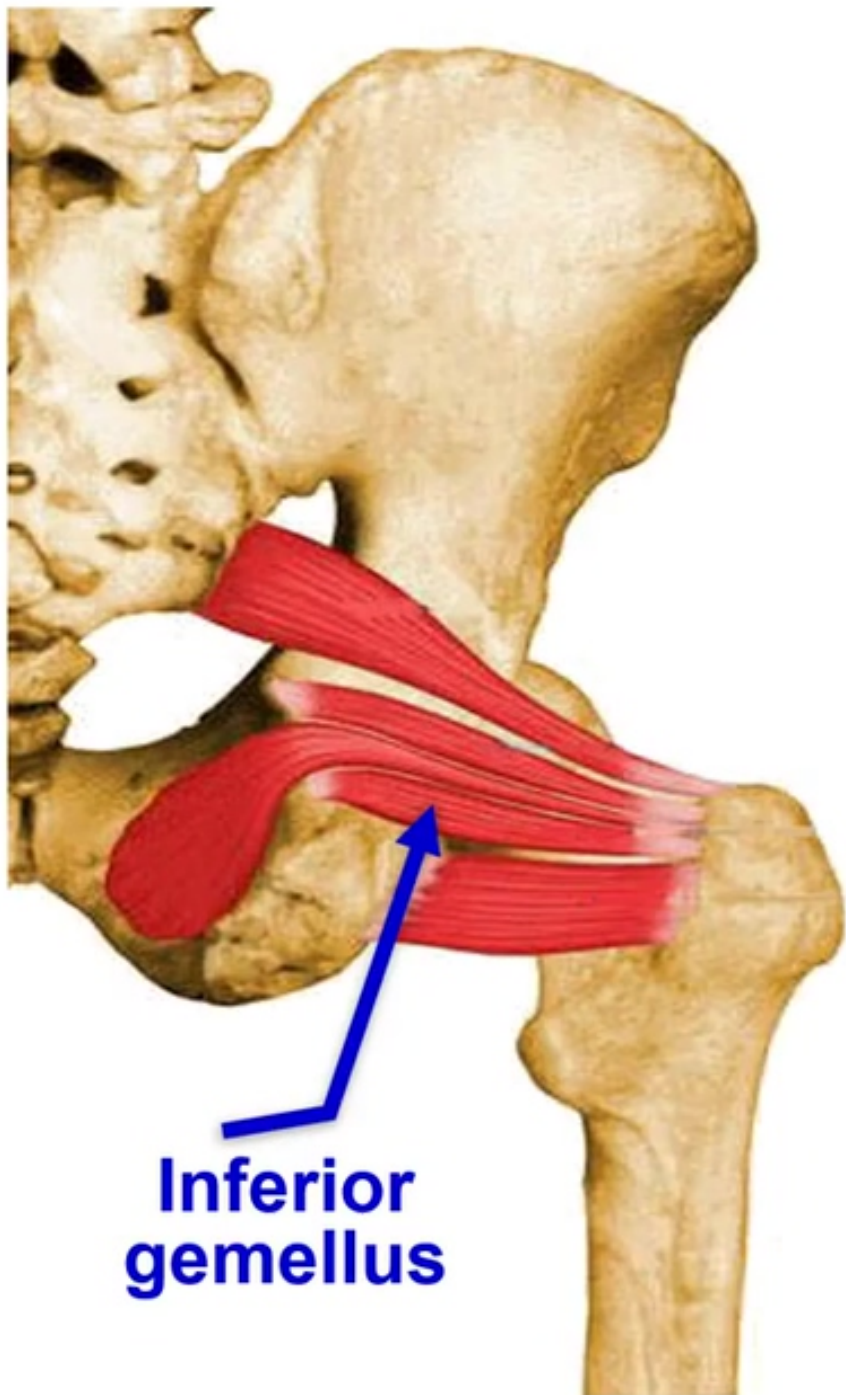
- 1- Inner surface margin of the obturator foramen and obturator membrane.
- 2- Wide area above and behind the obturator foramen.

**** Insertion:** The tendon passes out of lesser sciatic foramen to be inserted into medial surface of greater trochanter.

**** Nerve supply:** nerve to obturator internus from the sacral plexus.

**** Actions:**

- 1- Lateral rotation of the thigh.
- 2- Stabilization of the hip joint.



Inferior
gemellus

❖ Two gemelli Muscles

** Origin,

- 1- Superior from upper margin of lesser Sciatic notch.
- 2- Inferior from the lower margin of the notch.

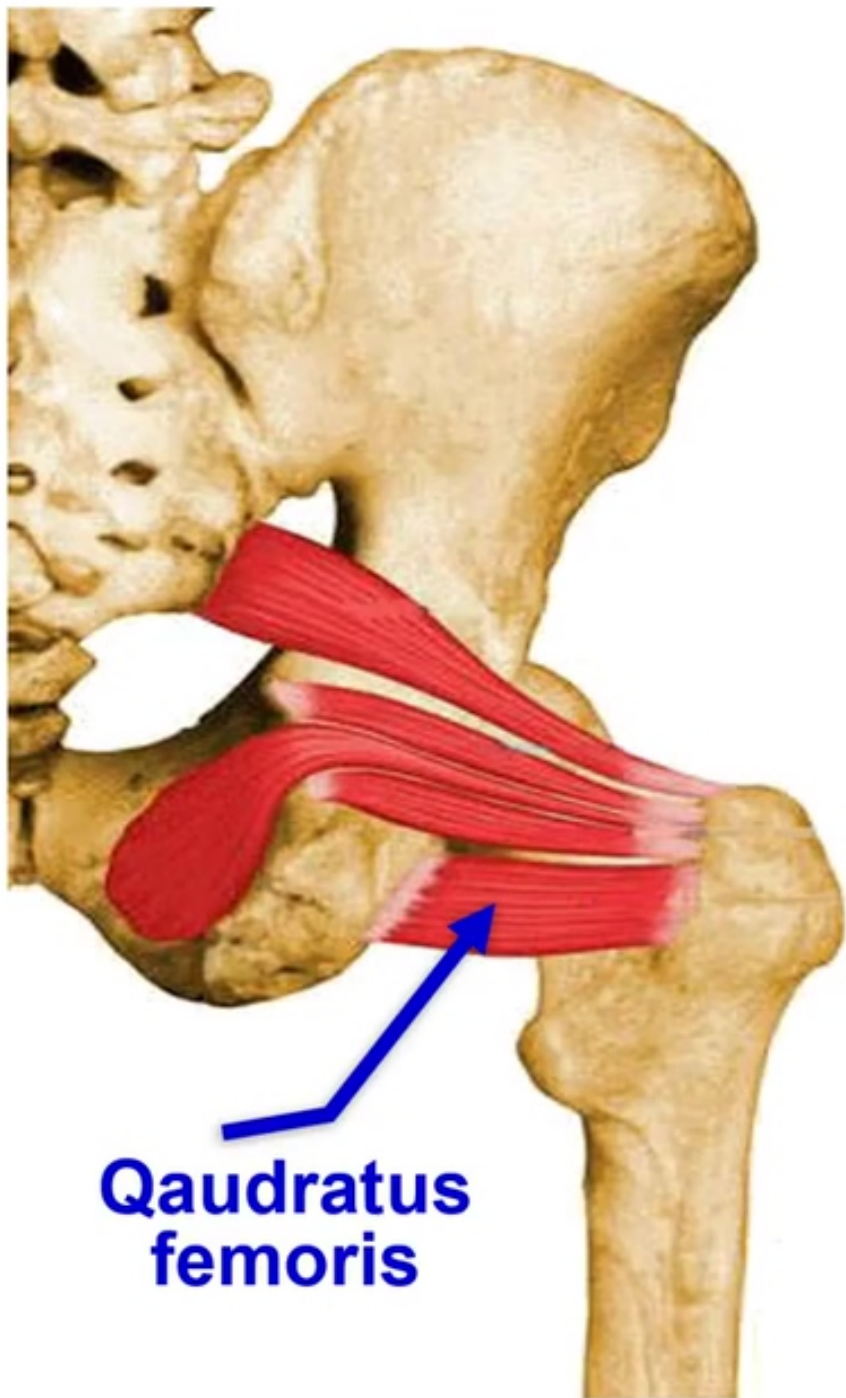
** **Insertion,** into the tendon of obturator internus.

** Nerve supply,

- 1- Superior from the nerve to obturator internus.
- 2- Inferior from the nerve to quadratus femoris

** Action:

- 1- Lateral rotation of the thigh
- 2- Stabilization of the hip joint.



❖ Quadratus Femoris

** **Origin:** from the lateral border of the ischial tuberosity.

** **Insertion:** into the quadrate tubercle on the intertrochanteric crest.

** **Nerve supply:** Nerve to quadratus femoris from the sacral plexus.

** **Action:**

- 1- Lateral rotation of the thigh.
- 2- Stabilization of the hip joint.

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Sciatic foramina

- **Sciatic foramina**

- The lesser and greater sciatic notches of hip bone are converted into foramina by 2 ligaments.

1- Attachment of Sacrotuberous Ligament

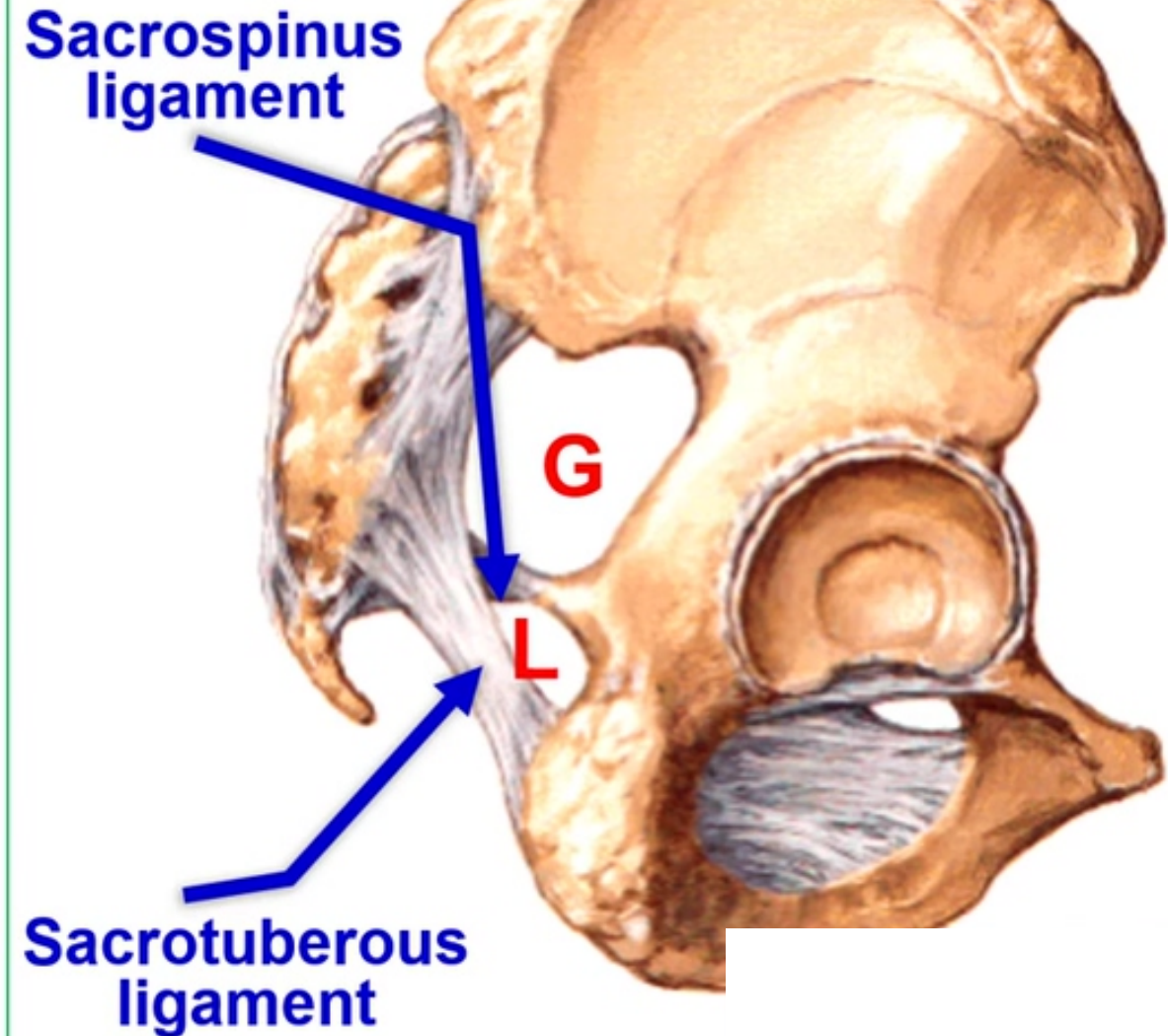
- **Superiorly**, to the margins of the sacrum and coccyx and posterior superior & posterior inferior iliac spines.

- **Inferiorly**, to the medial border of the ischial tuberosity.

2- Attachment of Sacrospinous ligament

- **Medially**, to the margins of the last piece of the sacrum and coccyx.

- **Laterally**, the tip of the ischial spine.



❖ Structures passing through Greater sciatic foramen

A- Piriformis muscle_key to identify the contents of the gluteal region.

B- Structures above the piriformis;

- 1) Superior gluteal nerve.
- 2) Superior gluteal vessel.

C- Structures below the piriformis;

- 1- Inferior gluteal nerve.
- 2- Inferior gluteal vessel.
- 3- Sciatic nerve.
- 4- Posterior cutaneous nerve of the thigh.
- 5- Nerve to quadratus femoris.
- 6- Nerve to obturator internus.
- 7- Internal pudendal vessel
- 8- Pudendal nerve.

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❖ Structures passing through Lesser sciatic foramen

- 1- Tendon of obturator internus.
- 2- Nerve to obturator internus.
- 3- Internal pudendal vessel.
- 4- Pudendal nerve.

** Structures passing from greater to lesser;

- 1- Nerve to obturator internus; **lateral**, crossing the base of ischial spine.
- 2- Internal pudendal vessels; **intermediate**, crossing the tip of ischial spine.
- 3- Pudendal nerve; **medial**, crossing the sacrospinous ligament. It is blocked in episiotomy during childbirth

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