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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

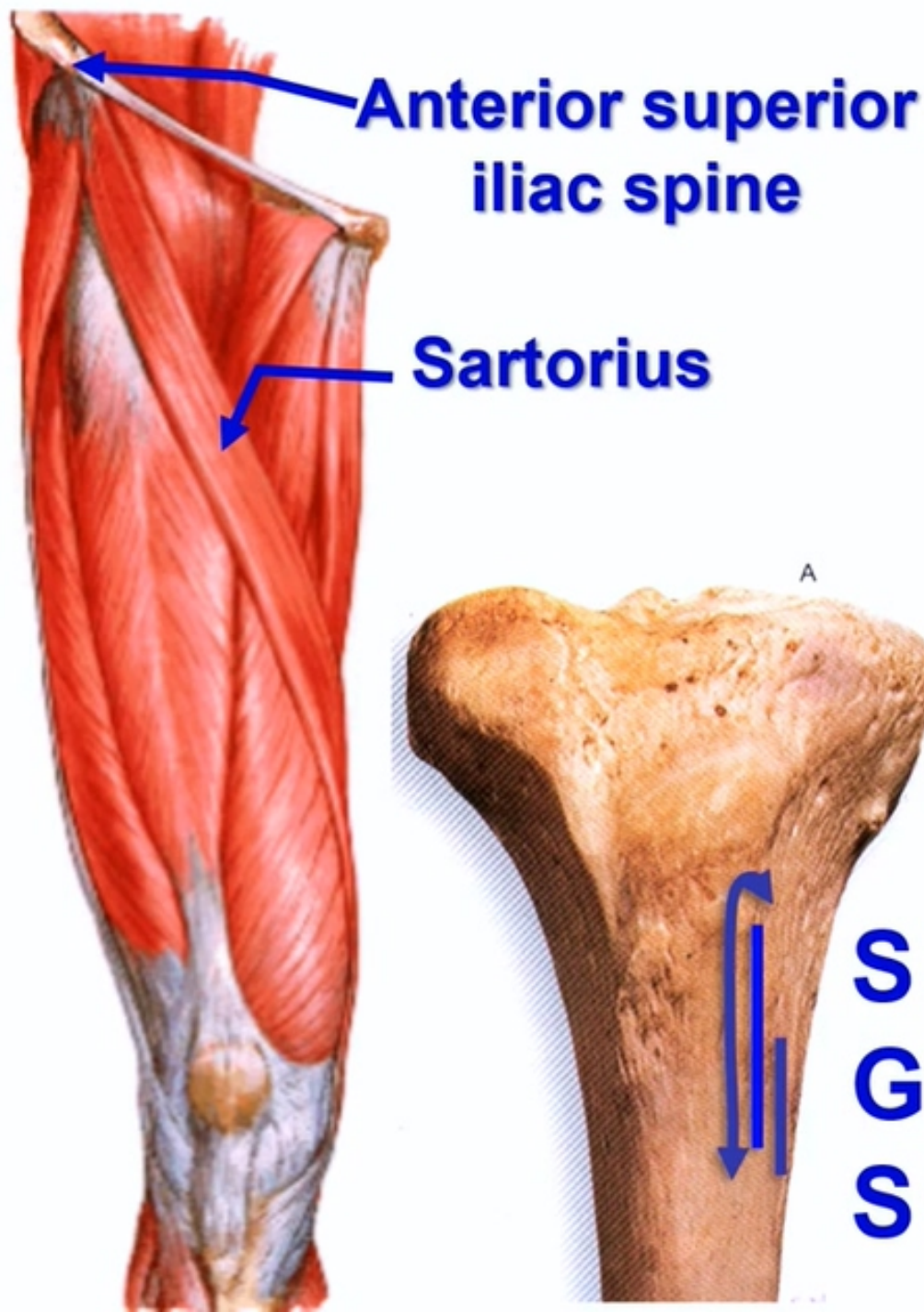
Dr. Youssef Hussein Anatomy اليوتيوب

جروب الفيس د. يوسف حسين (استاذ التشريح)

Muscles of Front of the thigh

dr.youssefhusseini@yahoo.com

- **Nerve supply:** All muscles of the front of thigh is supplied by femoral nerve except psoas major from lumbar plexus .



❖ Sartorius

- It is the longest muscle of the body and it may be **absent**.

** **Origin:** from anterior superior iliac spine below attachment of inguinal ligament.

** **Insertion:** into the upper part of the medial surface of the tibia (SGS) sartorius, gracilis, semitendinosus from anterior to posterior.

** **Relations:**

- It forms the lateral border of **femoral triangle**
- It forms the roof of **adductor canal**

dr_youssefhussein@yahoo.com



Sartor = tailor

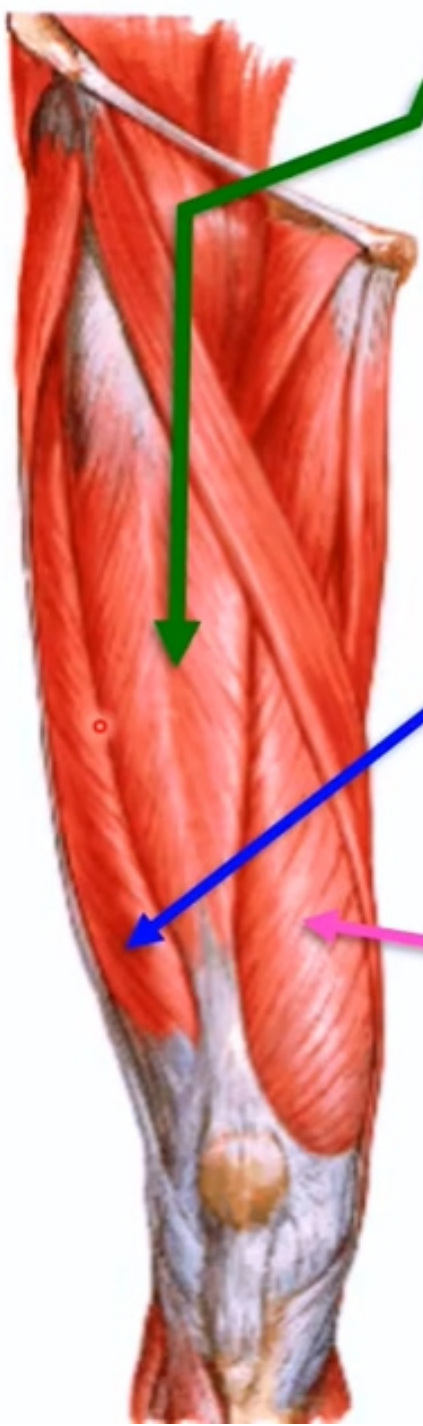
** Actions:

a- Flexion, abduction and lateral rotation of the thigh (**Hip joint**).

b- Medial rotation of the flexed leg (**Knee joint**).

N.B; Putting the lower limb in the classical cross leg position (tailor position)





Rectus femoris

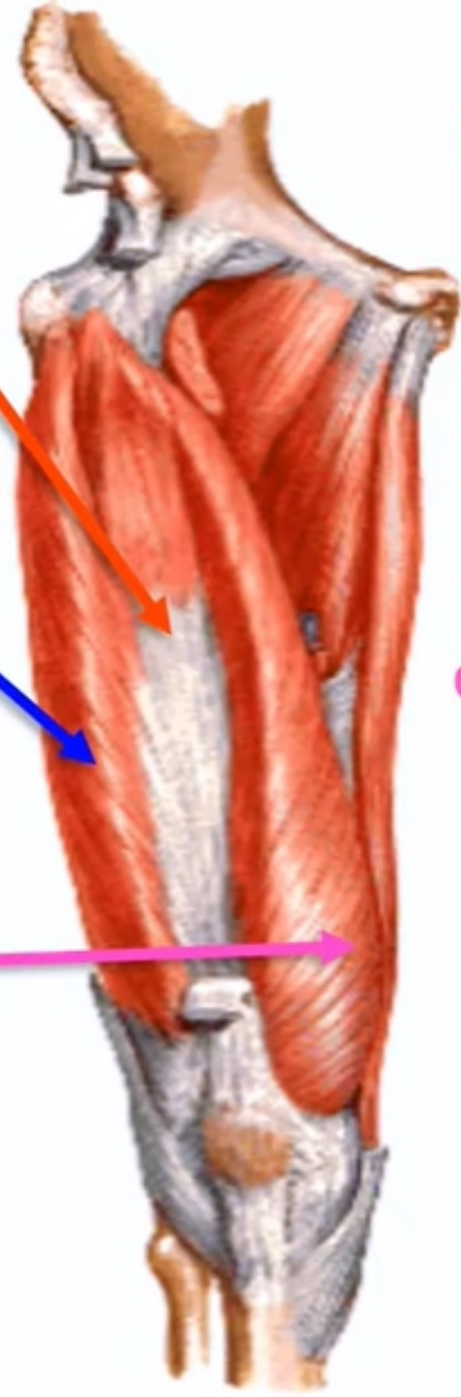
Vastus intermedius

Vastus lateralis

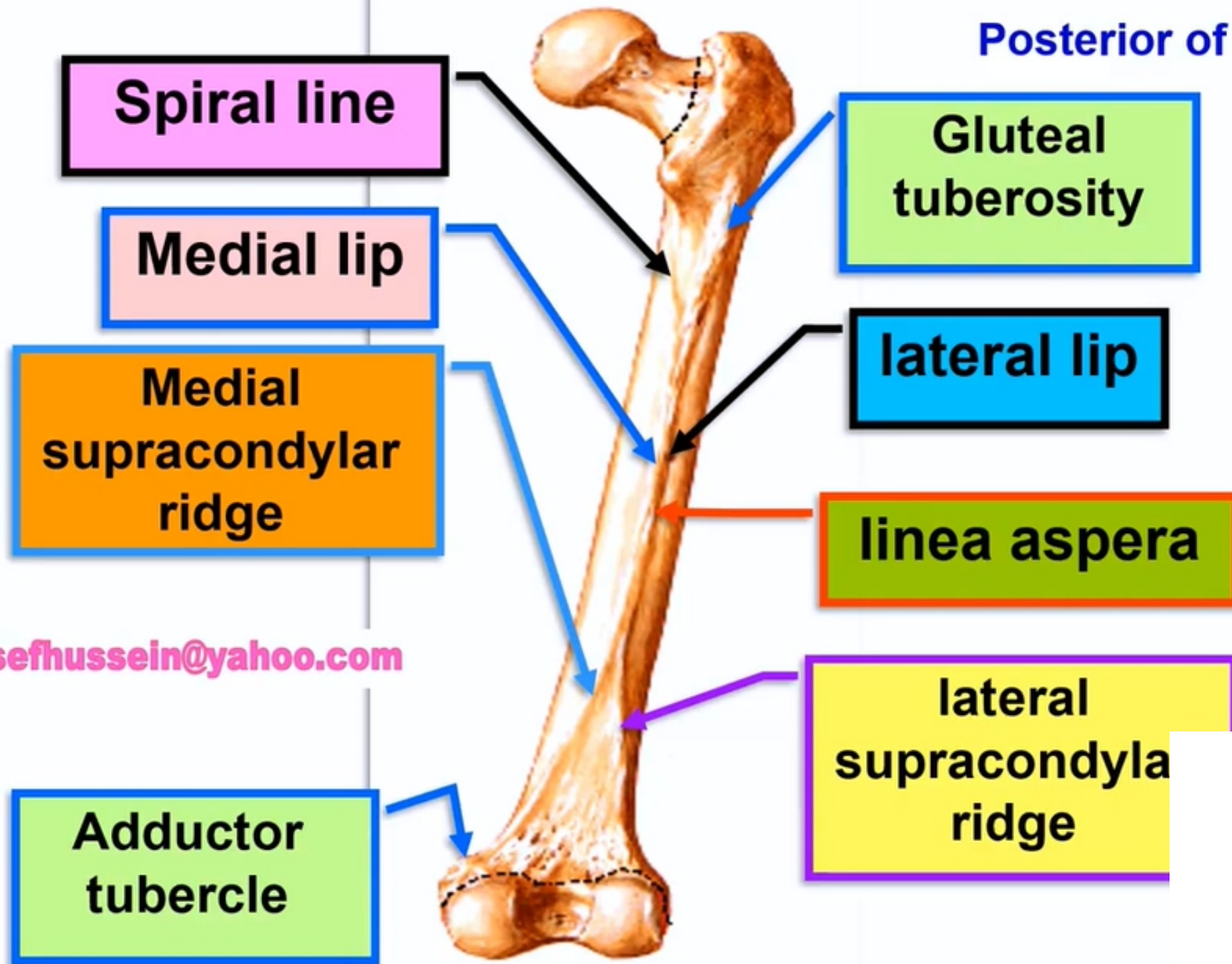
Vastus medialis

Quadriceps muscle

dr_youssefhussein@yahoo.com



Posterior of femur



dr_youssefhussein@yahoo.com

Greater trochanter

Lesser trochanter

Vastus Lat. (O.)

Vastus Med. (O.)

Vastus intermedius (O.)

Anterior of femur

dr_youssefhussein@yahoo.com

Articularis genu

Synovial membrane

Origin of quadriceps



Vastus Lateralis (O.)

Posterior of femur

Vastus Medialis (O.)

❖ Origin of Quadriceps Femoris

1- Vastus lateralis: arises by a linear origin from

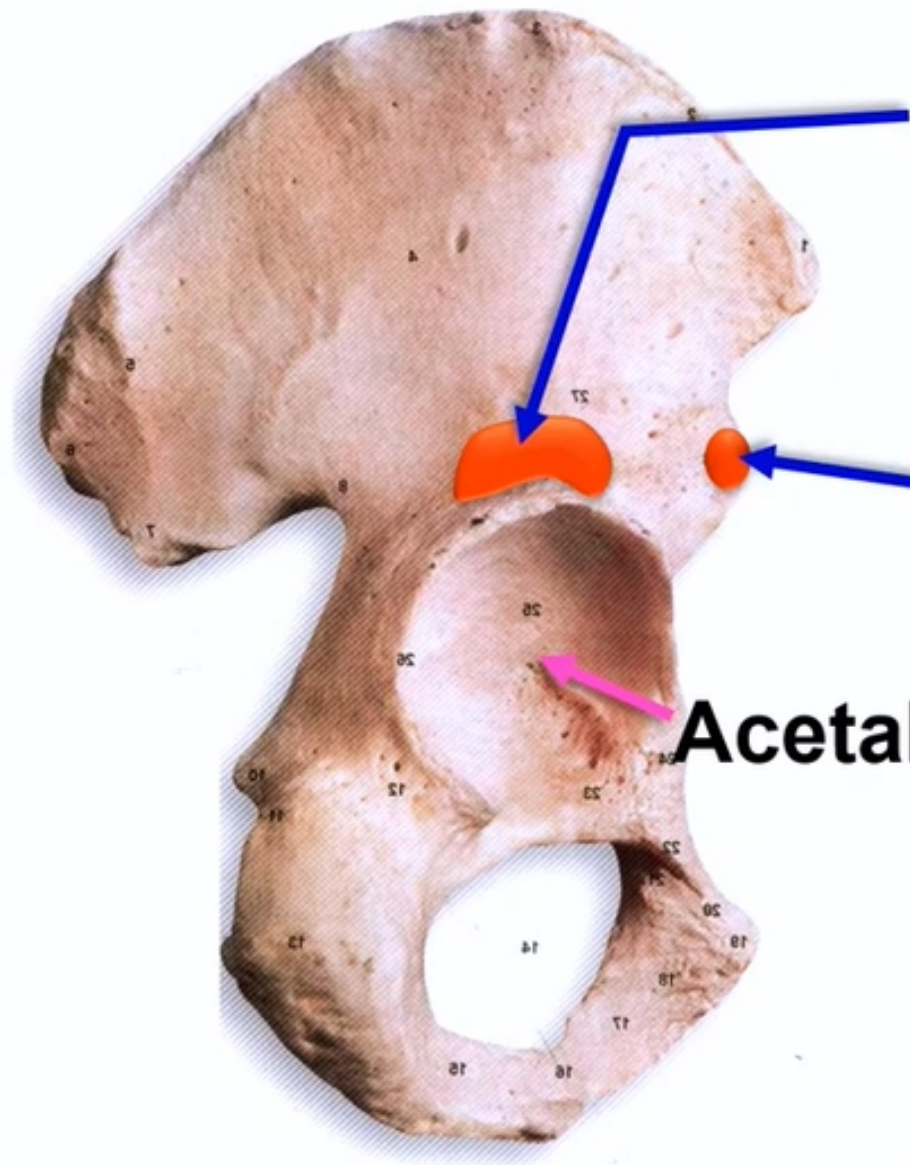
- 1- Upper part of the intertrochanteric line.
- 2- Root of the greater trochanter.
- 3- Lateral margin of the gluteal tuberosity.
- 4- Lateral lip of the linea aspera.
- 5- Lateral supracondylar line.

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2- Vastus medialis: also arises by a linear origin from

- 1- Lower part of the Intertrochanteric line.
- 2- Spiral line.
- 3- Medial lip of the linea aspera.
- 4- Medial supracondylar line.

3- Vastus intermedius, from the upper 3/4 of the anterior and lateral :
shaft of the femur.



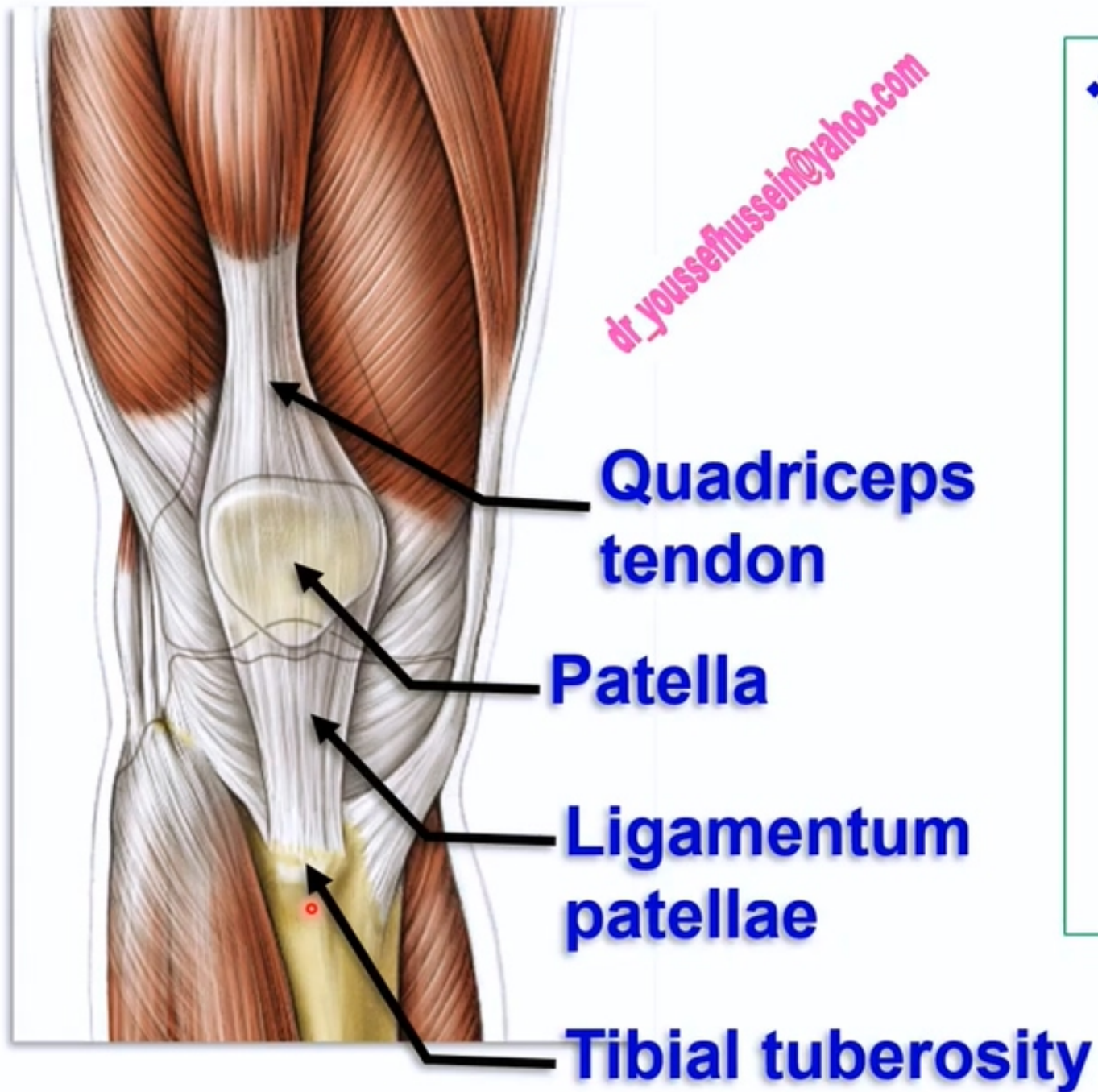
Reflected head from an impression just above the acetabulum.

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Straight head of Rectus femoris from the upper part of anterior inferior iliac spine

Acetabulum

Origin of rectus femoris



❖ **** Insertion of quadriceps muscles:**

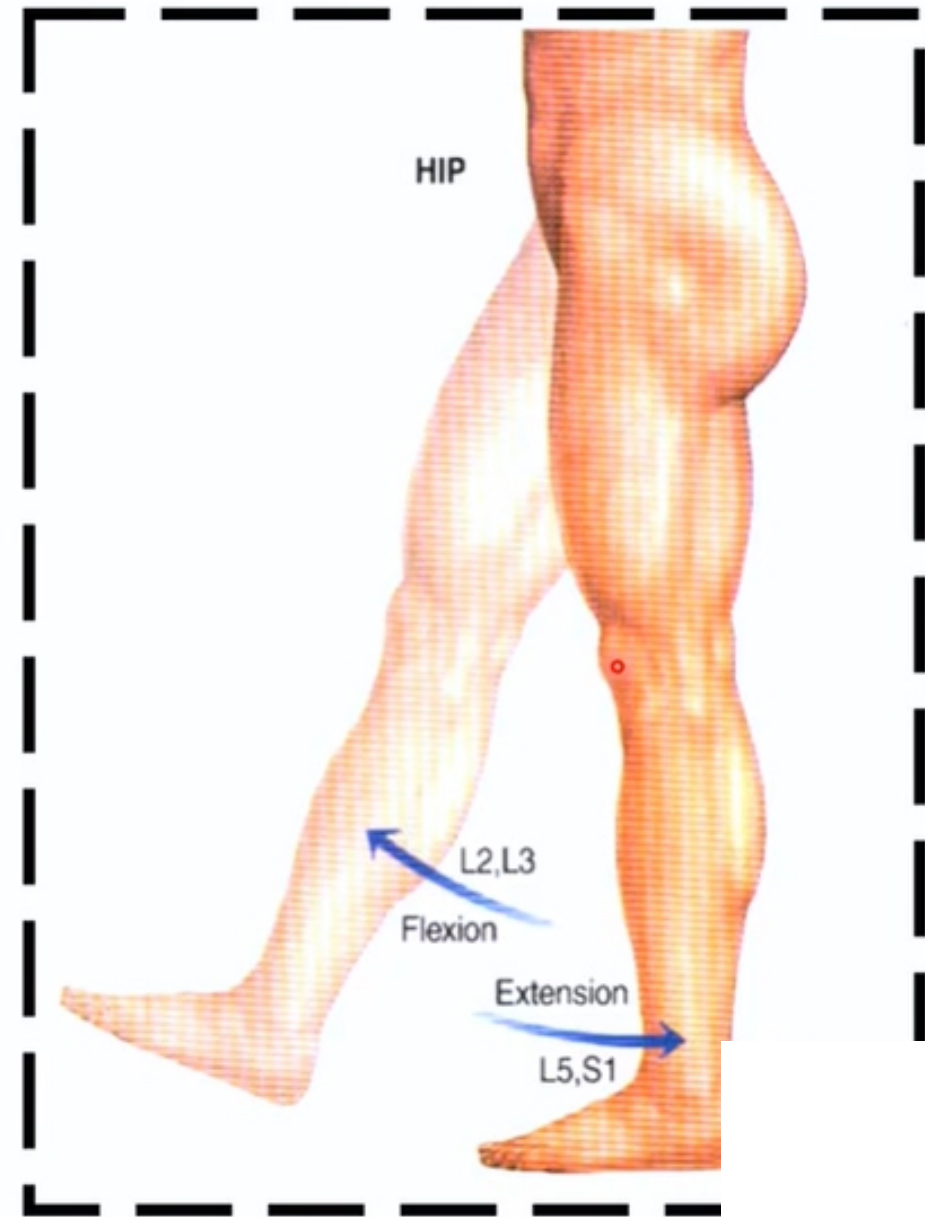
- The four muscles fuse into a common tendon called **quadriceps tendon** which is inserted into the base, borders of the **patella**.

- **The Ligamentum patellae;** carries the insertion to the upper part of tibial t

**** Actions of quadriceps:**

- 1- Main extensor of knee joint.**
- 2- Raising from the sitting position**
- 3- Rectus femoris helps in flexion of the hip joint.**

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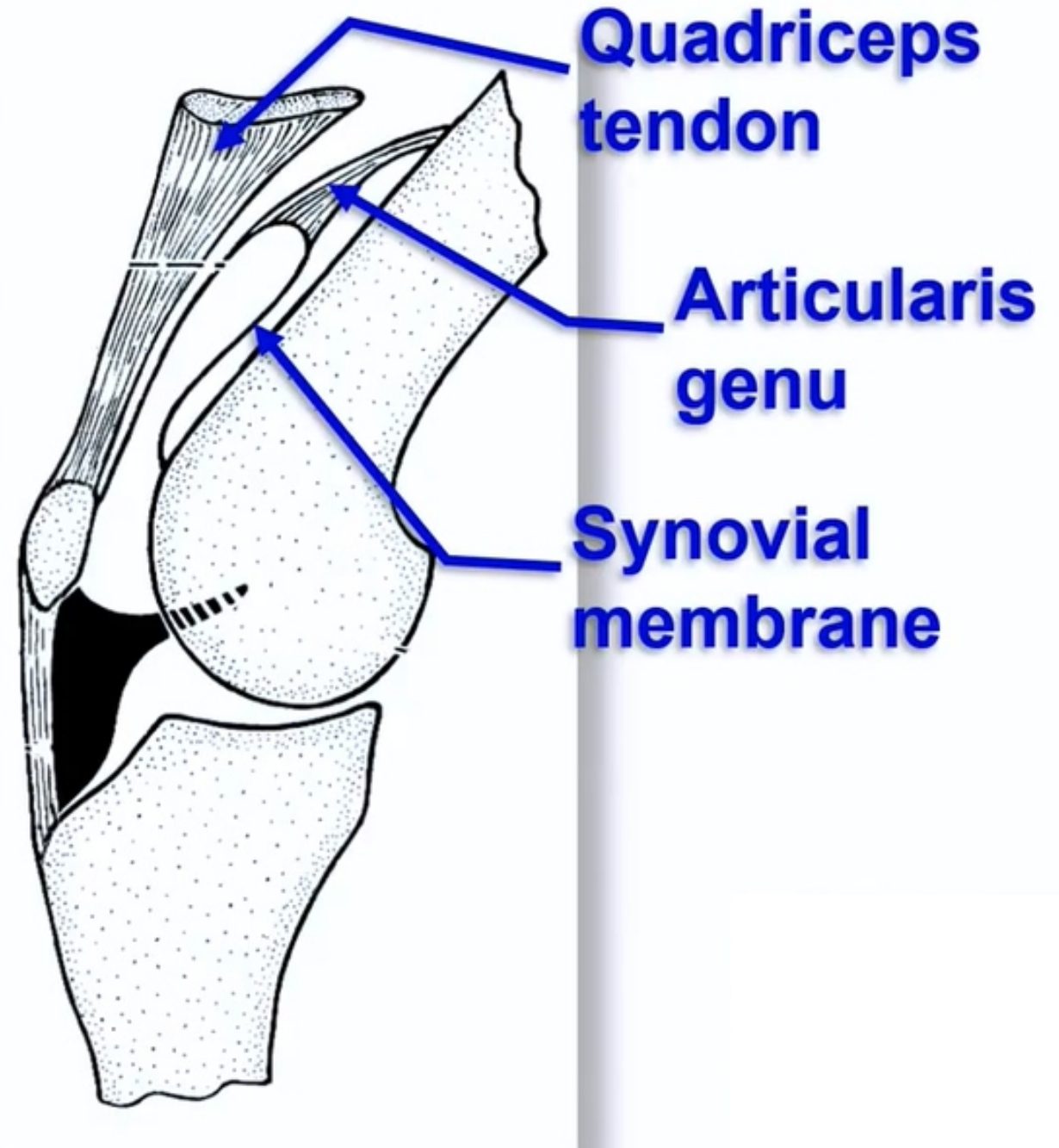


❖ **Articularis genu muscle**

** **Origin**, from the lower part of the anterior surface of the femur.

** **Insertion**, into the synovial membrane of the knee joint.

** **Action**, It pulls the synovial membrane up during extension of the knee joint to prevent its damage between the bones.



❖ Psoas major

** Origin

a- Transverse process of all lumbar vertebrae.

b- Sides of the bodies of last thoracic and all lumbar vertebrae.

c- Tendinous arch over the lumbar vessels.

❖ Iliacus

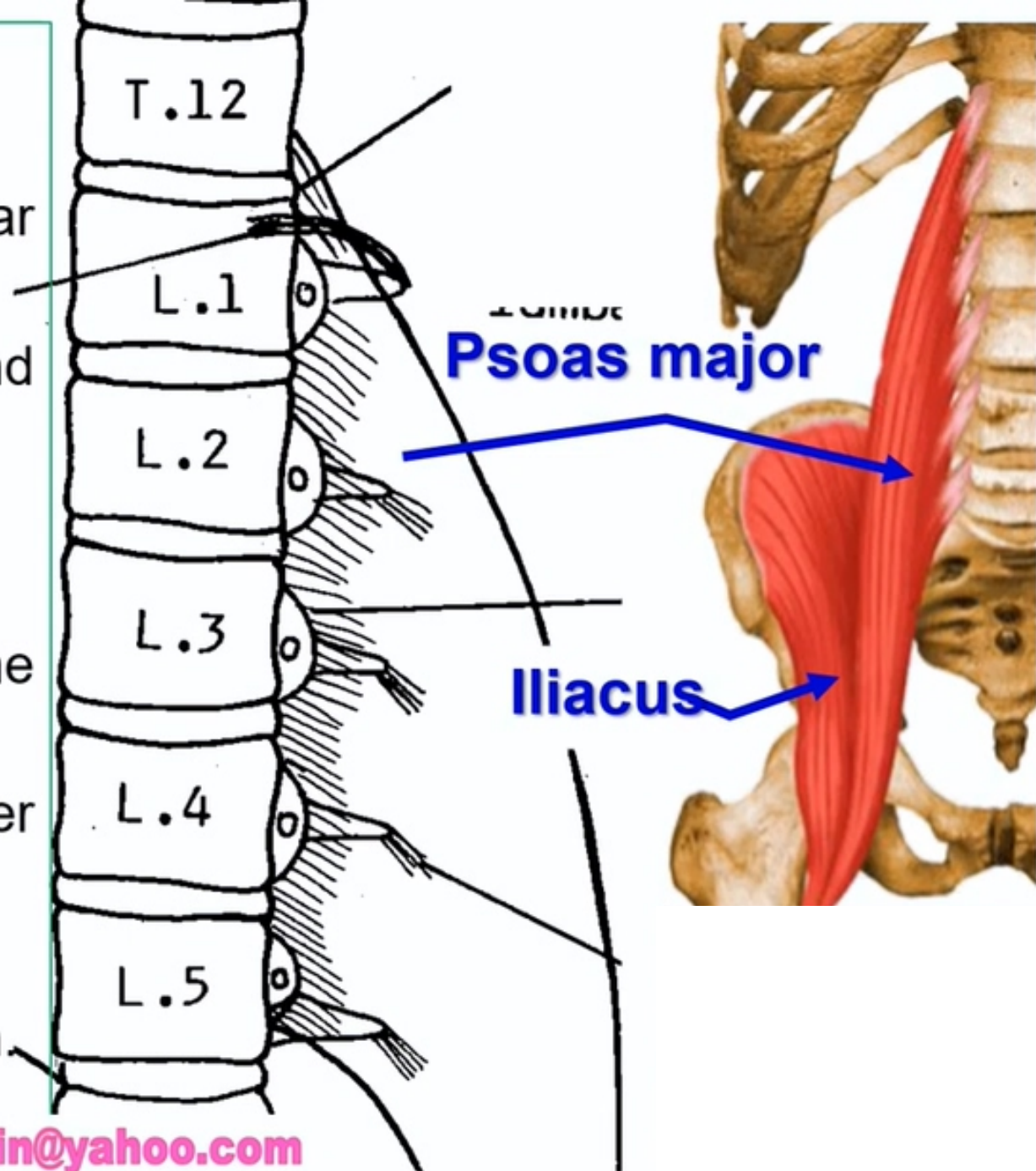
** **Origin**, iliac fossa, and upper part of the ala of the sacrum.

** **Insertion of iliopsoas**: lesser trochanter of the femur.

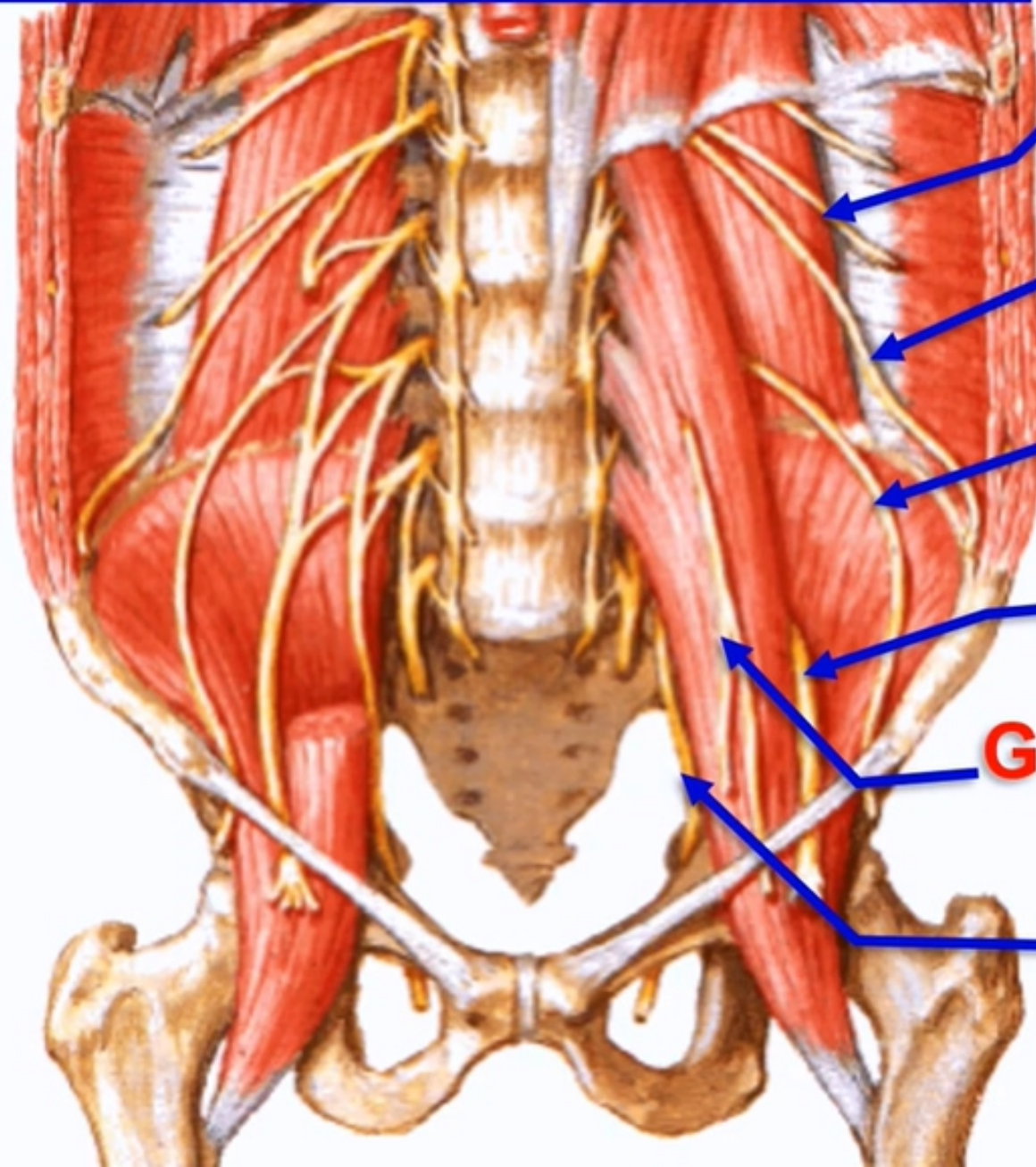
** Action of iliopsoas

1- Main flexor of hip joint and lateral rotation.

2- Flexion of the trunk.



Relations of psoas major



Iliohypogastric nerve (lat)

Ilioinguinal nerve (lat)

**Lateral cutaneous
Nerve of thigh (lat)**

Femoral Nerve (Lat)

Genitofemoral nerve (infront)

Obturator Nerve (m)



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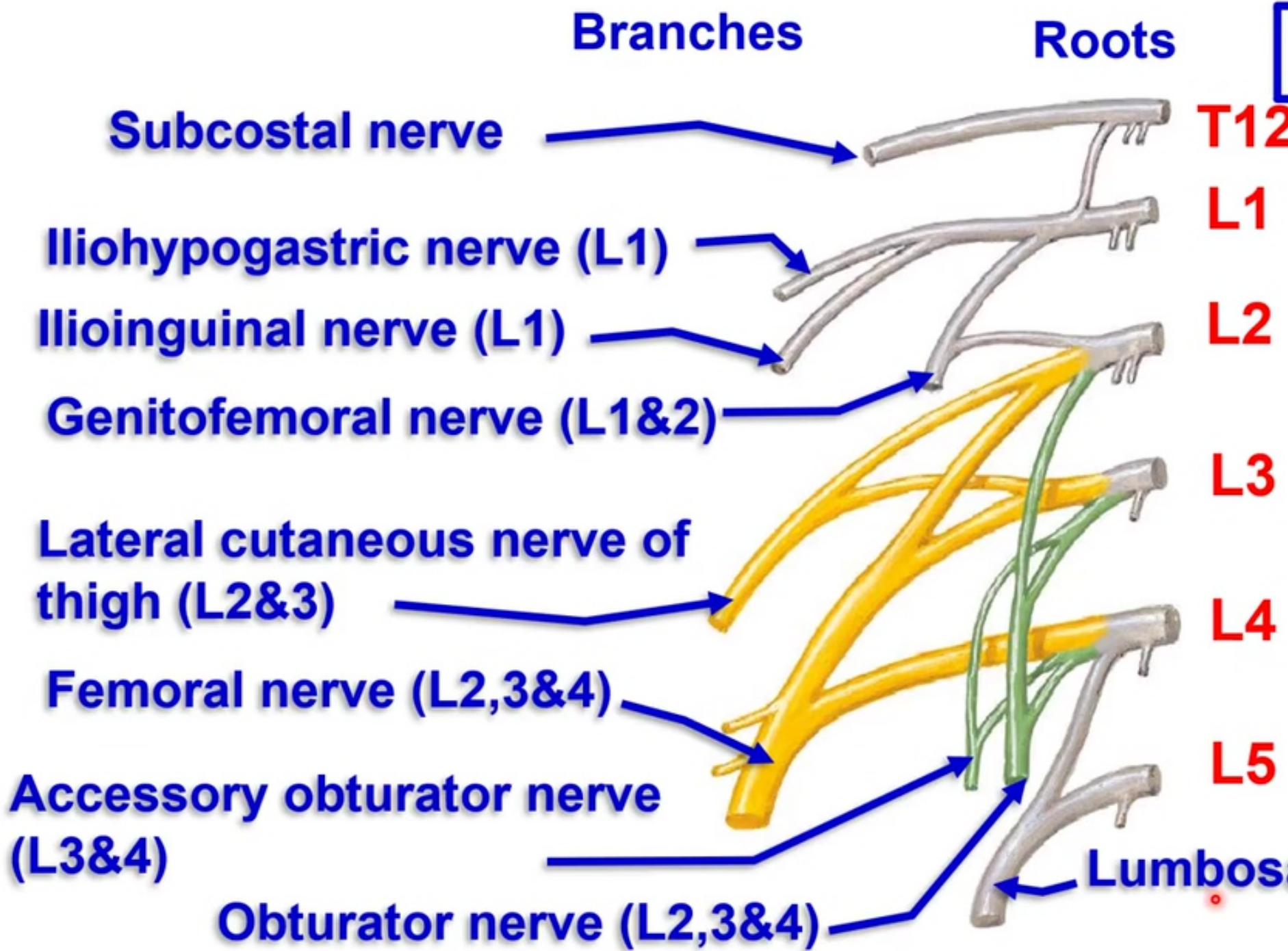
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Lumbar plexus

Lumbar plexus

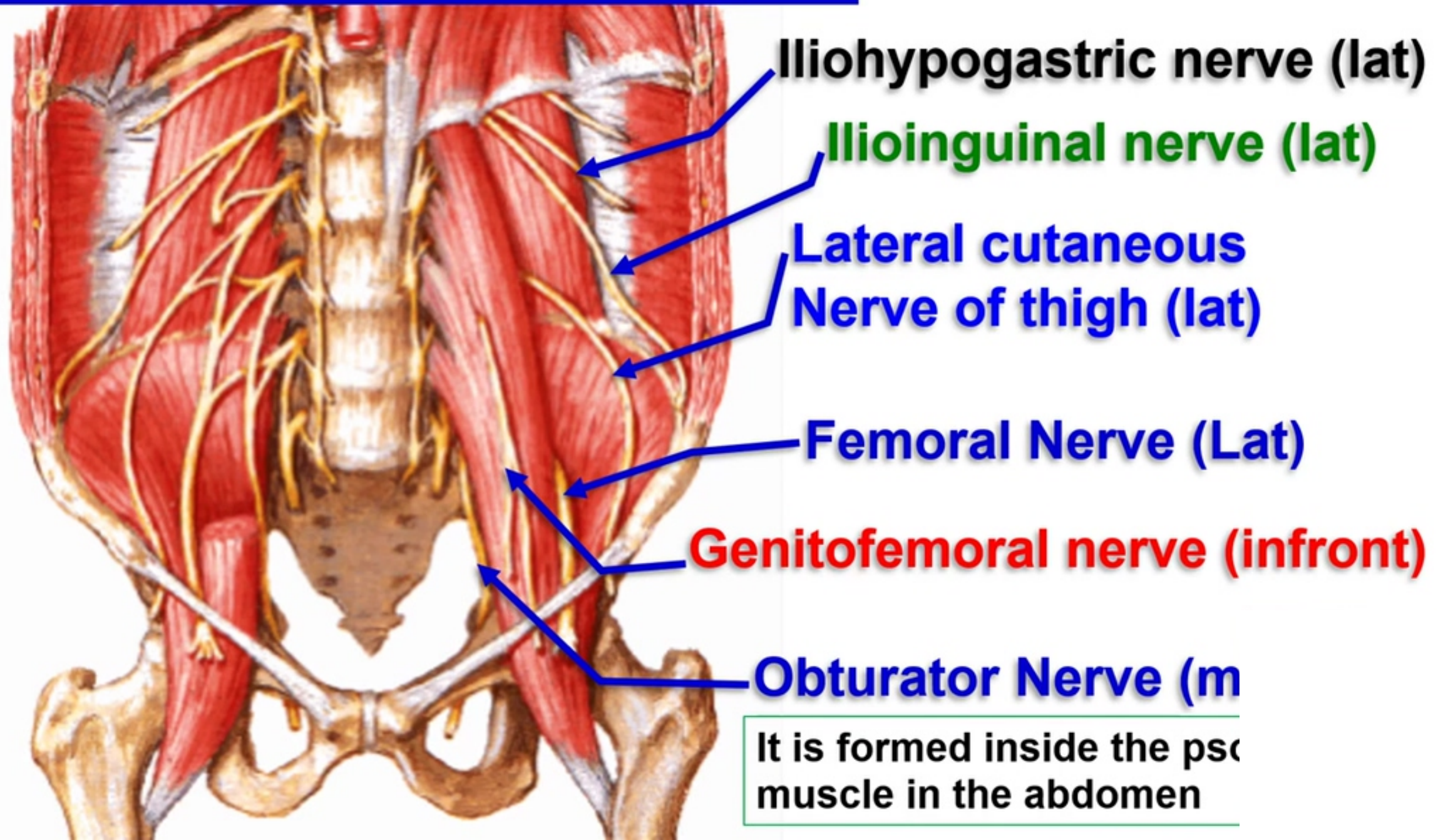


It is formed by the ventral rami of L1, 2, 3, 4

Muscular branches to the muscles of posterior abdominal wall

Lumbosacra

Branches of lumbar plexus



- **Branches of Lumbar plexus**

1- Iliohypogastric nerve (L1) It leaves the psoas major at its lateral border to reach the anterior abdominal wall.

2- Ilioinguinal nerve (L1). It leaves the psoas major at its lateral border, passes through the inguinal canal.

- Branches;

a- Skin and muscles of the anterior abdominal wall.

b- The skin of the upper part of the medial side of the thigh.

c- Branch for the external genital organs.

3- Genitofemoral nerve (L1, 2) descends on the anterior surface of psoas major muscle. It divides into;

a- Genital branch enters the deep inguinal ring to the cremasteric muscle and supplies the external genitalia.

b- Femoral branch descends deep to the inguinal ligament within the femoral sheath to the upper part of the front of the thigh.

- **Branches of Lumbar plexus**

4- Lateral cutaneous nerve of the thigh. (L2, 3), It leaves the psoas major at its lateral border. It supplies the skin of the lateral part of the thigh.

5- Femoral nerve (L2, 3, 4) It leaves the psoas major at its lateral border , descends in the groove between the psoas major and iliacus to reach the thigh.

6- Obturator nerve (L2, 3, 4) It leaves the psoas major at its medial border, passes through the obturator canal to reach the thigh.

7- Accessory obturator nerve It leaves the psoas major at its medial border in 30% of people from (L 3, 4).

8- Lumbosacral trunk (L4 & L5) to join the sacral plexus

9- Muscular branches from the roots of the plexus: to

1- Psoas minor from L 1.

2- Psoas major from L, 1, 2, 3.

3- Quadratus lumborum from L1, 2, 3.



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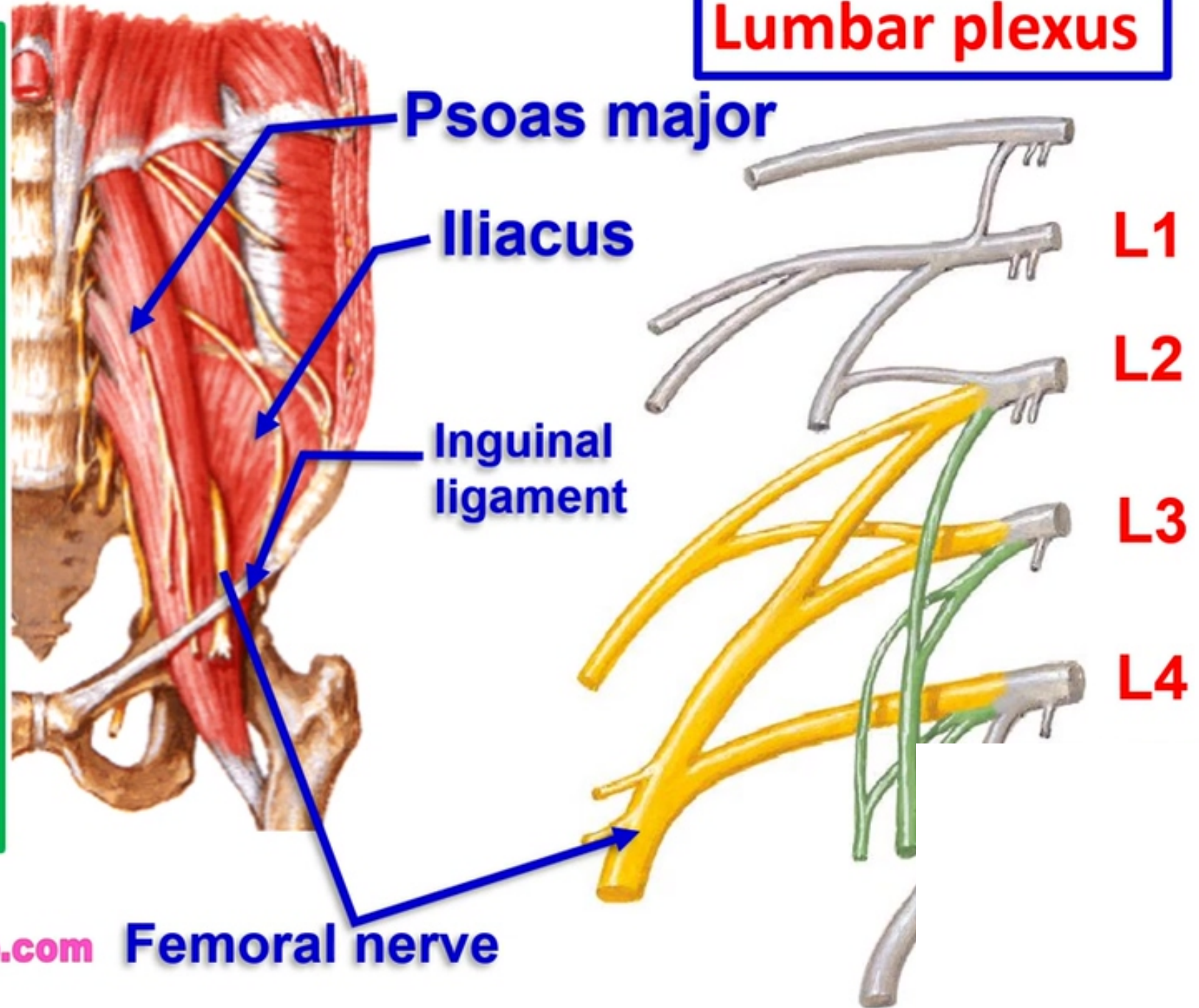
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Lumbar plexus

- It is a branch from the lumbar plexus from the ventral rami L2,3,4
- It is formed inside the psoas major muscle then descends in the groove between psoas major and iliacus.
- It enters thigh deep to inguinal ligament outside femoral sheath



- In femoral triangle, lateral to femoral artery, ends below inguinal ligament by dividing into anterior and posterior.

** Branches of femoral nerve

B- Trunk, 1- Nerve to **iliacus** in the abdomen.

2- Nerve to **pectineus**: just below the inguinal ligament.

B- Anterior division: Muscular branch to the **sartorius**.

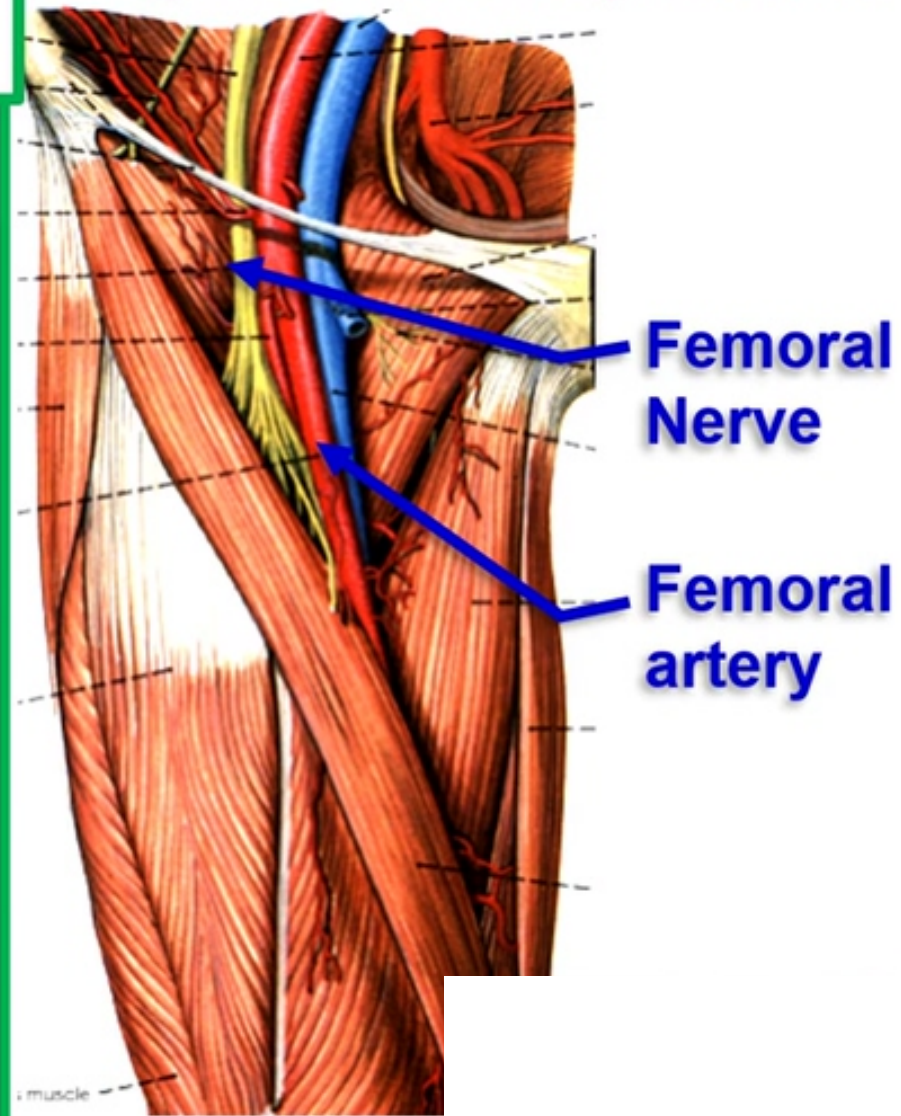
- **Cutaneous** branches: **Medial and intermediate cutaneous** nerve of the thigh.

C- Posterior division:

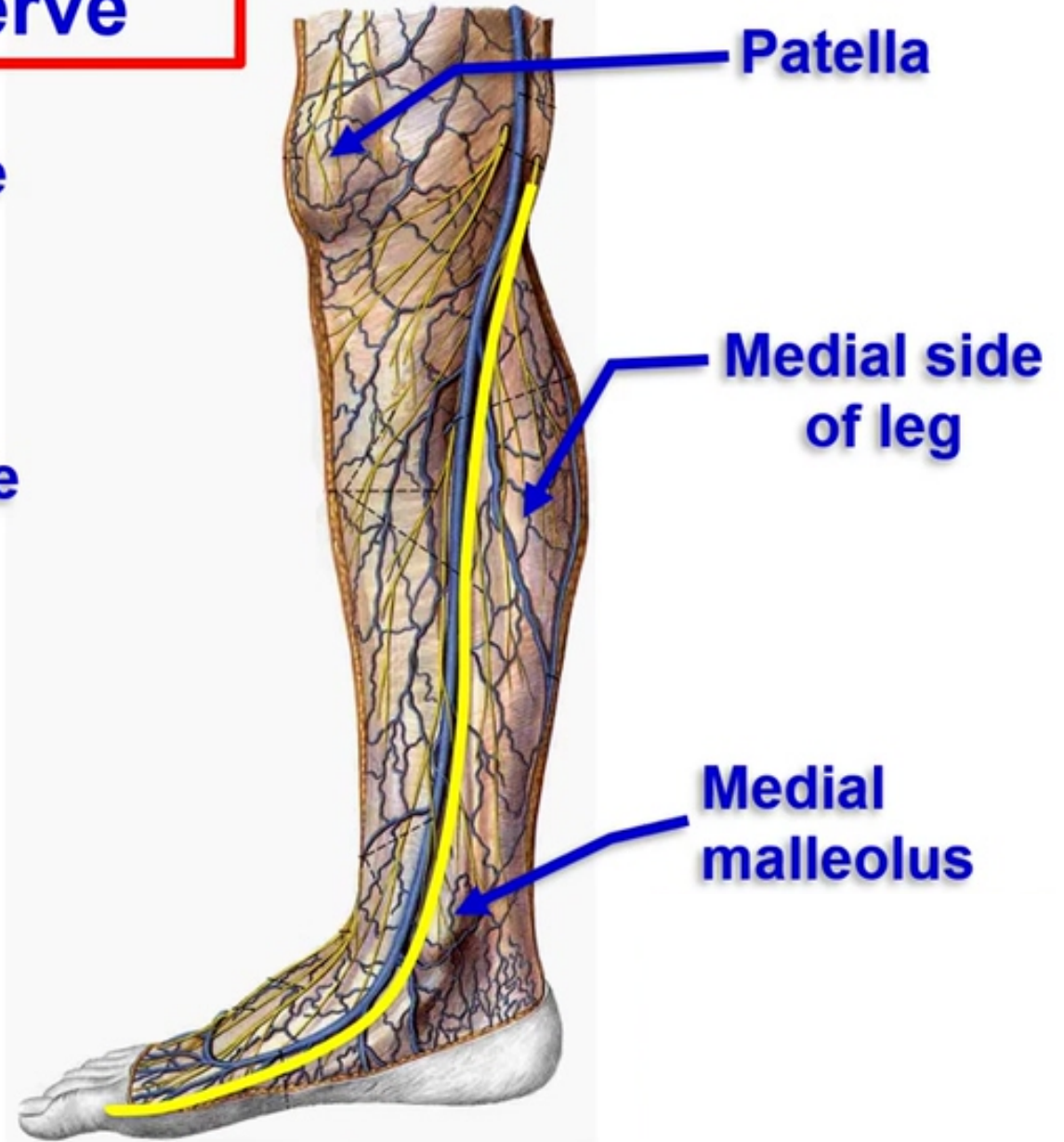
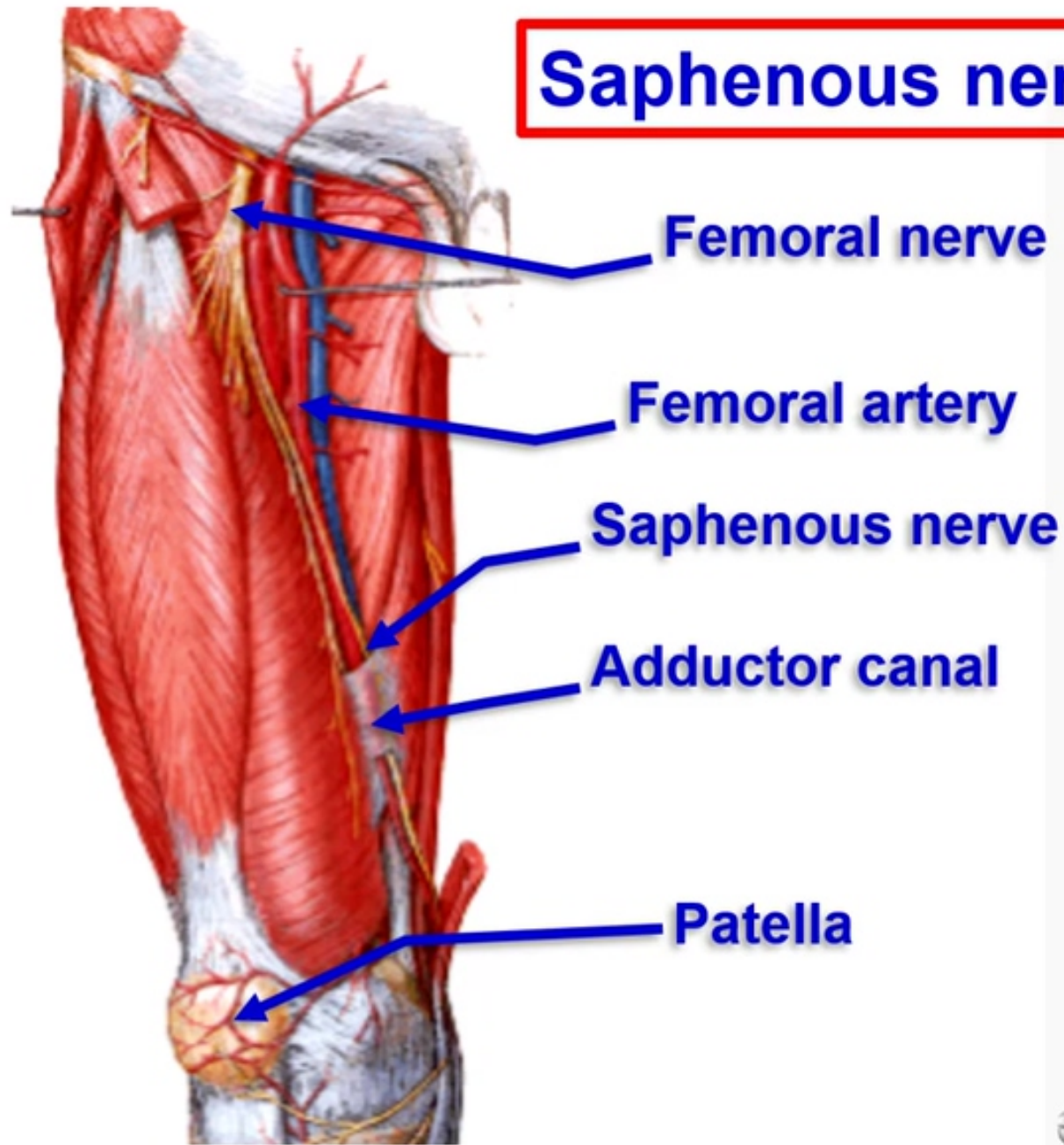
1- **Muscular** branches to **quadriceps femoris** and articularis genu muscle from nerve to vastus intermedius.

2- **Articular** branches: 1- to the **hip joint** (from nerve to rectus femoris).

2- to the **knee joint** (from branches to vasti muscles).



Saphenous nerve



❖ Saphenous nerve (L3 & 4) from posterior division.

- It is the longest cutaneous nerve in the body.
- It descends **lateral** to the femoral artery in the **femoral triangle**.
- In the **adductor canal**, it crosses **infront** of the artery from lateral to medial.
- At the lower end of the canal, it pierces the roof of the canal to become subcutaneous.
- It descends on the **medial side of the knee joint hand breadth** behind patella.
- The nerve descends on the **medial side of the leg** with the great saphenous vein, **infront of the medial malleolus**, then infront of the extensor retinaculum to the dorsum of the foot.
- It **ends** opposite the metatarsophalangeal joint of the big toe.
- **It supplies the skin** of the medial side of the leg and medial side of the foot.

- **Patellar plexus**

- **Site:** on patella, ligamentum patella and proximal part of the tibia.

- **It is formed by;**

- 1- Anterior branch of the **lateral** cutaneous nerve of the thigh.
- 2- Anterior branch of the **medial** cutaneous nerve of the thigh.
- 3- **Intermediate** cutaneous nerve of the thigh.
- 4- **Infrapatellar** branch of the saphenous nerve.



dr_youssefhussein@yahoo.com

❖ Injury of femoral nerve

- **Motor loss**
- Weak flexion of the hip, because of paralysis of the iliacus and sartorius muscles.
- Inability to extend the knee, because of paralysis of the quadriceps femoris.

- **Sensory impairment:**

Loss of sensation in the front of the thigh, medial side of the leg and medial side of the dorsum of the foot

- **Loss of Patellar tendon reflex:**

The femoral nerve is responsible for the patellar tendon reflex (tests L3-L4 spinal component)



dr_youssefhussein@yahoo.com

