

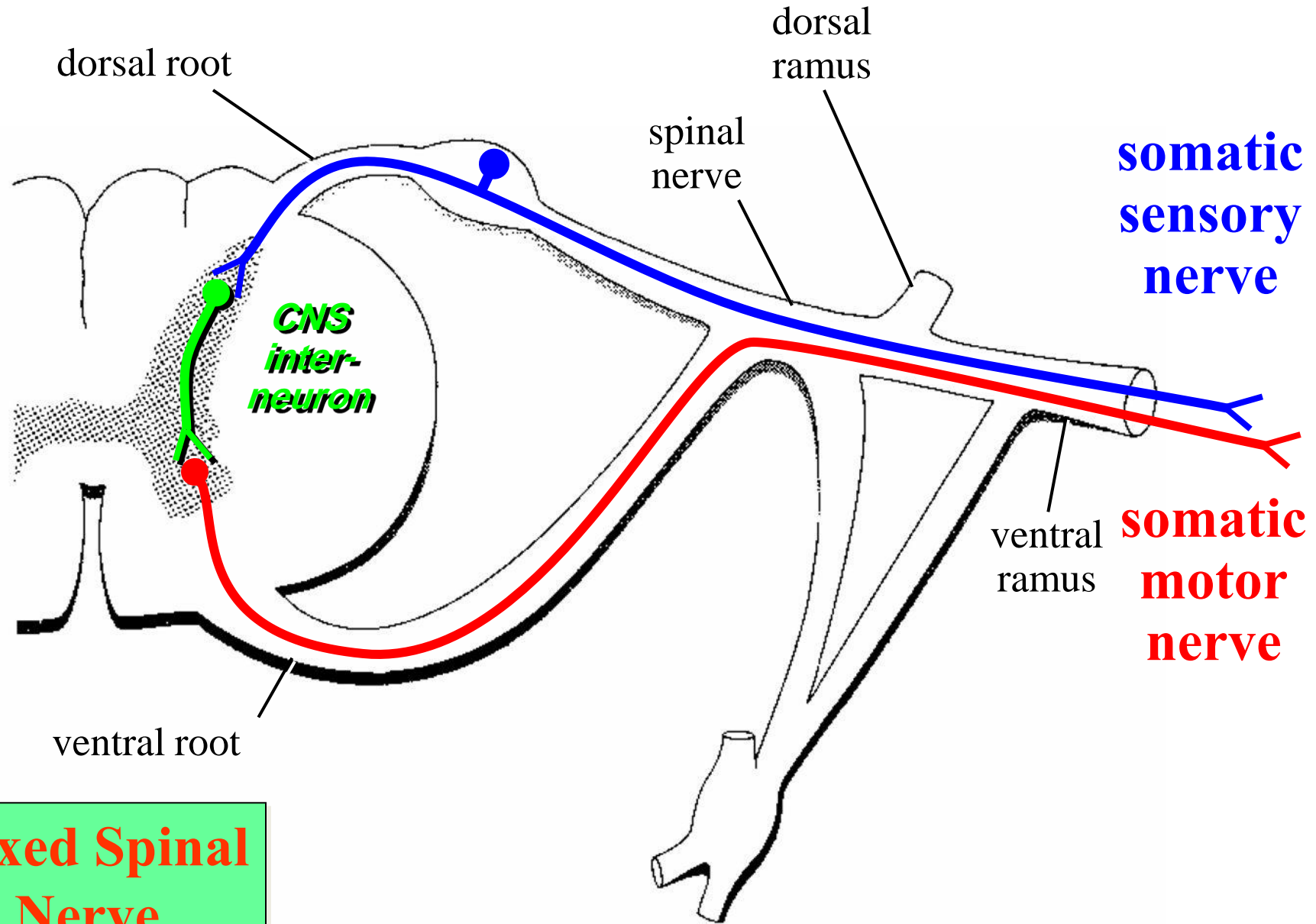


# Lumbar and Sacral Plexuses

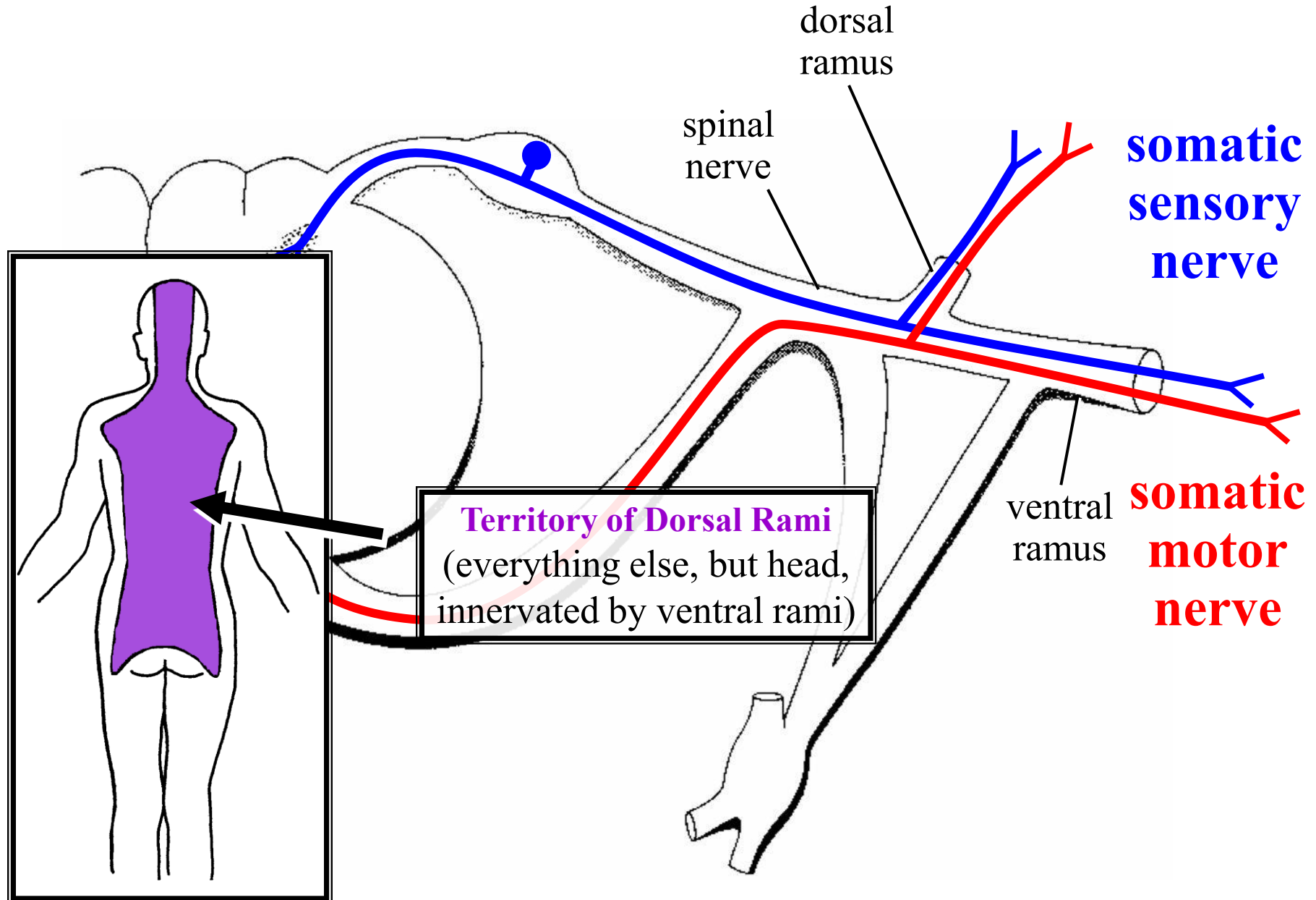
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# Structure of Spinal Nerves: Somatic Pathways



# Structure of Spinal Nerves: Dorsal & Ventral Rami



## Nerves of the lower limb

## The lumbar plexus

**L1-L4**

Is formed by the ventral rami of the upper four lumbar nerves in the substance of psoas major muscle

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

**2 main nerves**

**Femoral nerve**

**Obturator nerve**

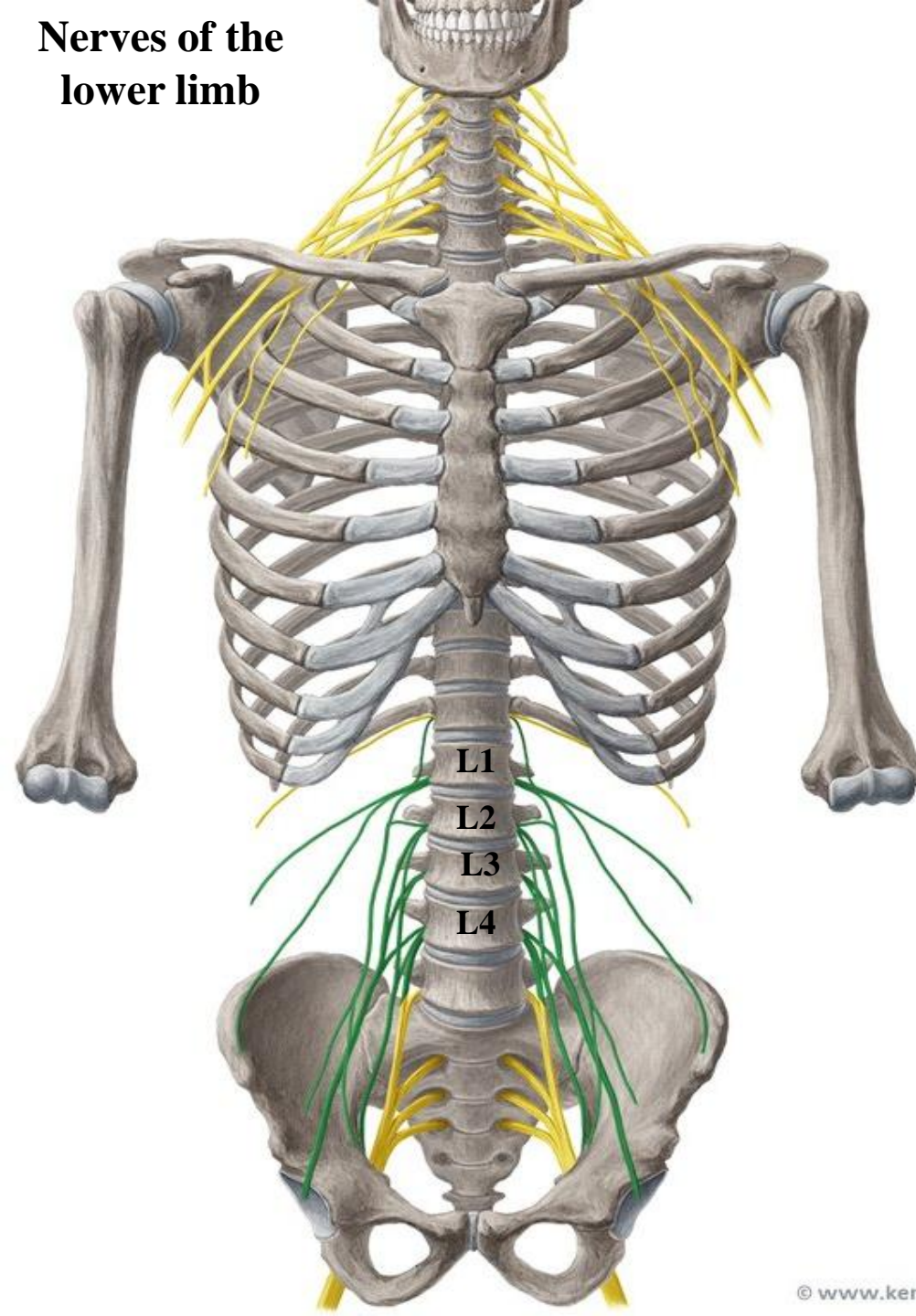
**4 small nerves**

**Ilio-hypogastric nerve**

**Ilio-inguinal nerve**

**Genitofemoral nerve**

**Lateral cutaneous nerve of the thigh**





Ilio-hypogastric nerve

Ilio-inguinal nerve

Lateral cutaneous  
nerve of the thigh

L1

L2

L3

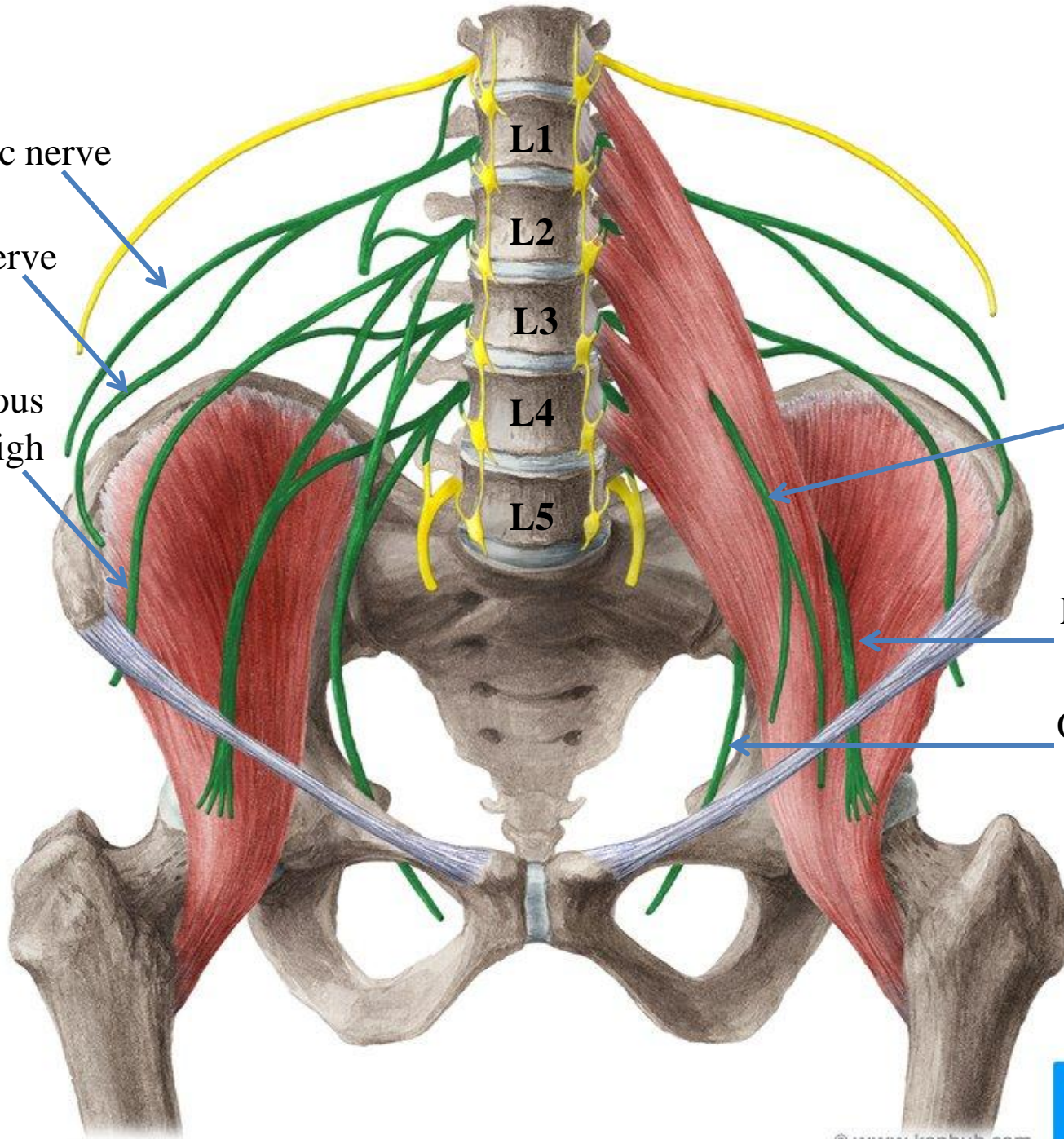
L4

L5

Genitofemoral  
nerve

Femoral nerve

Obturator nerve

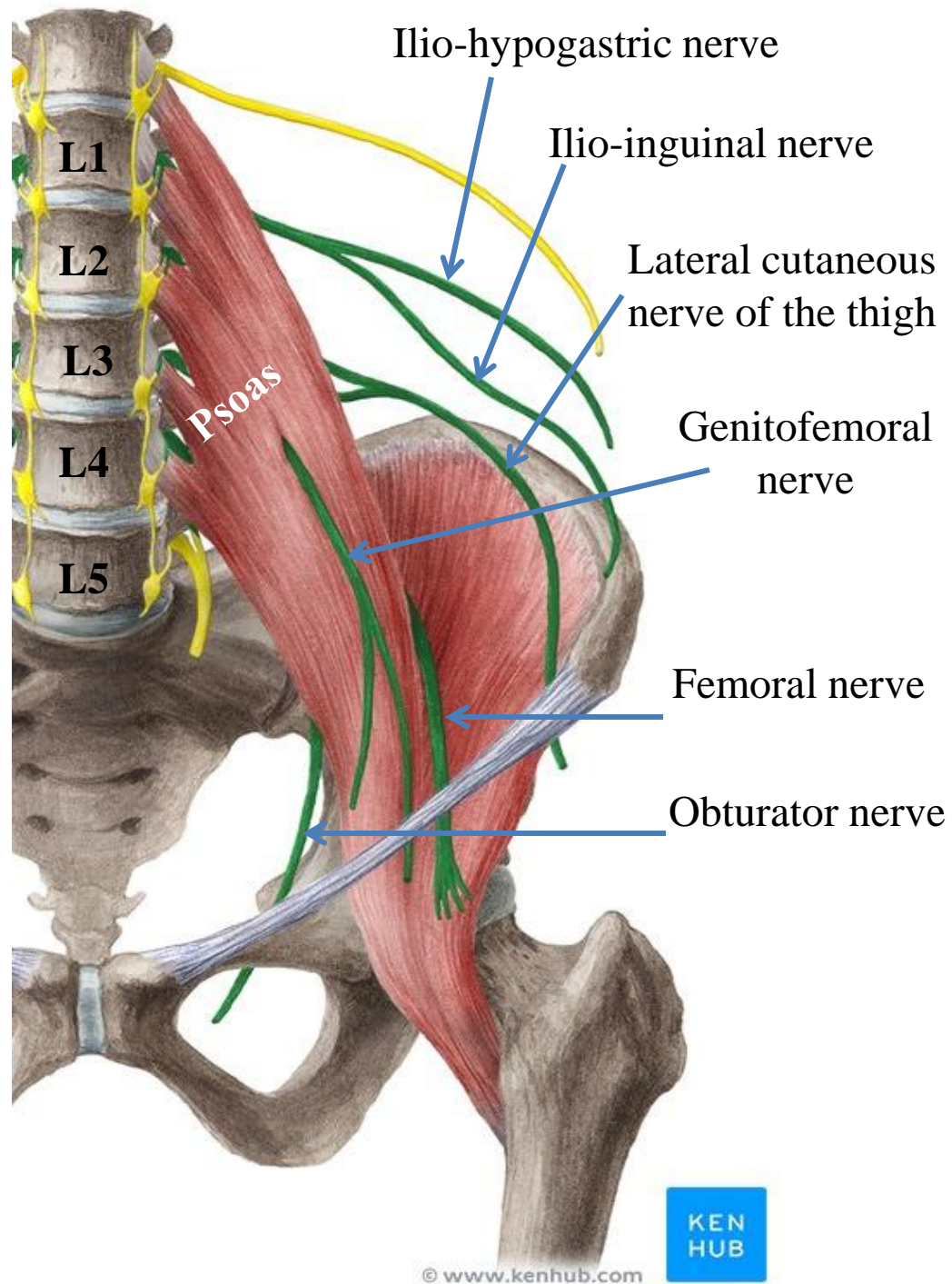


Each nerve of the lumbar plexus emerges (exits) from the substance of the psoas major muscle as follows:

**Genito femoral nerve**  
exists from the anterior  
surface.

**Obturator nerve**  
exits from the medial  
side.

**Iliohypogastric**  
**Ilioinguinal**  
**Lateral cutaneous nerve of the thigh**  
**Femoral nerve**  
exit from the lateral side  
of the psoas major muscle

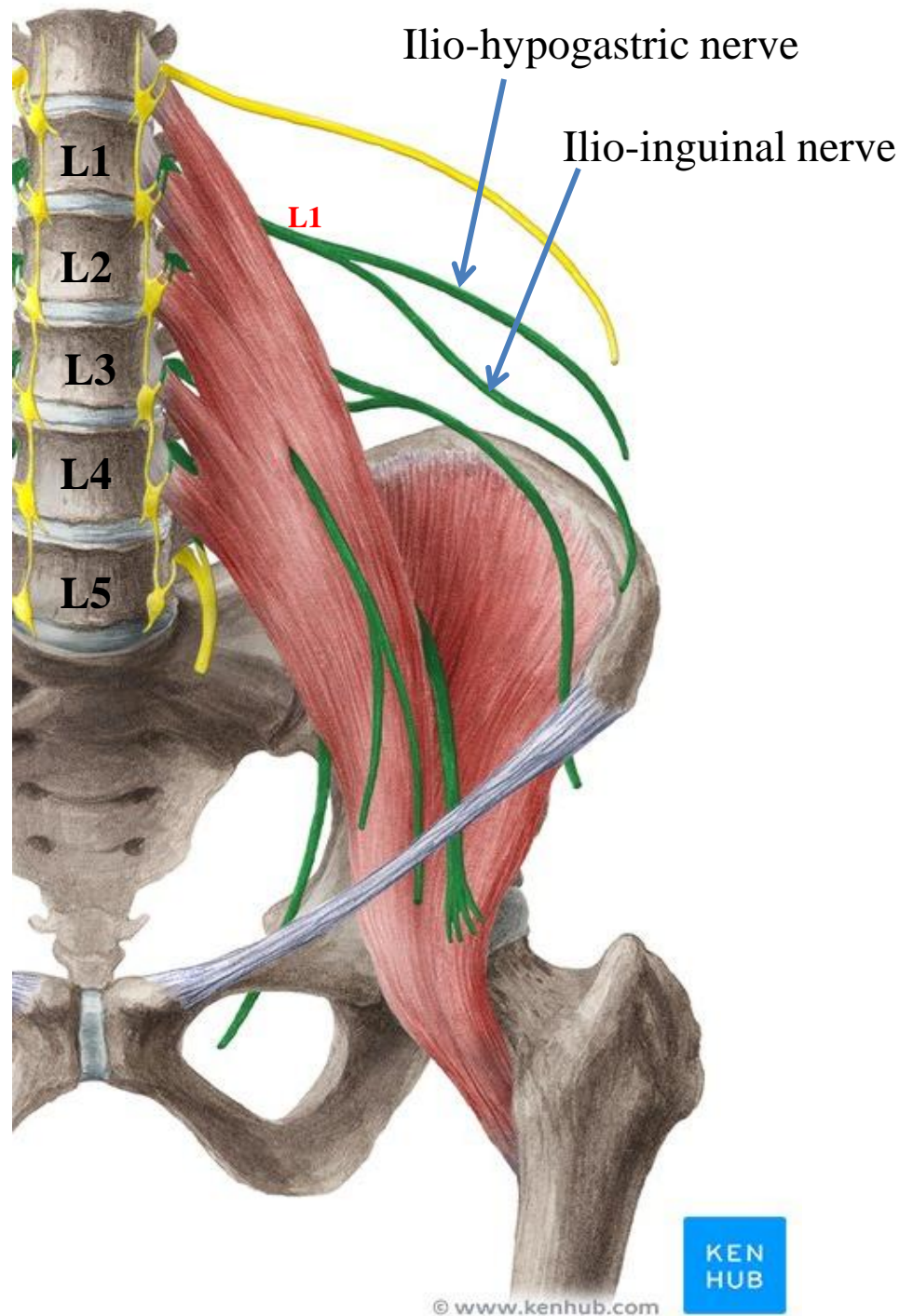


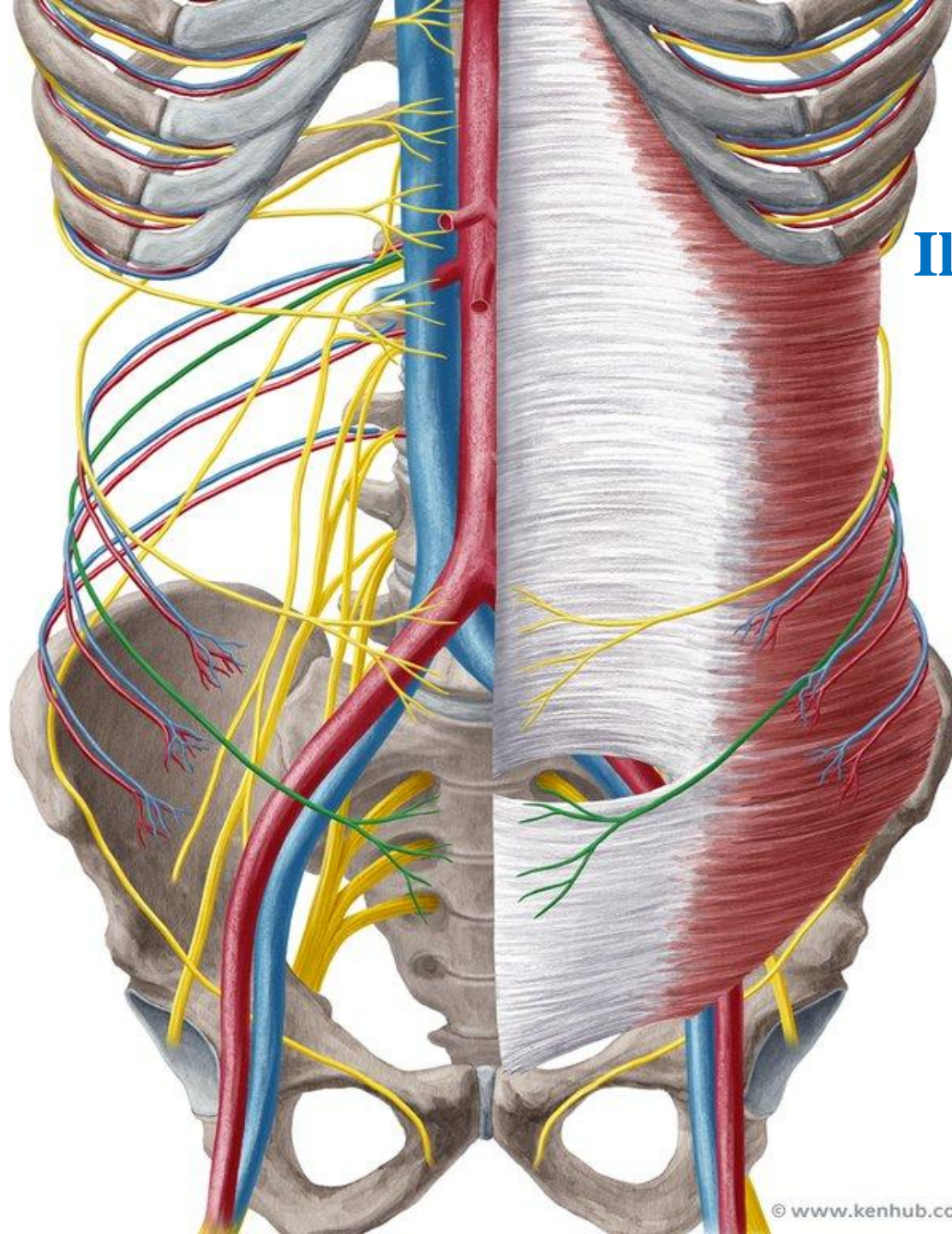


The ilio-hypogastric and ilio-inguinal nerves arise as a single trunk from the ventral ramus of L1

Either before or soon after emerging from the lateral border of the psoas major muscle, this single trunk divides into:

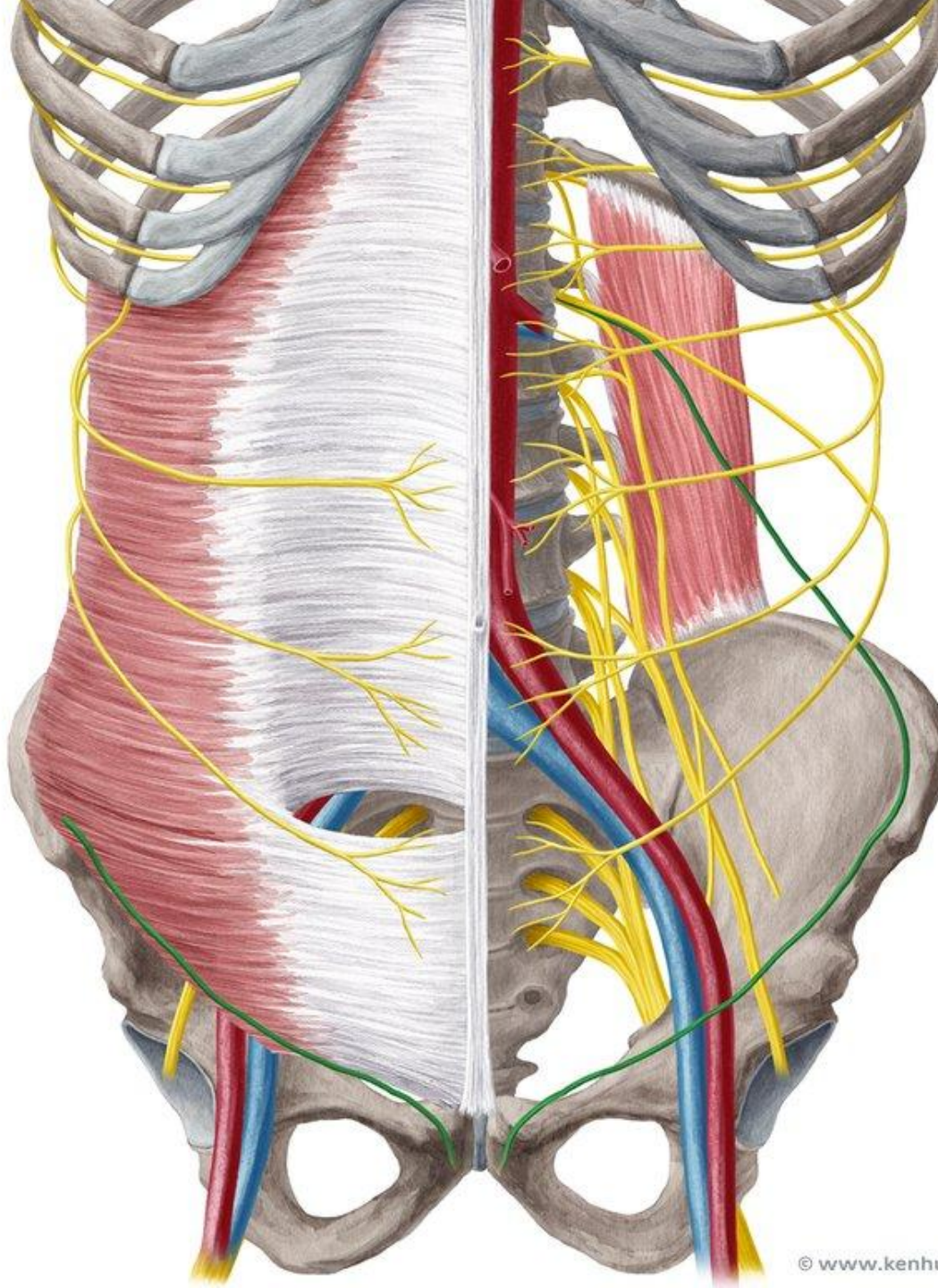
**The ilio-hypogastric nerve  
And  
The ilio-inguinal nerve**





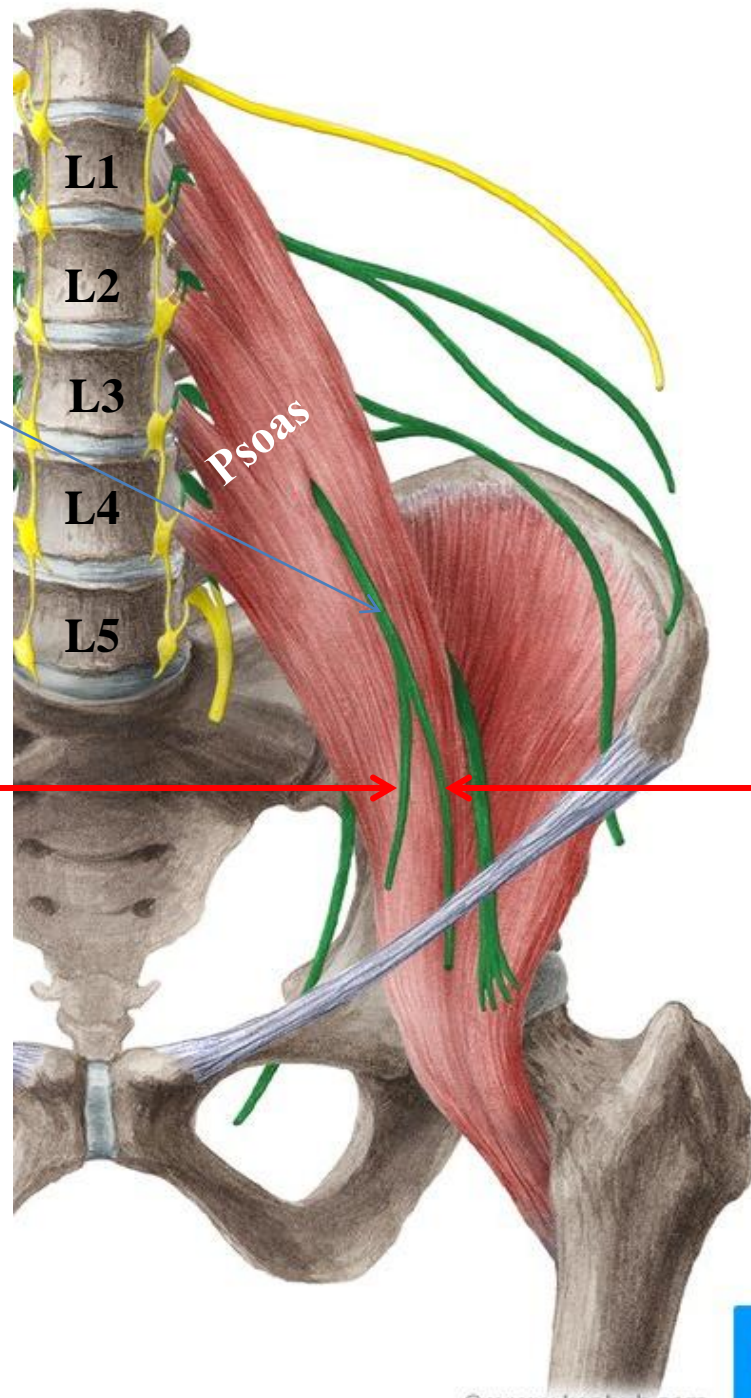
**Ilio-hypogastric  
nerve**





## Ilio-inguinal nerve

# Genitofemoral Nerve



Psoas

Genital branch of  
genitofemoral  
nerve

Femoral branch  
of genitofemoral  
nerve

# Genitofemoral Nerve

The genital branch

The femoral branch:

Distributed to the skin of the upper and intermediate part of the thigh

(femoral branch runs with femoral artery)

## Lateral cutaneous nerve of the thigh

Distributed to the skin of the lateral aspect of the thigh

Lateral

## Ilio-inguinal nerve

Distributed to the skin of the upper and medial part of the thigh

Medial





## **Obturator nerve**

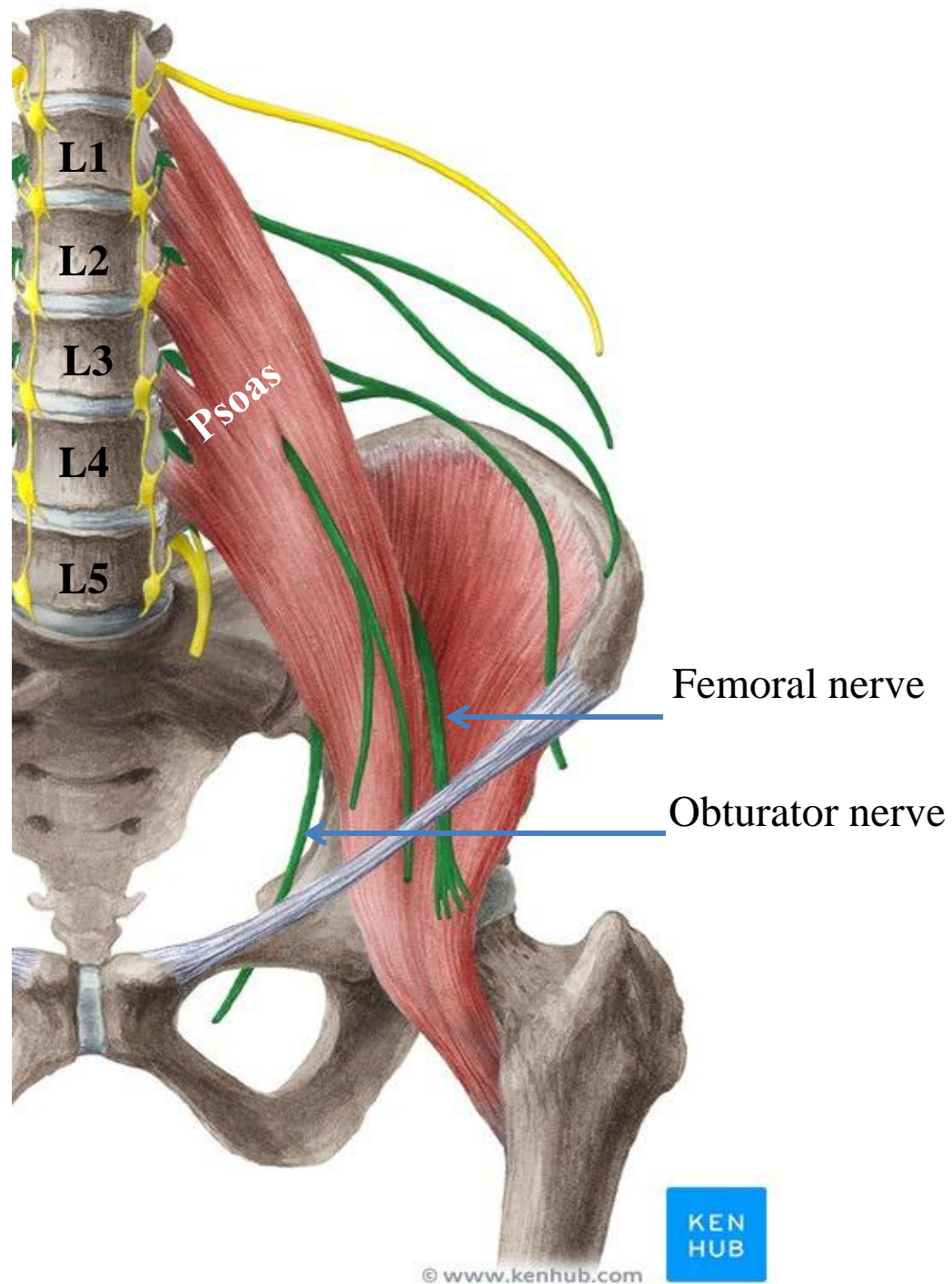
Anterior divisions of  
**L2 L3 L4**

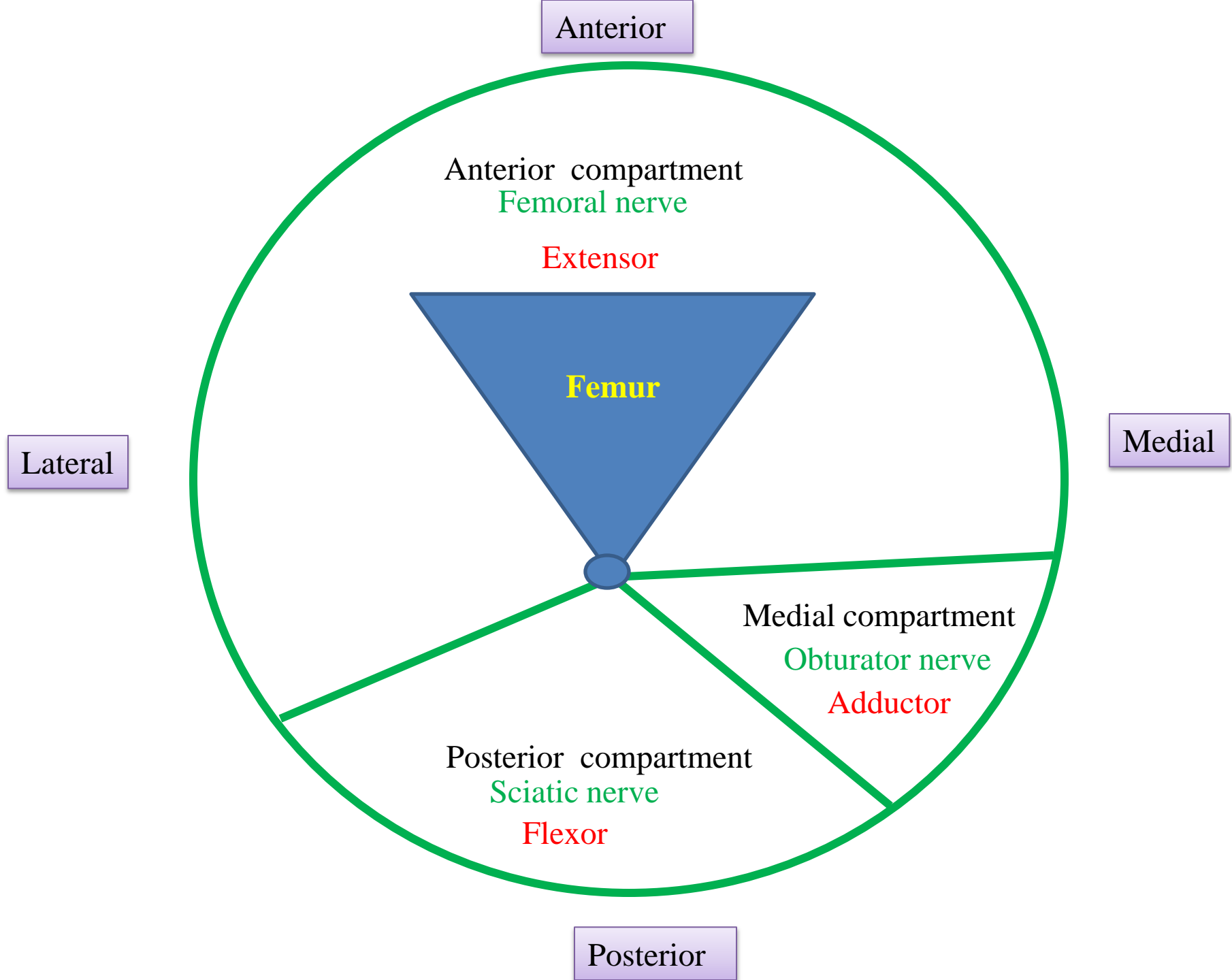
Supplies medial  
compartment of  
thigh

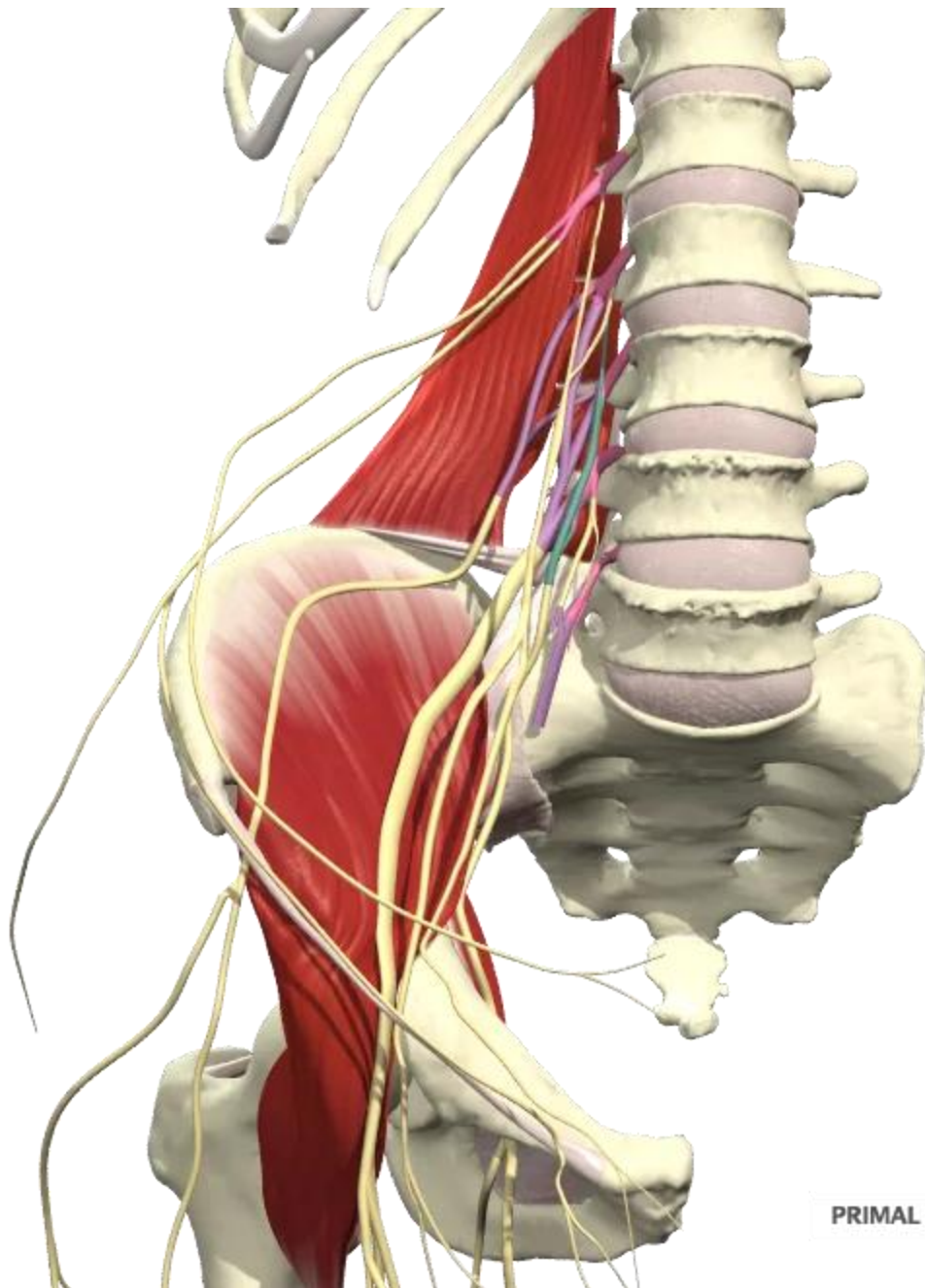
## **Femoral nerve**

Posterior divisions of  
**L2 L3 L4**

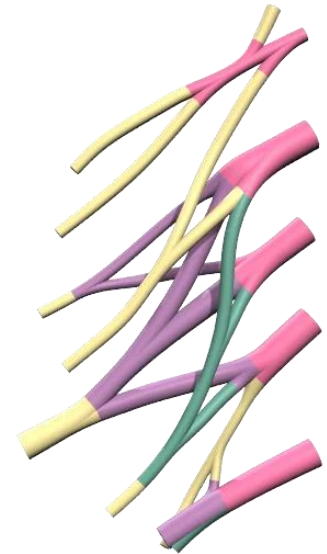
Supplies anterior  
compartment of thigh







- Rami
- Anterior Divisions
- Posterior Divisions
- Branches

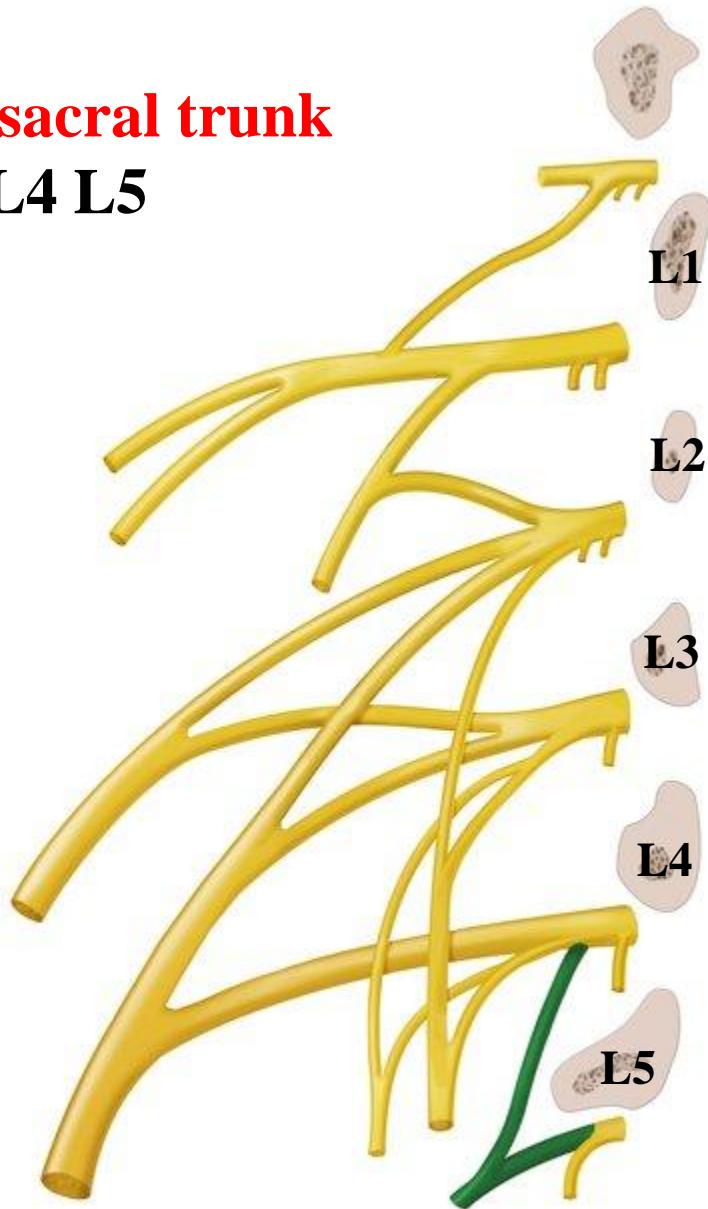






## Lumbosacral trunk

L4 L5



**The lumbosacral trunk** is a thick nerve formed by the union of lower part of ventral ramus of L4 with the ventral ramus of L5

What is the key to memorize the lumbar plexus?

**L1** gives

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

**L2** gives (four branches)

- 1-The second root of the genito-femoral
- 2-The first root of the lateral cutaneous nerve of the thigh
- 3-The first root of the femoral nerve
- 4-The first root of the obturator nerve

**L3** gives

- 1-The second root of the lateral cutaneous nerve of the thigh
- 2-The second root of the femoral nerve
- 3-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

Ilio-hypogastric nerve

Ilio-inguinal nerve

Lateral cutaneous nerve of the thigh

Femoral nerve

Obturator nerve

Lumbo-sacral trunk

L1

L2

L3

L4

L5

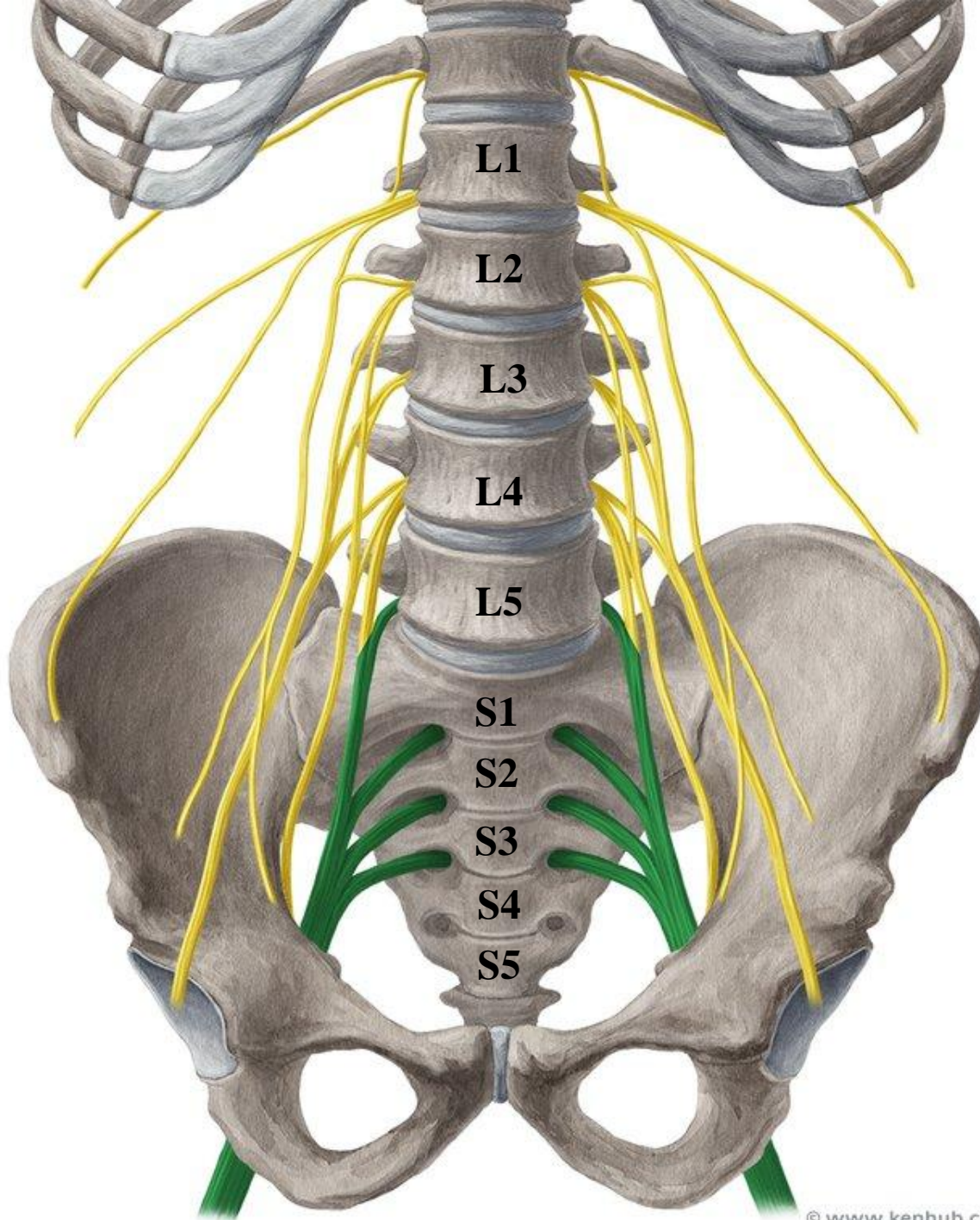


# The Sacral plexus

**L4-S4**

- Located on the posterior wall of pelvis on the anterior surface of piriformis muscle
- Formed by the lumbosacral trunk and ventral rami of S1 -S4
  - Branches supply: lower limb, pelvic floor and wall, and perineum
  - Most branches leave the pelvis through greater sciatic foramina

*Formed in the pelvis  
in front of sacrum*



# Branches of the Sacral plexus

Gluteal region

**Superior gluteal nerve** (L4, L5, S1)

**Inferior gluteal nerve** (L5, S1, S2)

**Posterior cutaneous nerve of the thigh** (S1,S2 ,S3 S4)

**Sciatic nerve** (L4,L5, S1, S2, S3) *(All roots except S4)*

**Tibial nerve** (L4,L5, S1, S2, S3) *(The same as sciatic)*

**Common peroneal nerve** (L4, L5, S1, S2) *(The same root value as the tibial except S3)*

Nerve to obturator internus & superior gemellus

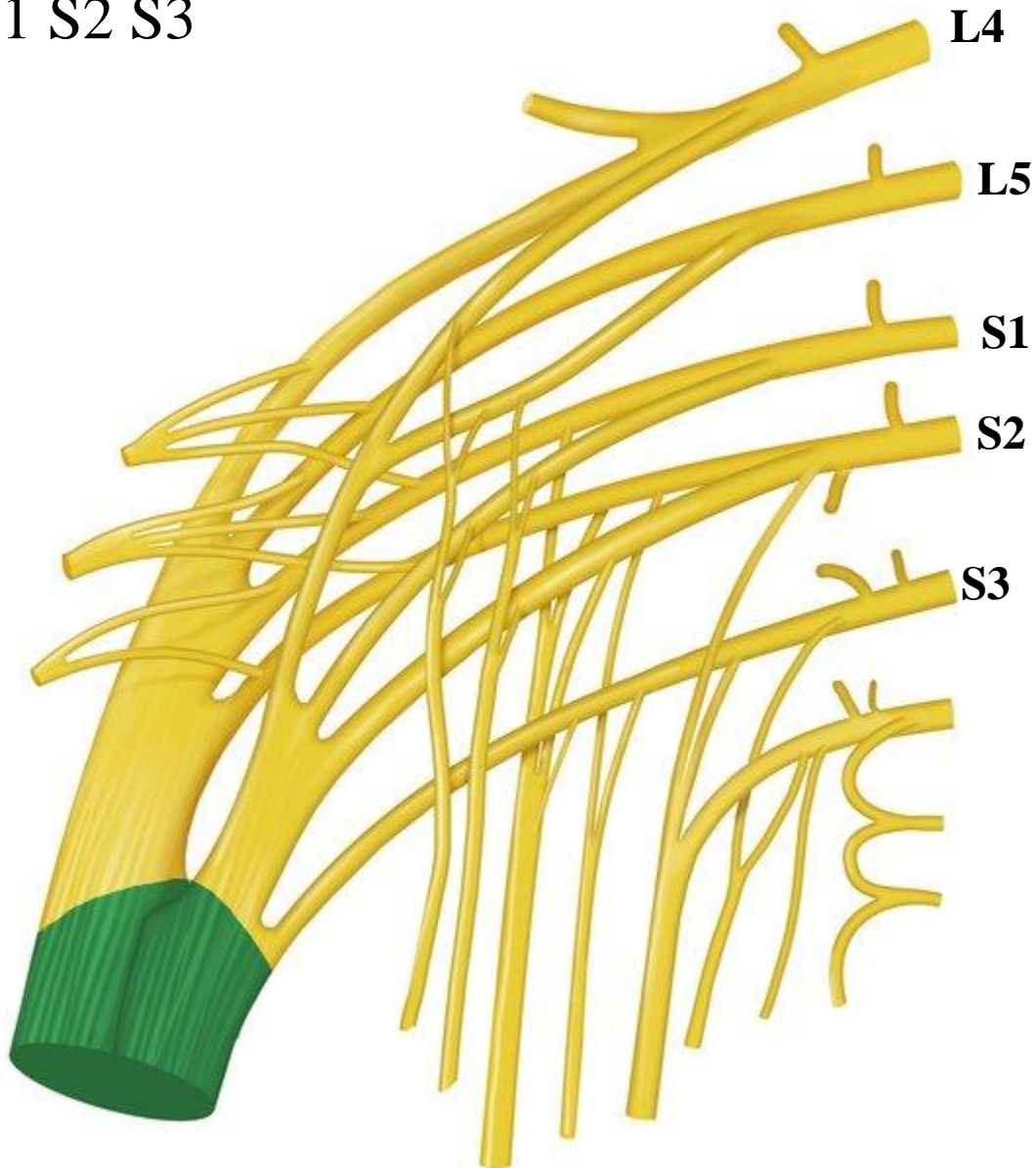
Nerve to quadratus femoris & inferior gemellus

Perforating cutaneous nerve

Nerve to piriformis

# Sciatic nerve

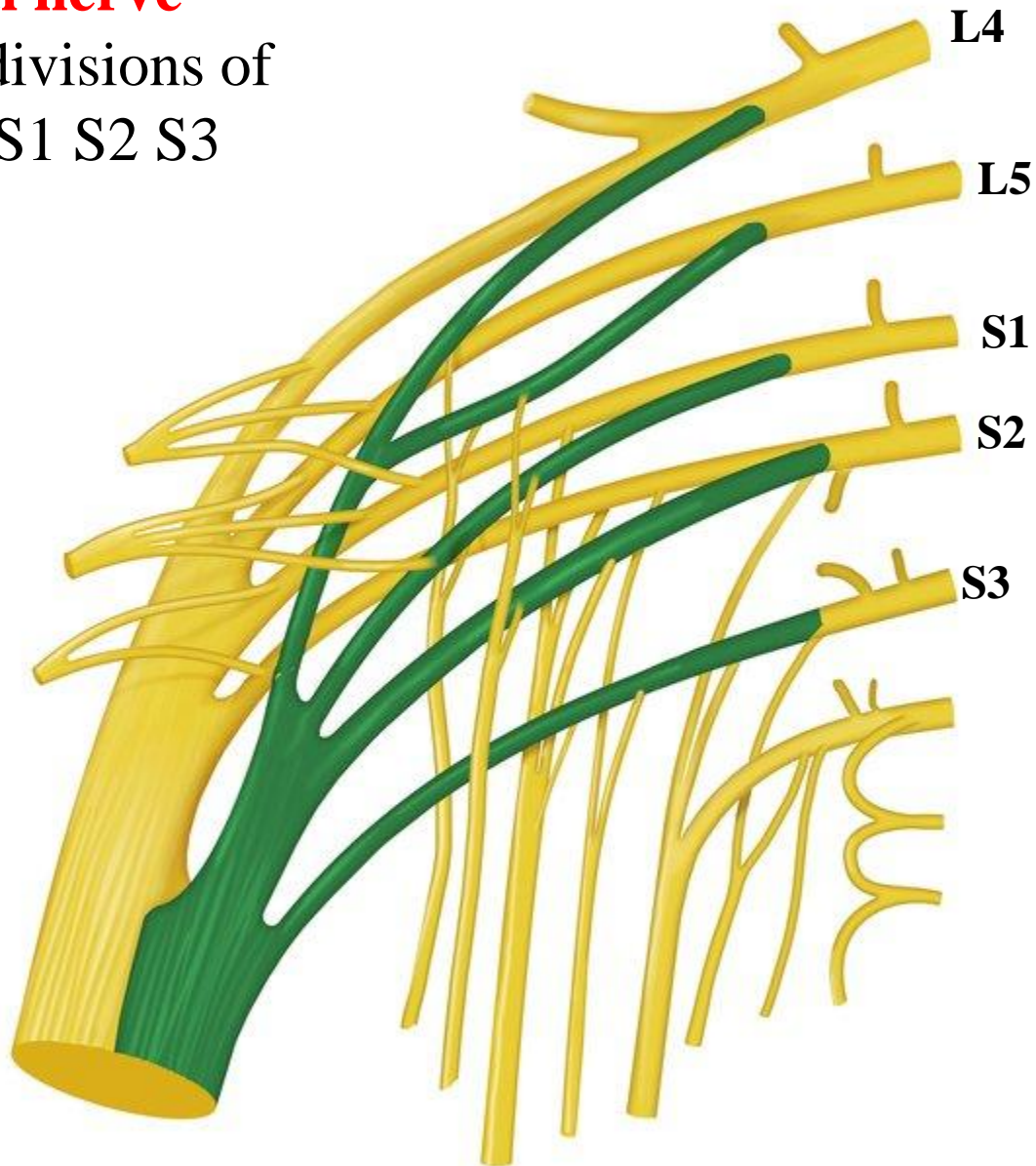
L4 L5 S1 S2 S3





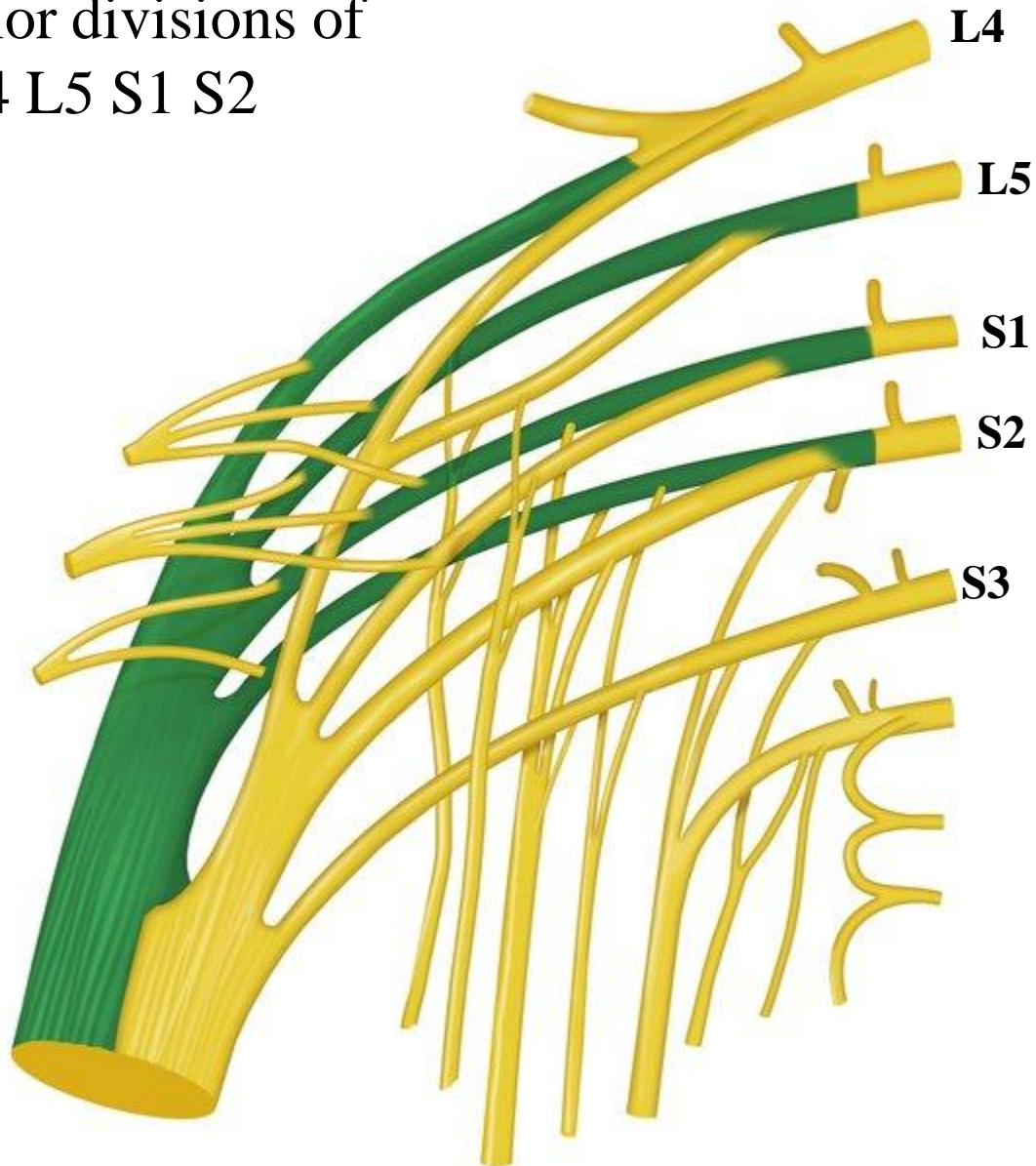
## **Tibial nerve**

anterior divisions of  
L4 L5 S1 S2 S3



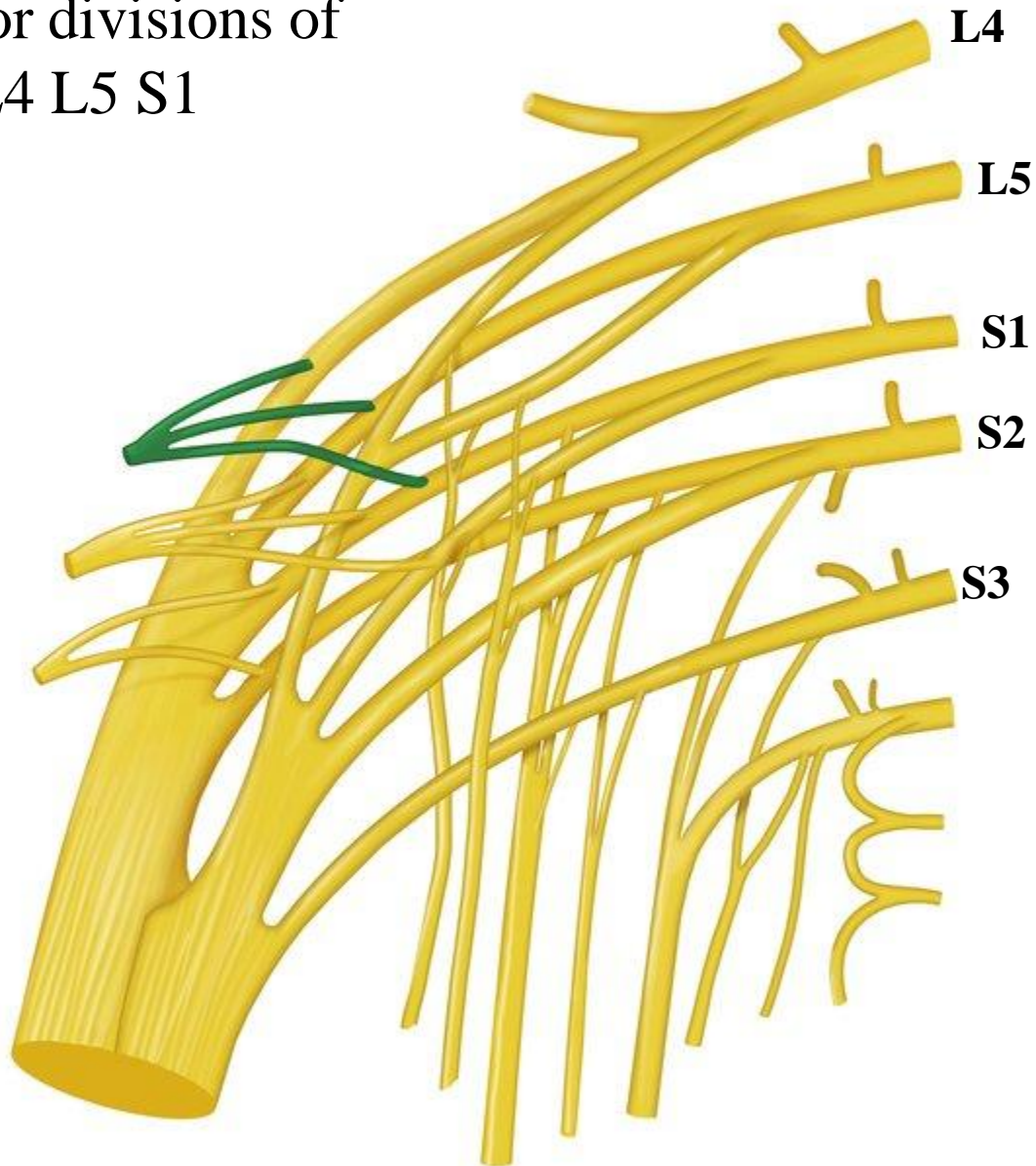
## Common fibular nerve

posterior divisions of  
L4 L5 S1 S2



## Superior gluteal nerve

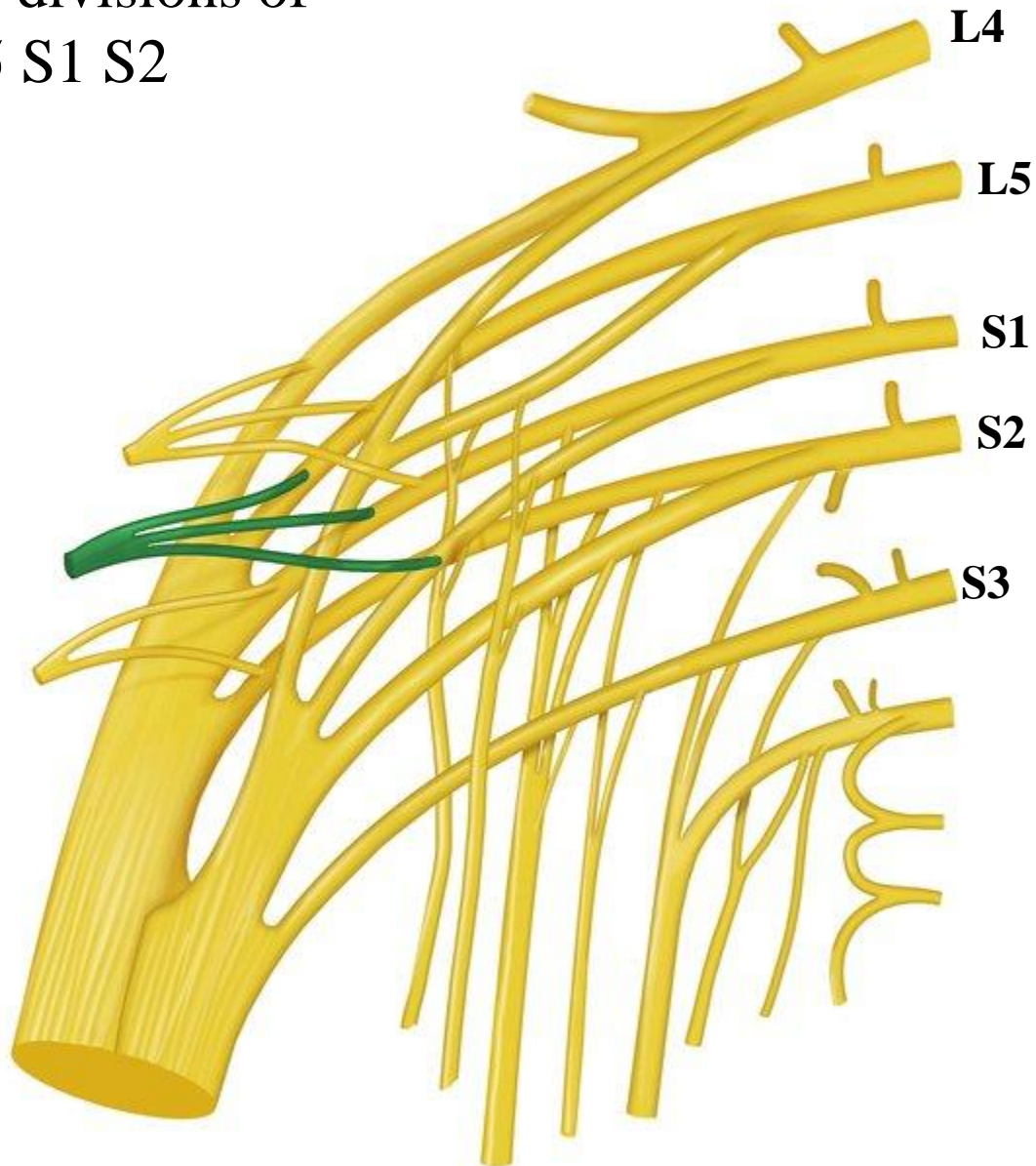
posterior divisions of  
L4 L5 S1





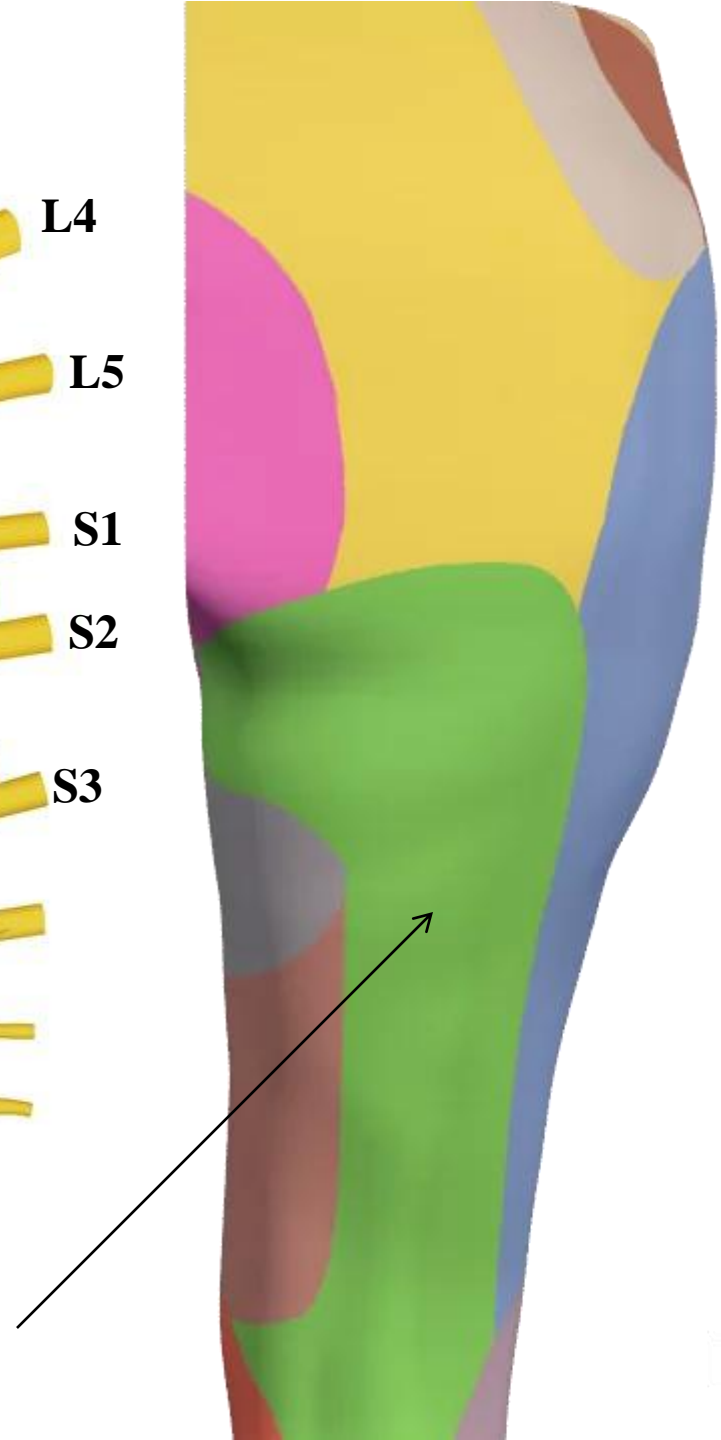
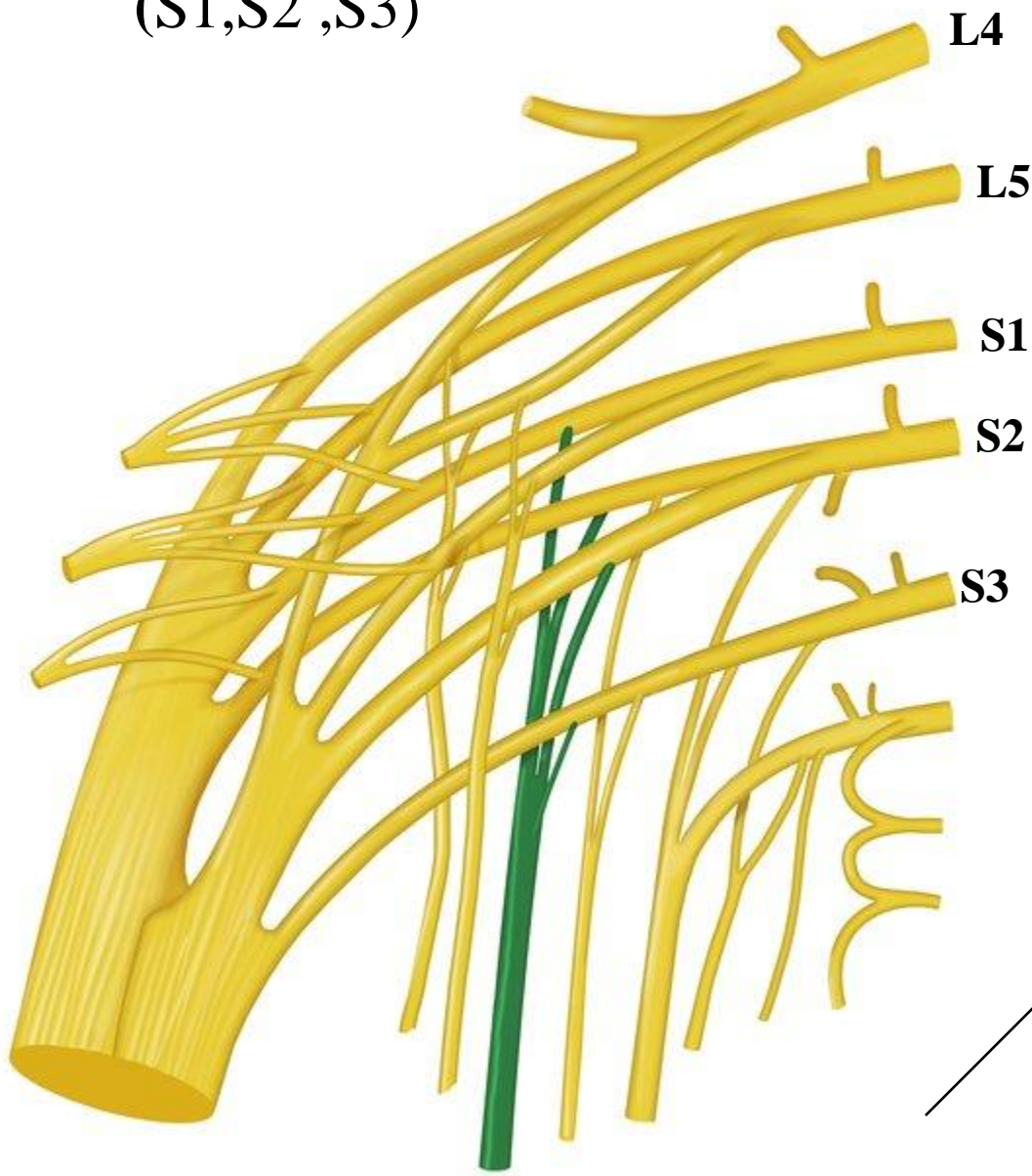
# Inferior gluteal nerve

posterior divisions of  
L5 S1 S2



**Posterior cutaneous nerve of the thigh**

(S1,S2 ,S3)



## Major nerves of the lumbar and sacral plexuses are:

### Anterior divisions

#### **Obturator nerve**

anterior divisions of  
L2 L3 L4

#### **Tibial nerve**

anterior divisions of  
L4 L5 S1 S2 S3

*Required*

### Posterior divisions

#### **Femoral nerve**

posterior divisions of  
L2 L3 L4

#### **Common fibular nerve**

posterior divisions of  
L4 L5 S1 S2

#### **Superior gluteal nerve**

posterior divisions of  
L4 L5 S1

#### **Inferior gluteal nerve**

posterior divisions of  
L5 S1 S2



