

# ANATOMY OF THE LOWER LIMBS

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# OBJECTIVES

1 - TO CHARACTERIZE DIFFERENT PARTS OF EACH BONE

2 - TO DISCUSS THE NERVE SUPPLY OF THE LOWER LIMBS

4 - TO STUDY THE MAIN MUSCLES ACTING ON THE HIP



Henry Gray (1827–1861) is shown here in the foreground, seated by the feet of the cadaver. The photograph was taken by a medical student, Joseph Langhorn. The room is the dissecting room of St George's Hospital medical school in Kinnerton Street, London. Gray is shown surrounded by staff and students. The second edition of *Gray's Anatomy* was in its proof stages, to appear in December 1860. **Gray died just over a year later, in June 1861, at the height of his powers.**

Nerves of the lower limbs

**LUMBER PLEXUS**

# ***The lumbar plexus***

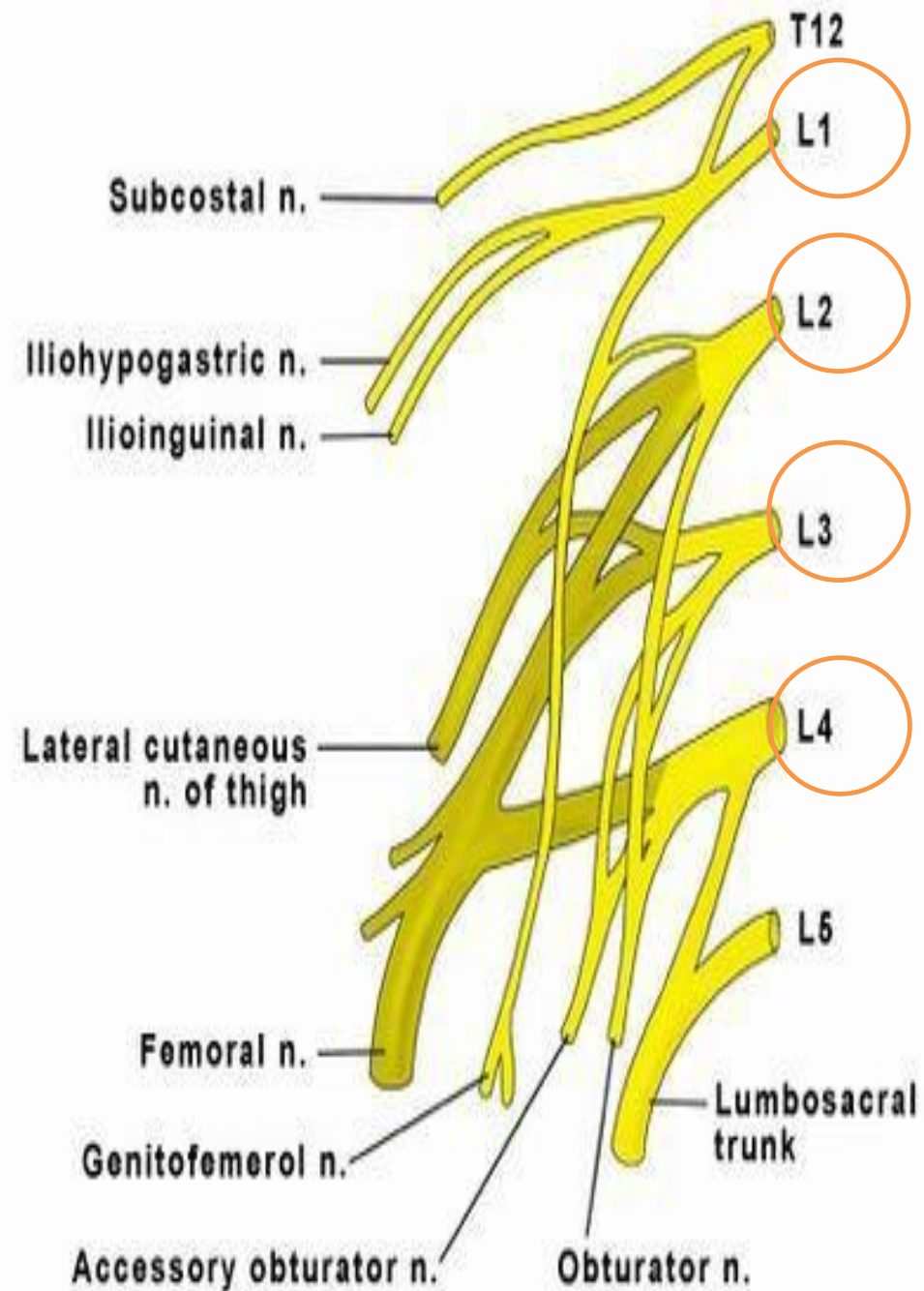
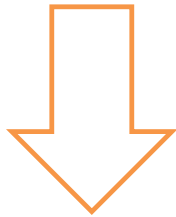
Is formed by

**The anterior primary rami**  
of *the*

***upper four lumbar nerves***  
**in the substance of psoas major muscle**

**It also** receives a contribution from  
**T12** (subcostal) nerve

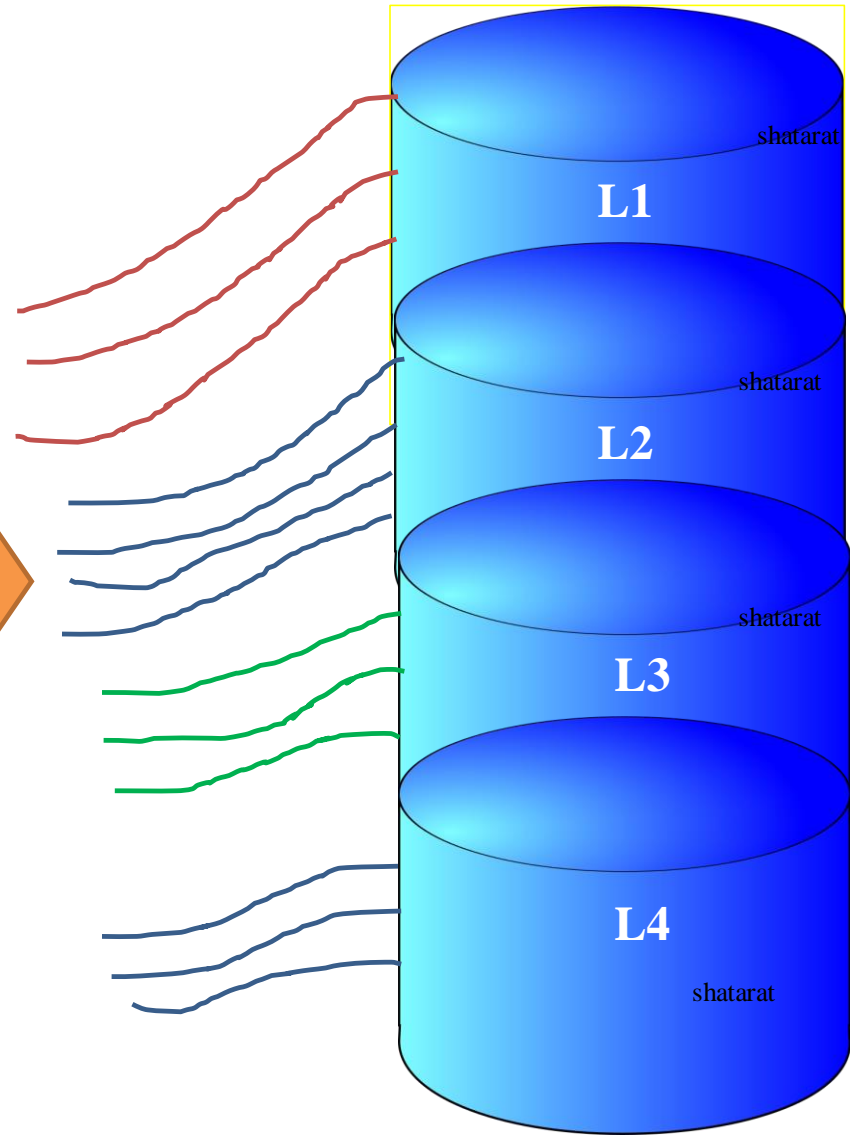
4 small nerves ? + 2 main nerves ?



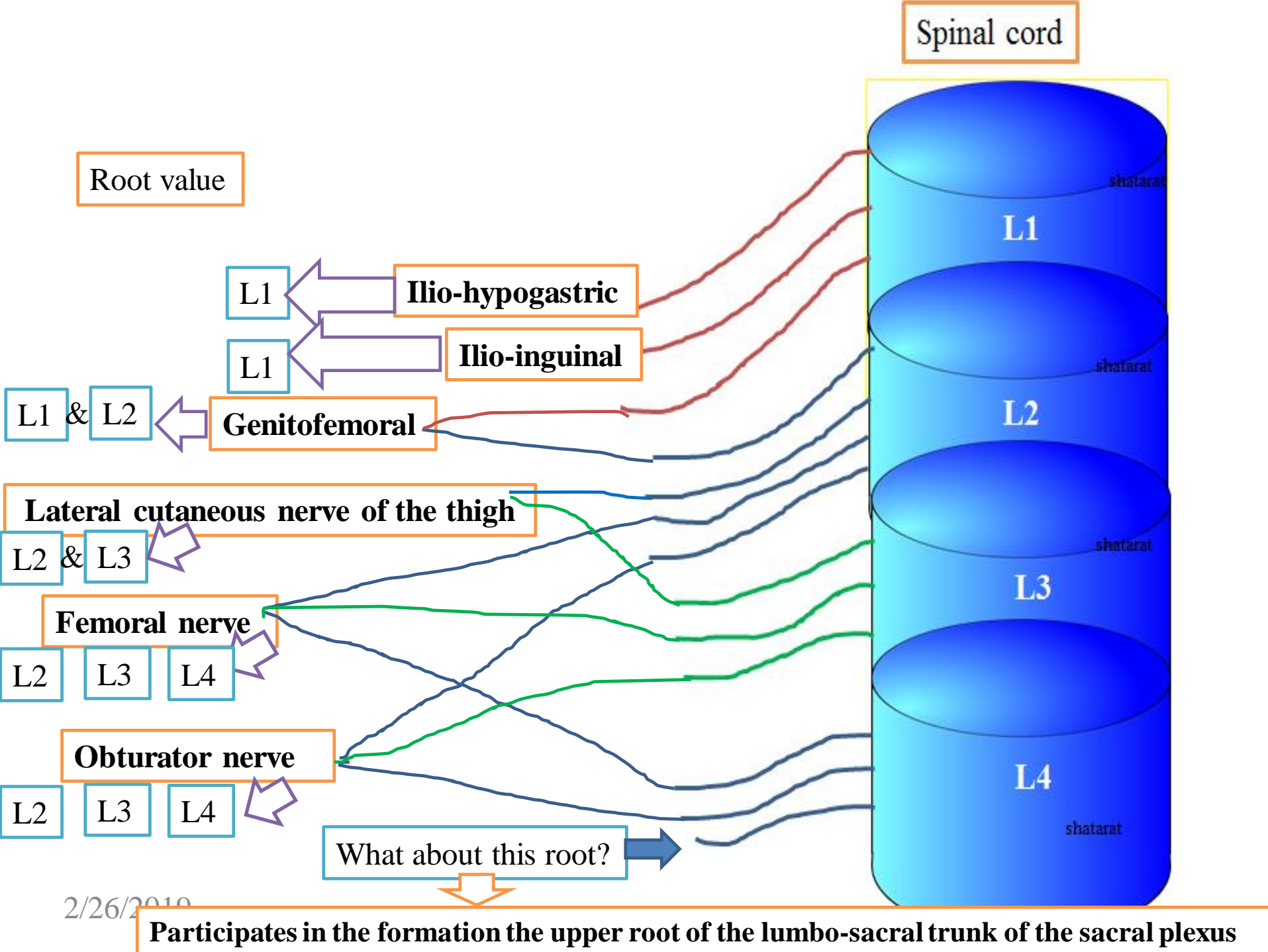
Each lumbar segment of the spinal cord gives off 3 roots

Spinal cord

Only L2 is an exception and it gives off 4 roots



Note: The spinal cord is not a segmented structure, it is a continuous cord





## **L1 gives**

- 1 *Ilio-hypogastric nerve*
- 2 *Ilio-inguinal*
- 3 *The first root of the genito-femoral*

## **L2 gives (four branches)**

- The second root of the genito-femoral
- The first root of the lateral cutaneous nerve of the thigh
- The first root of the femoral nerve
- The first root of the obturator nerve

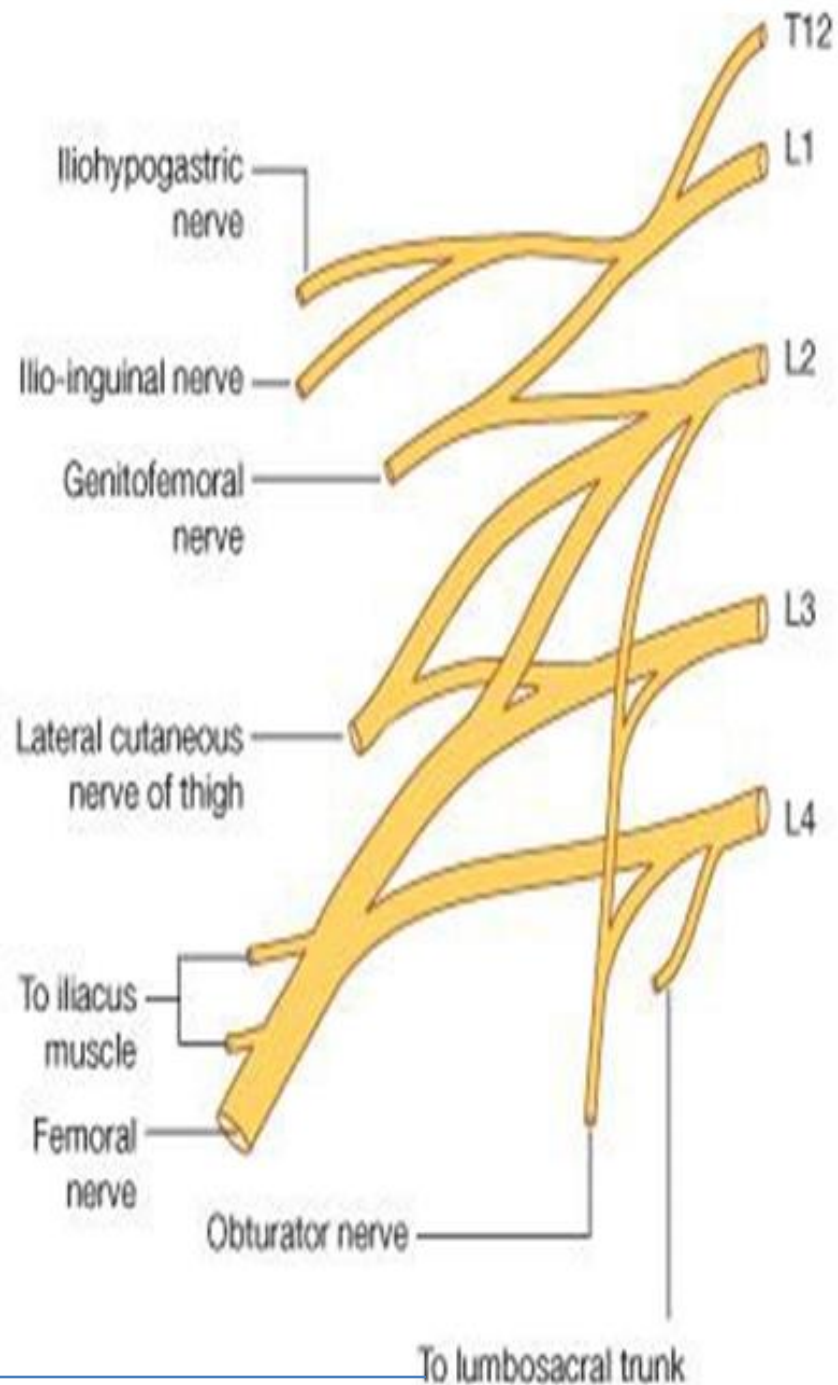
## **L3 gives**

- 1-The second root of the lateral cutaneous nerve of the thigh
- The second root of the femoral nerve
- The second root of the obturator nerve

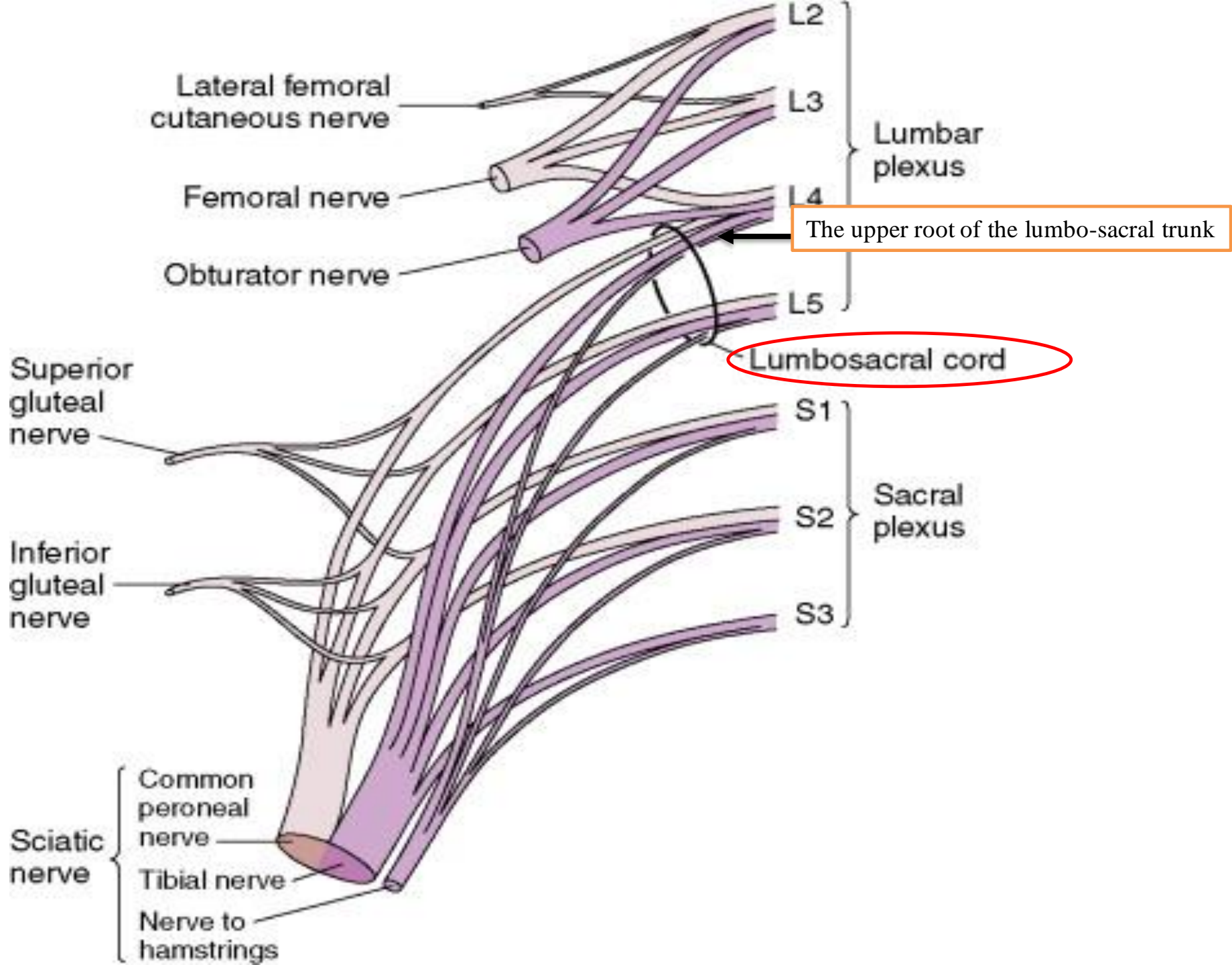
## **L4 gives**

- 1 *The third root of the femoral nerve*
- 2 *The third root of the obturator nerve*
- 3 *The upper root of the lumbo-sacral trunk*

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4 small nerves



Ilio-hypogastric (L1)

Ilio-inguinal (L1)

Genitofemoral (L1, L2)

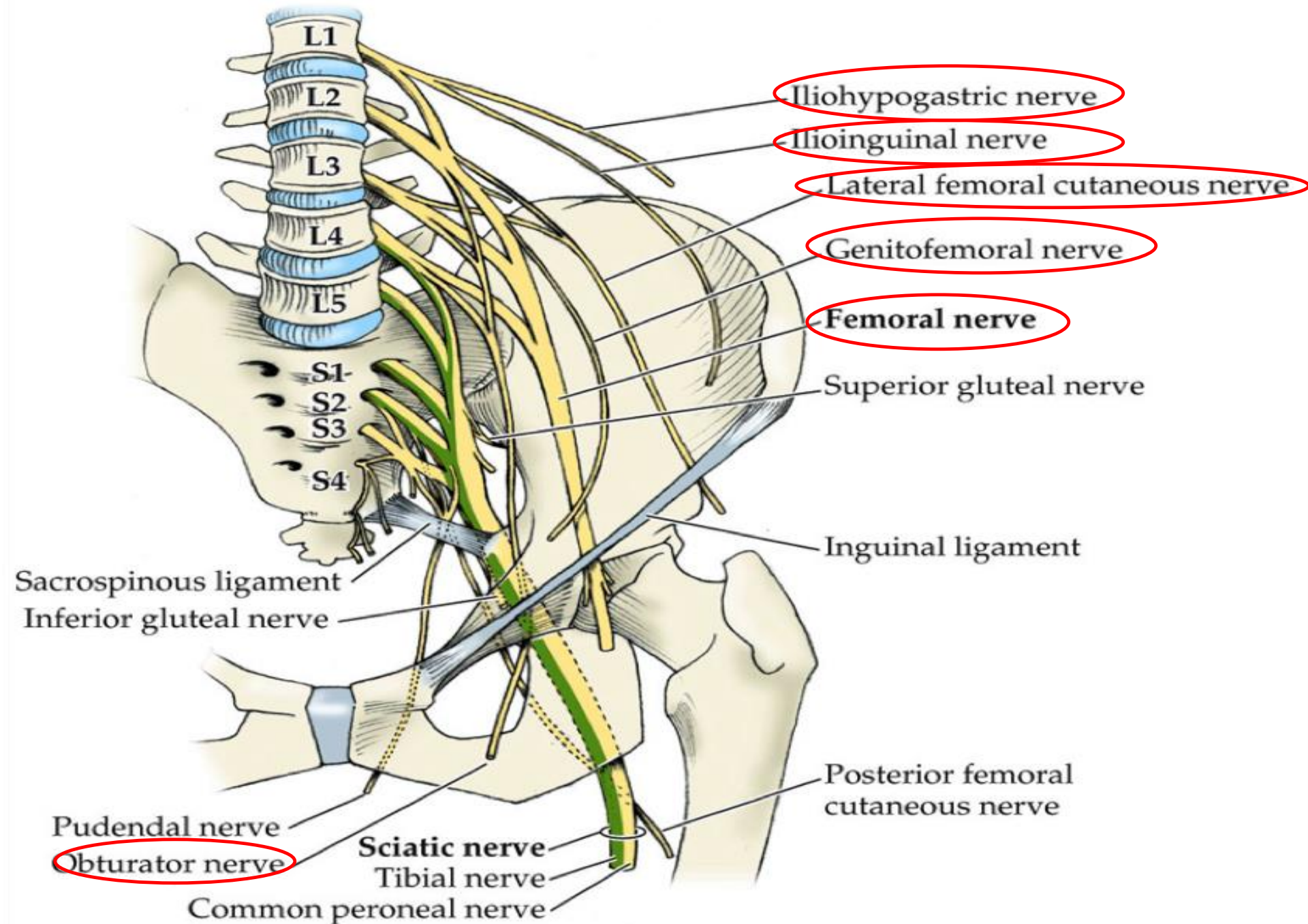
Lateral cutaneous nerve of the thigh (L2, L3)

2 main (large ) nerves



**1- Femoral nerve (L2, 3, 4)**

**2- Obturator nerve (L2, 3, 4)**



Each nerve of the lumbar **plexus emerges** ( **exits**) from the substance of **the psoas major muscle** as flows:

From ***lateral side*** of the psoas major muscle

**The Iliohypogastric**

**The Ilioinguinal**

**The Lateral cutaneous nerve of the thigh**

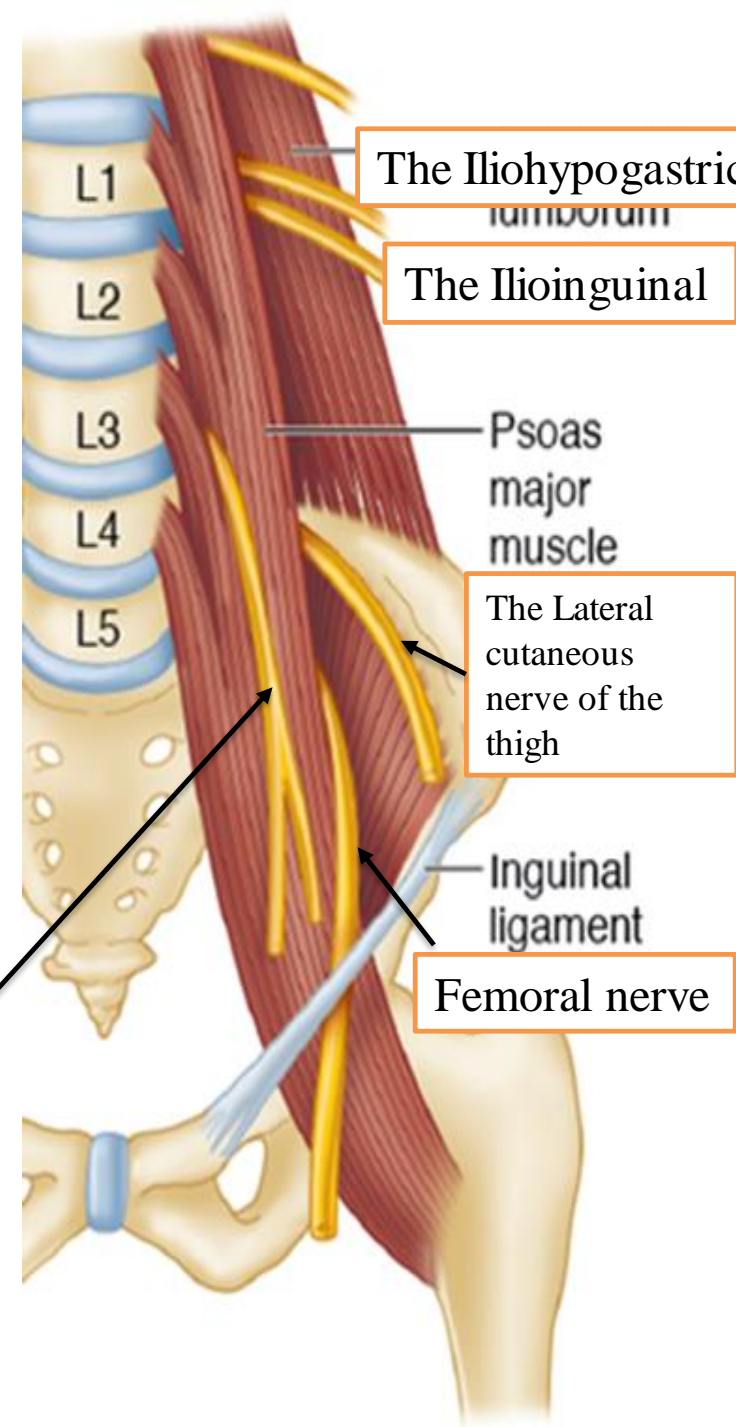
**Femoral nerve**

**From the medial side**

**Obturator nerve and Lumbosacral trunk**

From the anterior surface

**Genitofemoral nerve**





Psoas and Iliacus Muscles

FROM THE LATERAL SIDE

The Iliohypogastric

The Ilioinguinal

The Lateral  
cutaneous nerve of  
the thigh

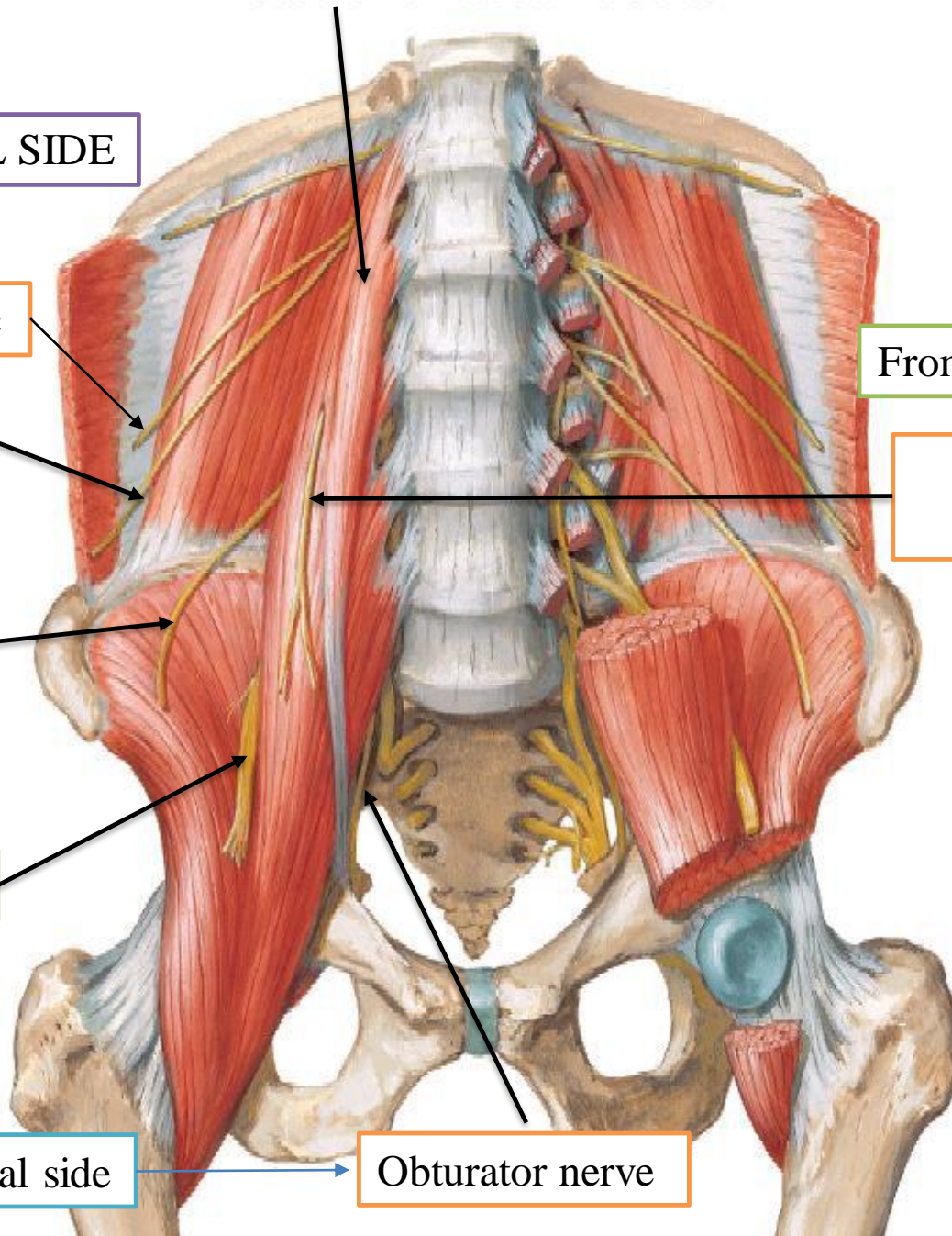
Femoral nerve

From the medial side

Obturator nerve

From the anterior side

Genitofemoral  
nerve



Pay attention to this during practicals

The ilio-hypogastric and ilio-inguinal nerves arise as a **single trunk** from the anterior ramus of L1

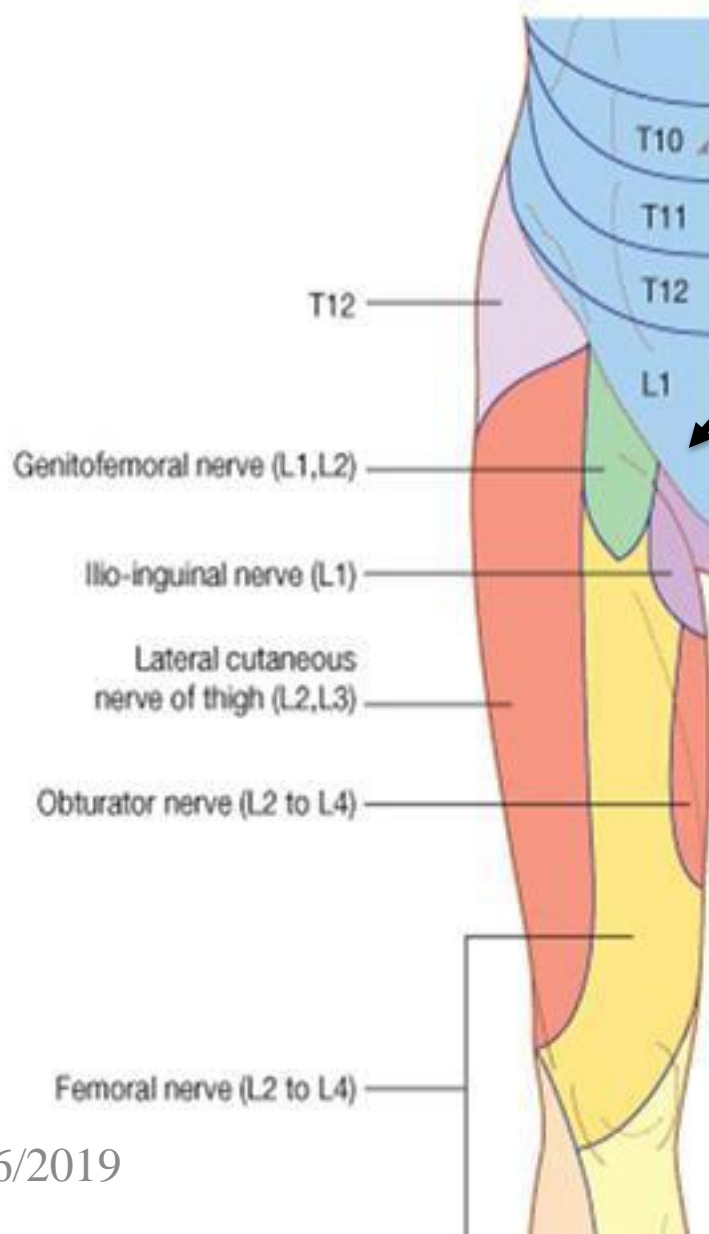
Either before or soon after emerging from the lateral border of the psoas major muscle, this single trunk divides into:  
**the ilio-hypogastric and the ilio-inguinal nerves**

Note:

- 1 The iliohypogastric nerve is larger than the ilio-inguinal nerve
- 2 The iliohypogastric nerve runs superior to the ilio-inguinal nerve



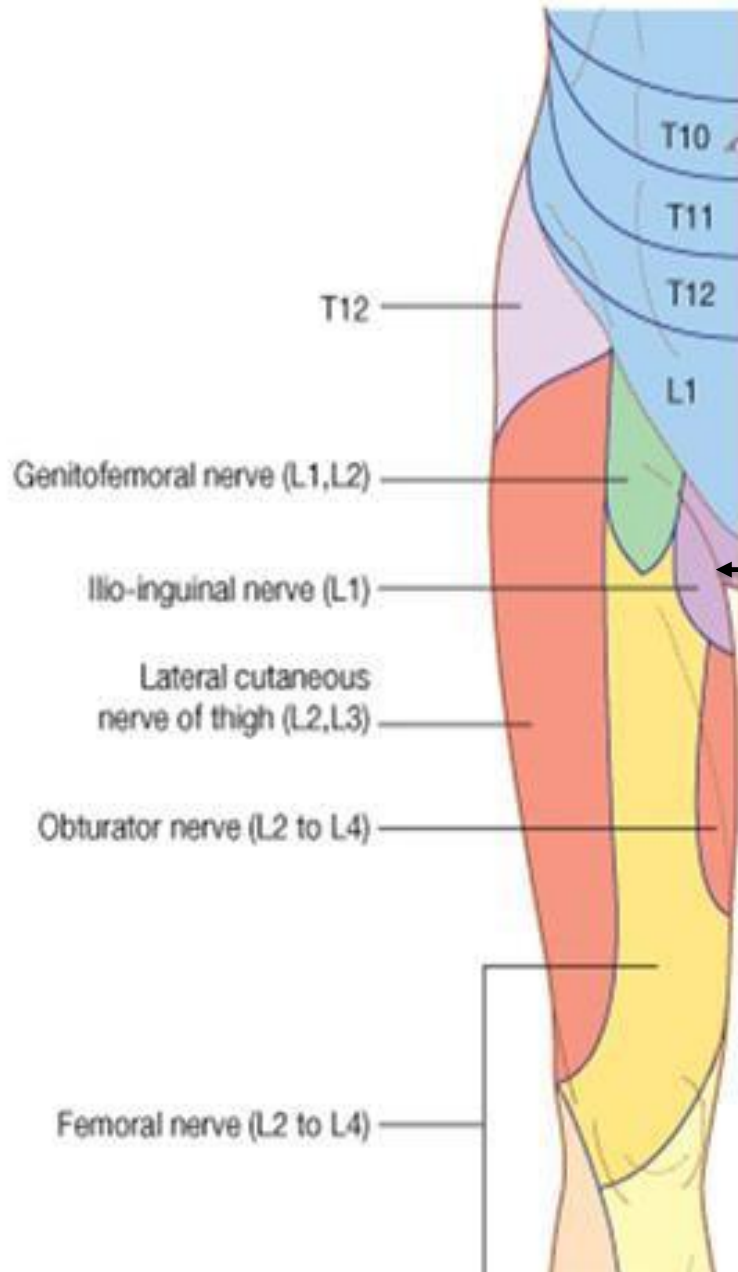
# Iliohypogastric nerve



- It is a branch from the lumbar plexus (L1)
- Emerges from the lateral border of Psoas major muscle

- supplies the posterolateral gluteal skin and it distributes to the skin in the pubic region

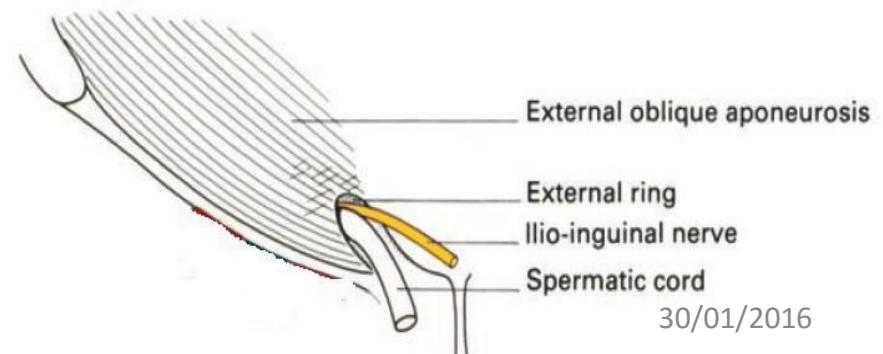
# Ilio-inguinal nerve



- It is a branch from the lumbar plexus (L1)
- Emerges from the lateral border of Psoas major muscle

- provides cutaneous innervation to the upper medial thigh, the root of the penis, and the anterior surface of the scrotum in men, or the mons pubis and labium majus in women

The surgeon should be very careful to the Ilio-inguinal nerve while **giving incision and hernia repair** as it could be injured during these procedures



# Genitofemoral nerve

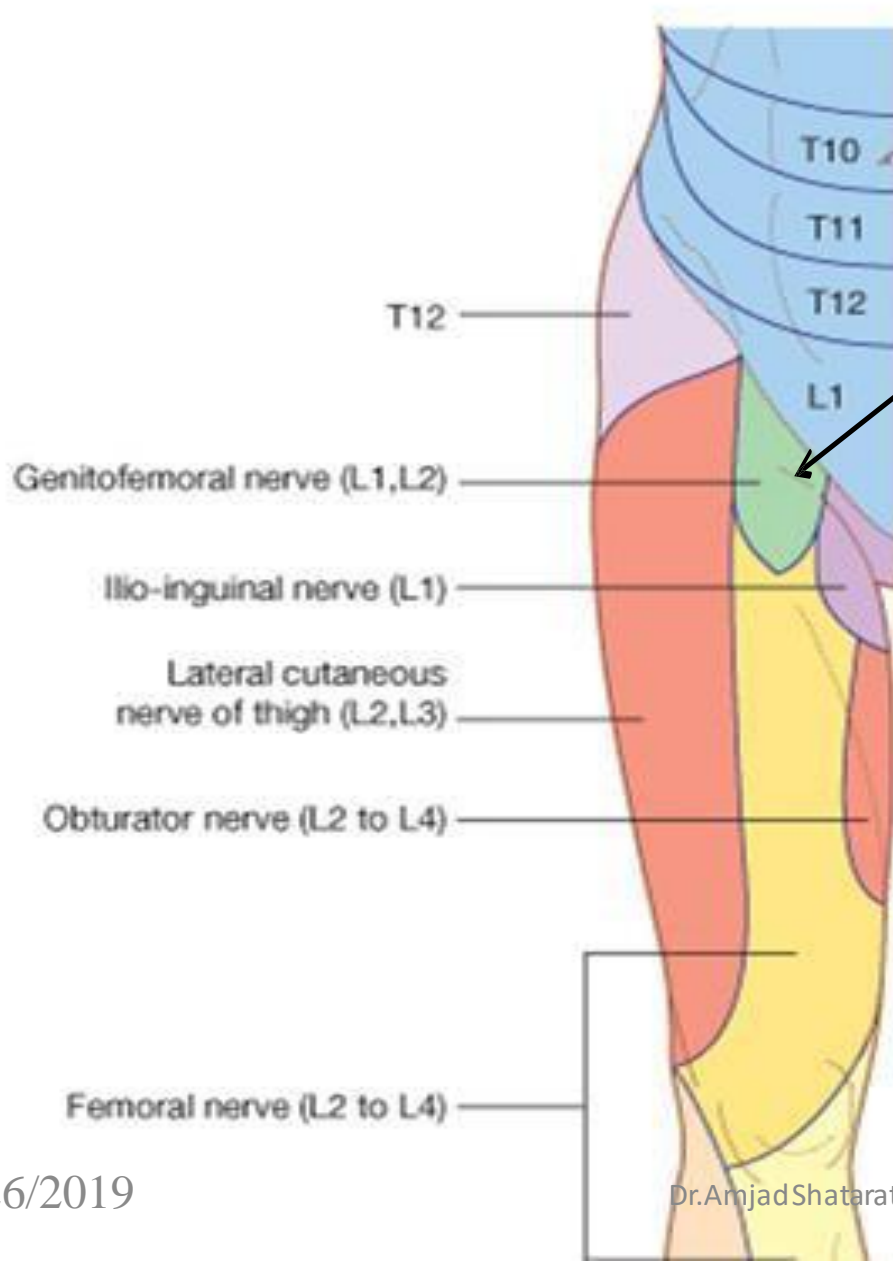
Genitofemoral nerve  
(L1 and L2)

The genitofemoral nerve arises from the anterior rami of the nerves of L1 and L2  
**emerges on the anterior surface of psoas major**

It eventually divides into genital and femoral branches.



# The femoral branch of genitofemoral nerve



supply the skin of the upper anterior thigh

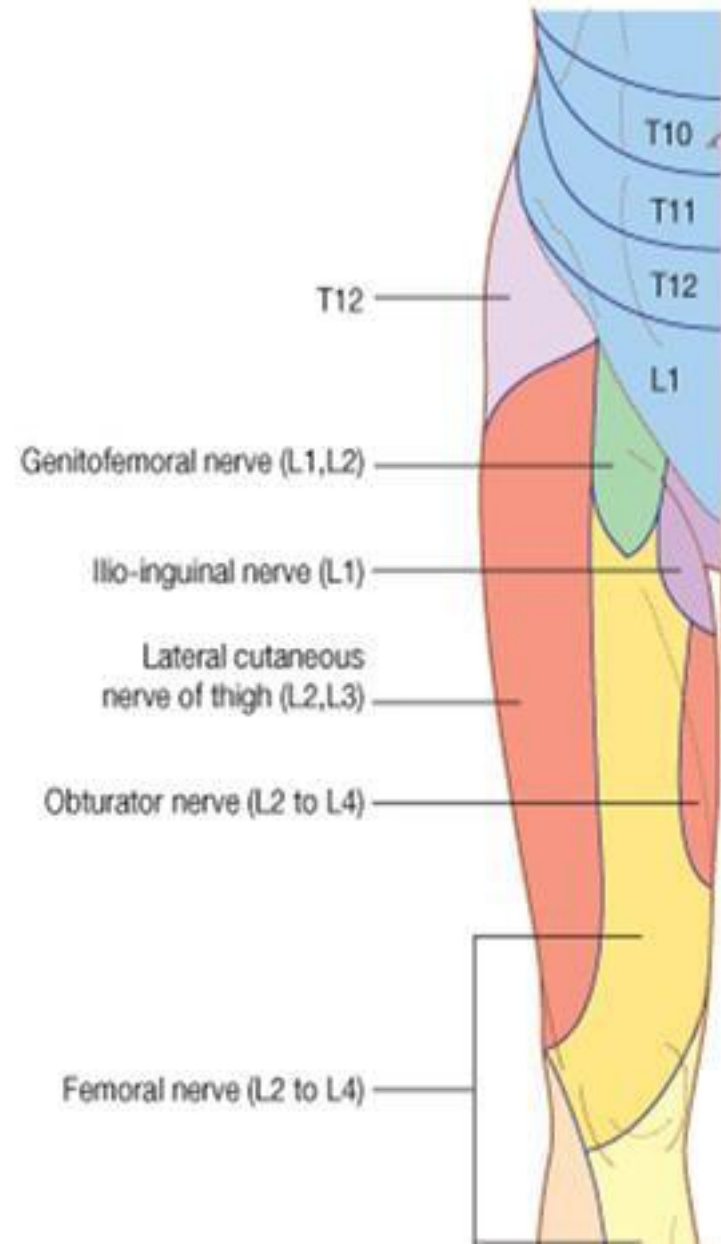
Read only to be covered in later GI and UGS systems

The genital branch of genitofemoral nerve

- **in men**, innervates the **cremasteric** muscle and terminates on the skin in the upper anterior part of the scrotum;
- **in women**, accompanies the round ligament of the uterus and terminates on the skin of the mons pubis and labium majus.

## Lateral cutaneous nerve of thigh (L2 and L3)

- The lateral cutaneous nerve of thigh arises from the anterior rami of nerves L2 and L3
- It emerges from the lateral border of the psoas major muscle
- It passes posterior to the inguinal ligament and enters the thigh.
- it supplies the skin on the anterior and lateral thigh to the level of the knee



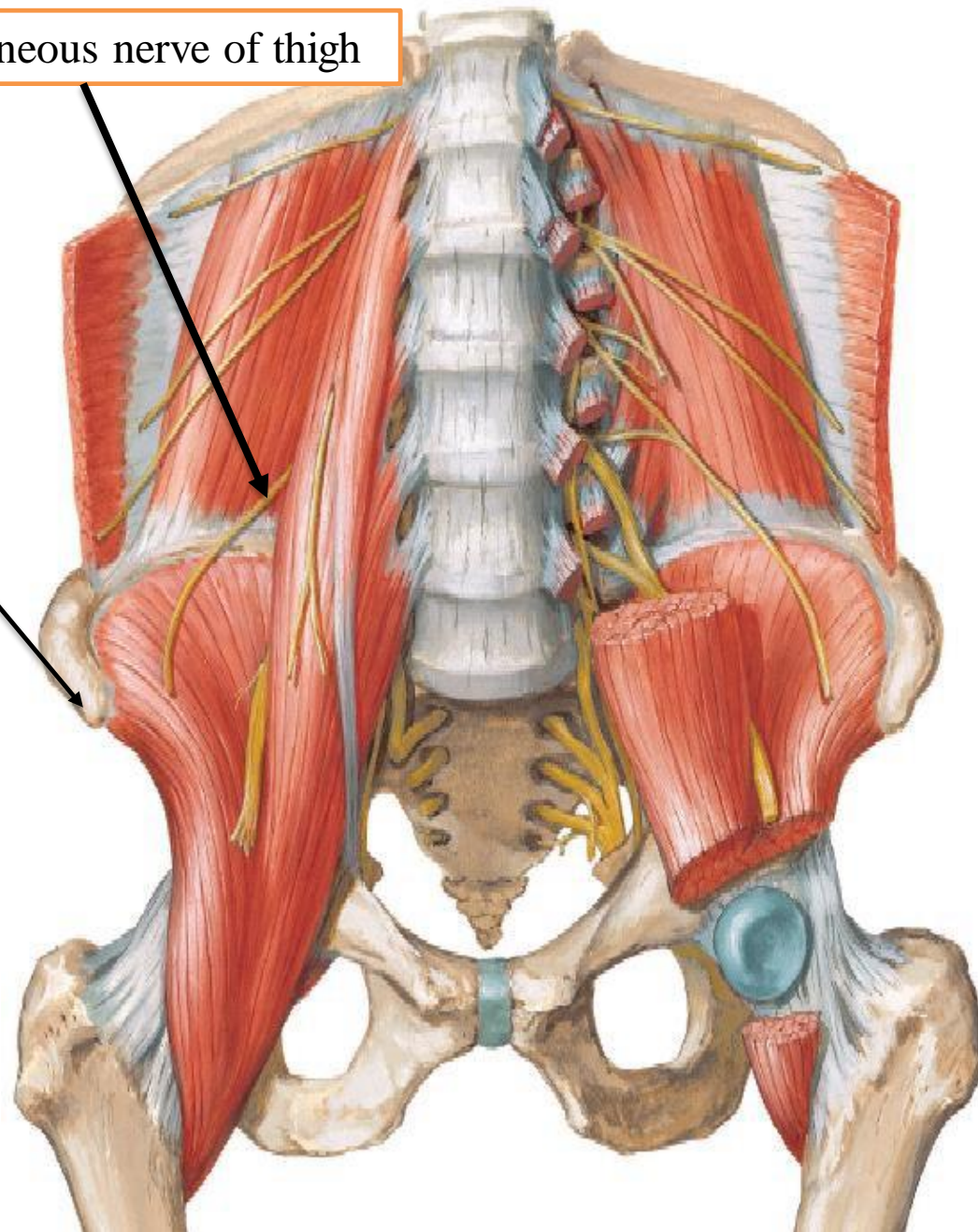


## Psoas and Iliacus Muscles

Injury of this nerve

Lateral cutaneous nerve of thigh

**Intrapelvic:** causes include pregnancy, abdominal, tumors  
**Extrapelvic:** causes include trauma to the region of the ASIS (eg, from a seatbelt in a motor vehicle accident), tight garments, belts, girdles, or stretch from obesity, bone marrow graft.  
**Mechanical** :factors include prolonged sitting or standing.





THANK YOU

Dr.AmjadShatarat

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