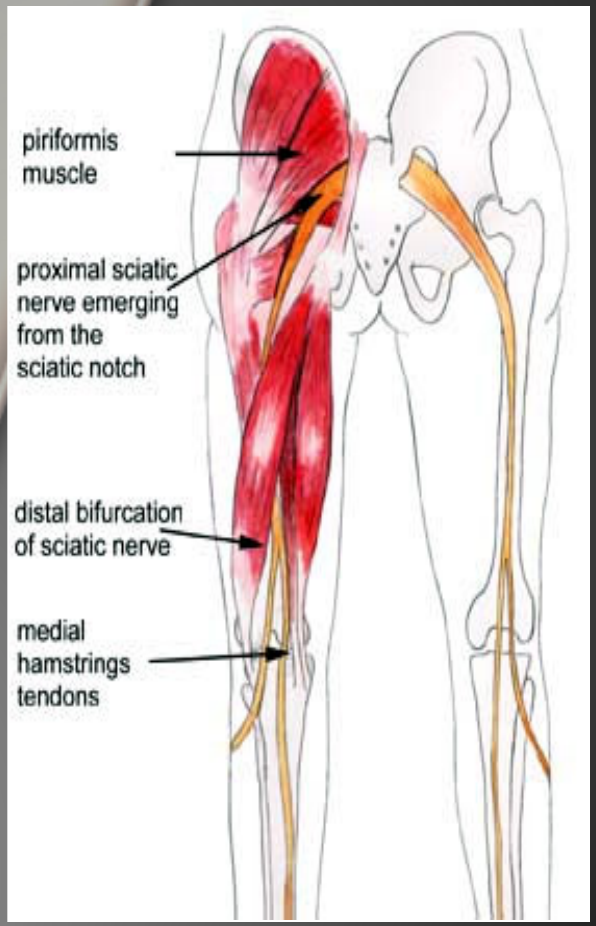
*SCIATIC NERVE

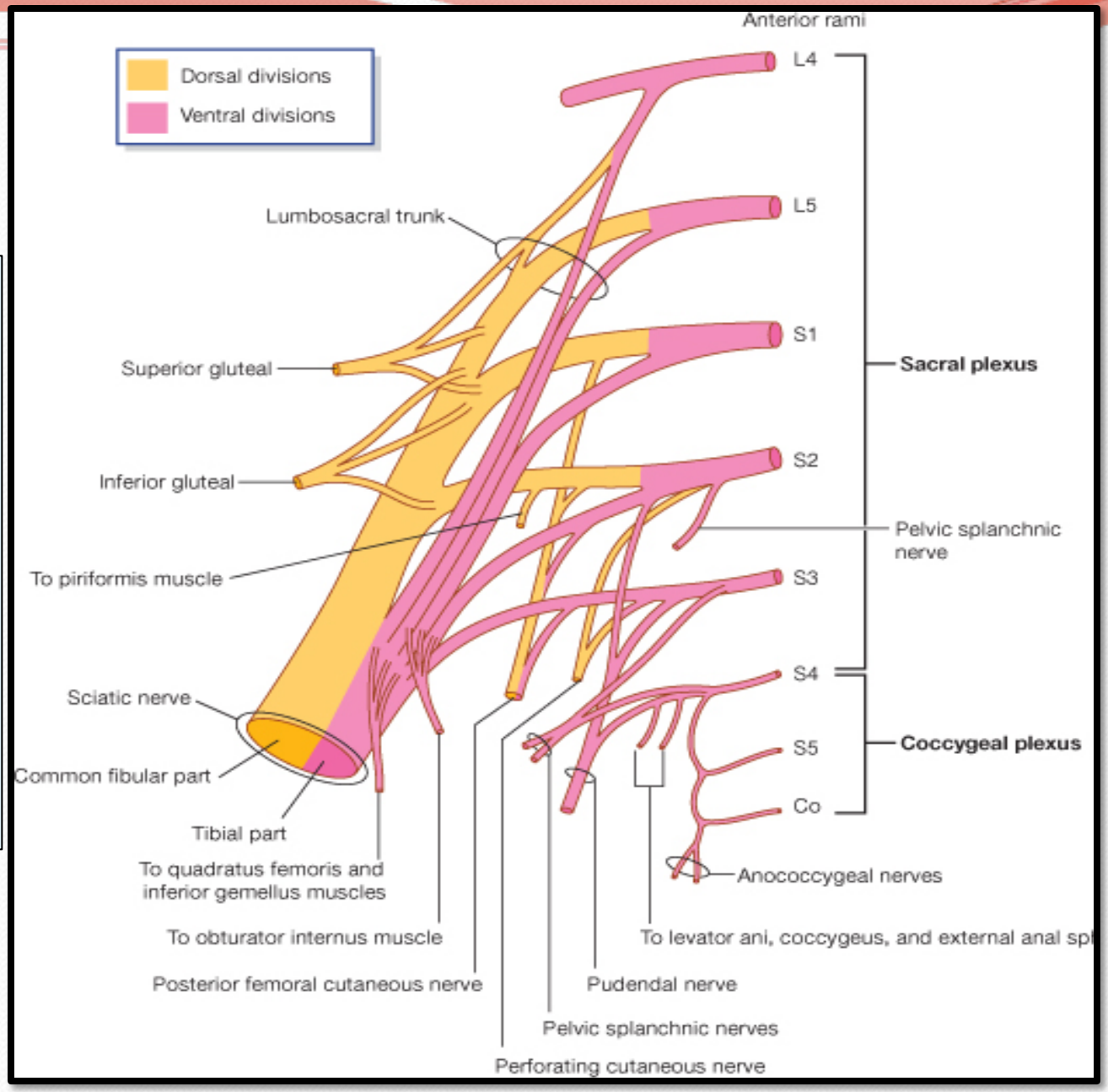


OBJECTIVES

- By the end of the lecture, students should be able to:
- Describe the anatomy (origin, course & distribution) of the sciatic nerve.
- List the branches of the sciatic nerve.
- Describe briefly the main motor and sensory manifestations in case of injury of the sciatic nerve or its main branches.

Origin

- From Sacral the Plexus,
- (L4,5, S1, 2,3).
- It is the largest branch of the plexus & the largest
- nerve of the body.



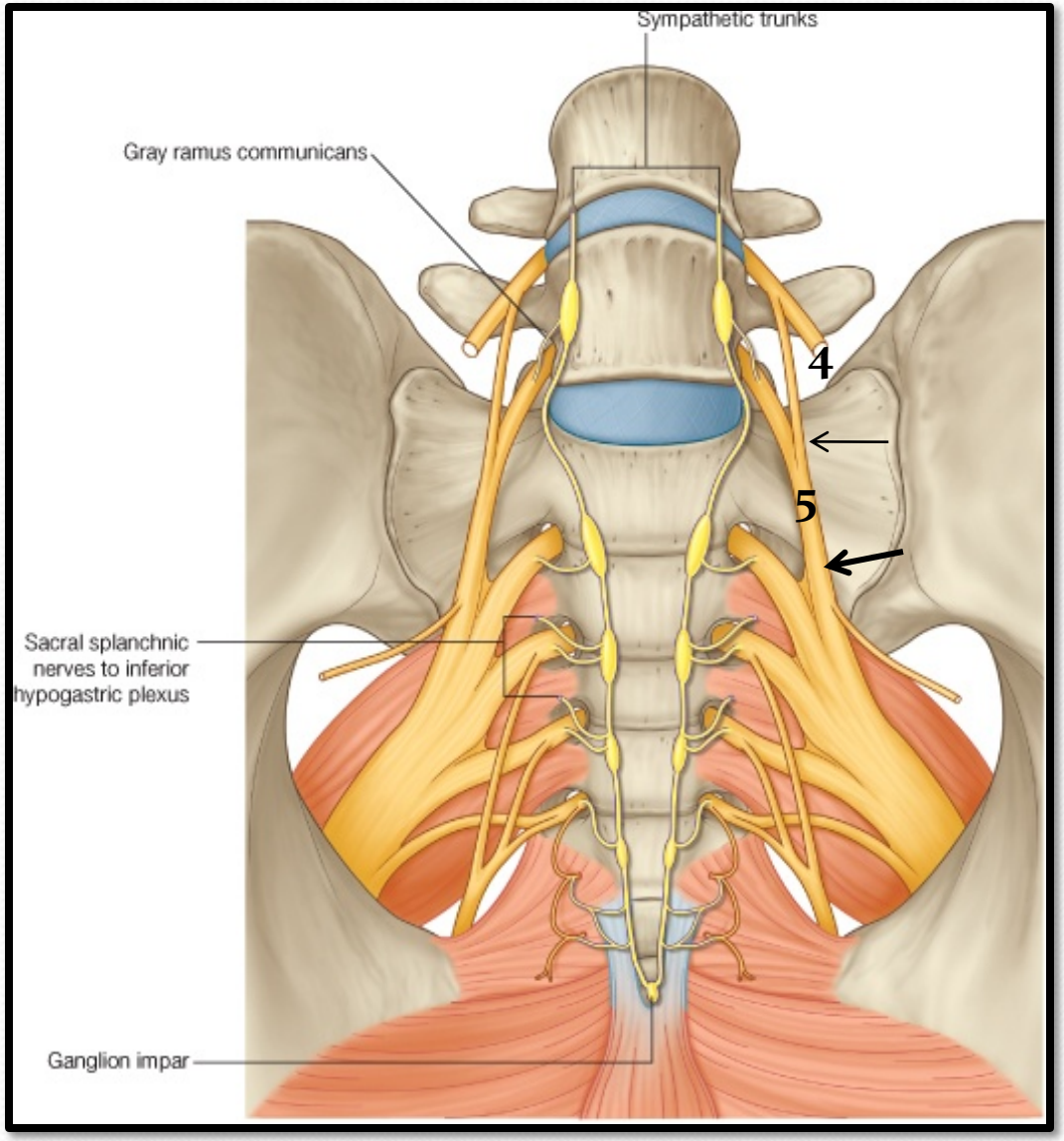
Sacral Plexus

Formation:

- Ventral (anterior) rami of a part of L4 & whole L5 (lumbosacral trunk) + S1,2,3 and most of S4.

Site:

- On the posterior wall of the pelvis,
- In front of Piriformis muscle.

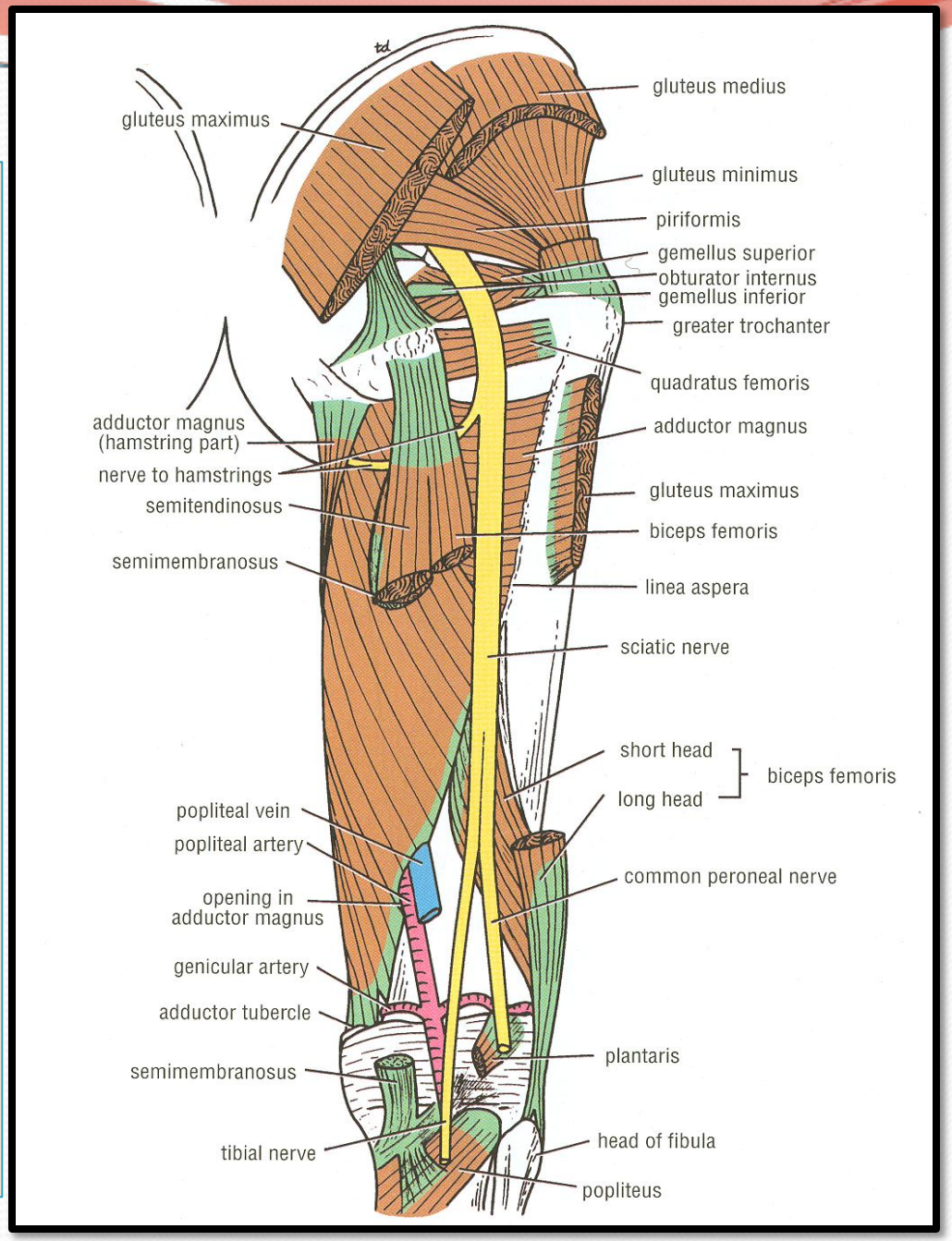


Course & Distribution

- It leaves the pelvis through greater sciatic foramen, below the piriformis & passes in the gluteal region (between ischial tuberosity & greater trochanter) then to posterior compartment of thigh.
- **Termination:**

In the middle of the back of the thigh It divides into 2 branches:

- Tibial &
- Common Peroneal (Fibular).

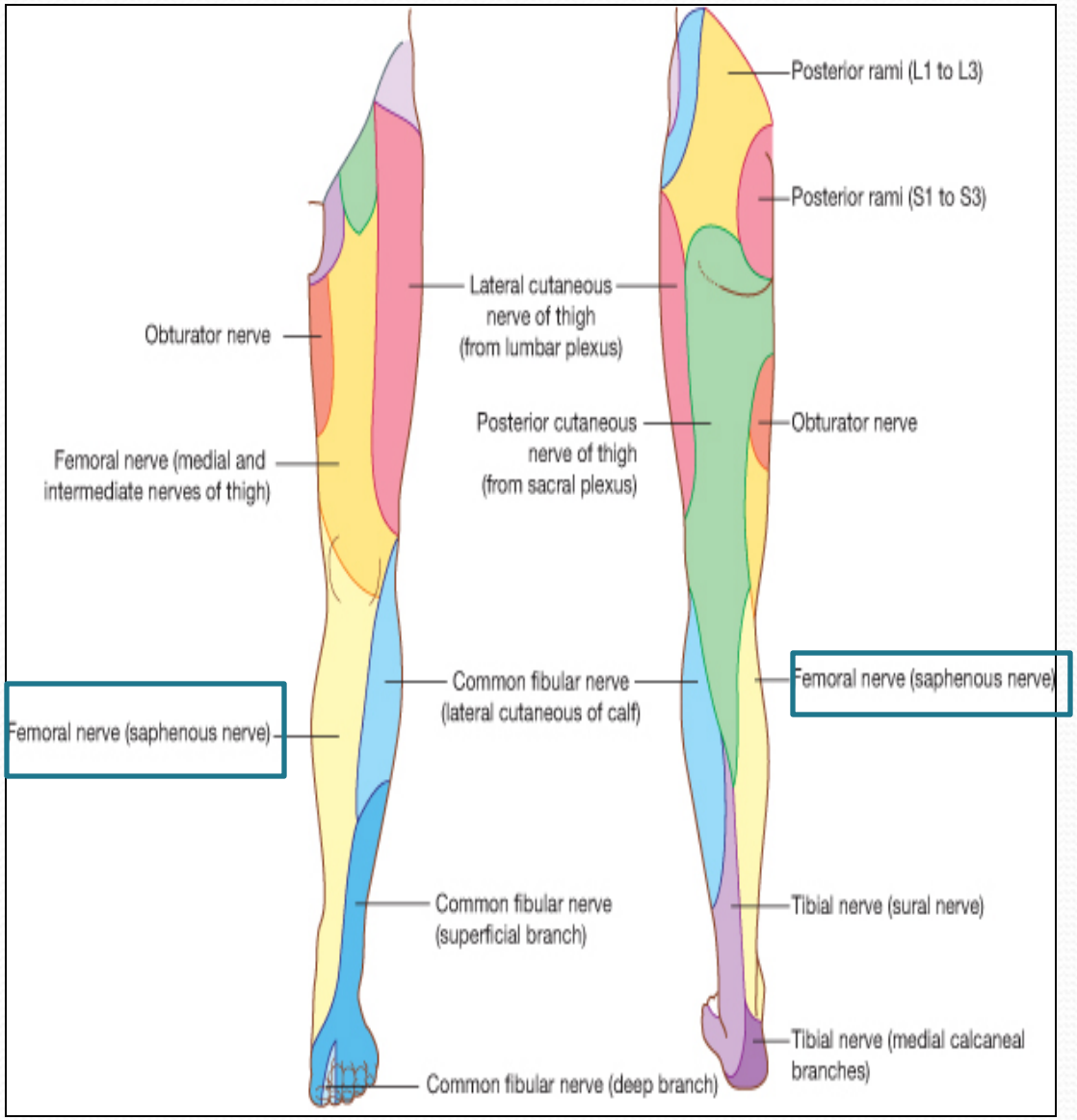


Branches of Sciatic Nerve

1. Cutaneous:

- To all leg & foot **EXCEPT:**

Areas supplied by the saphenous nerve (branch of femoral nerve).



❑ 2. Muscular:

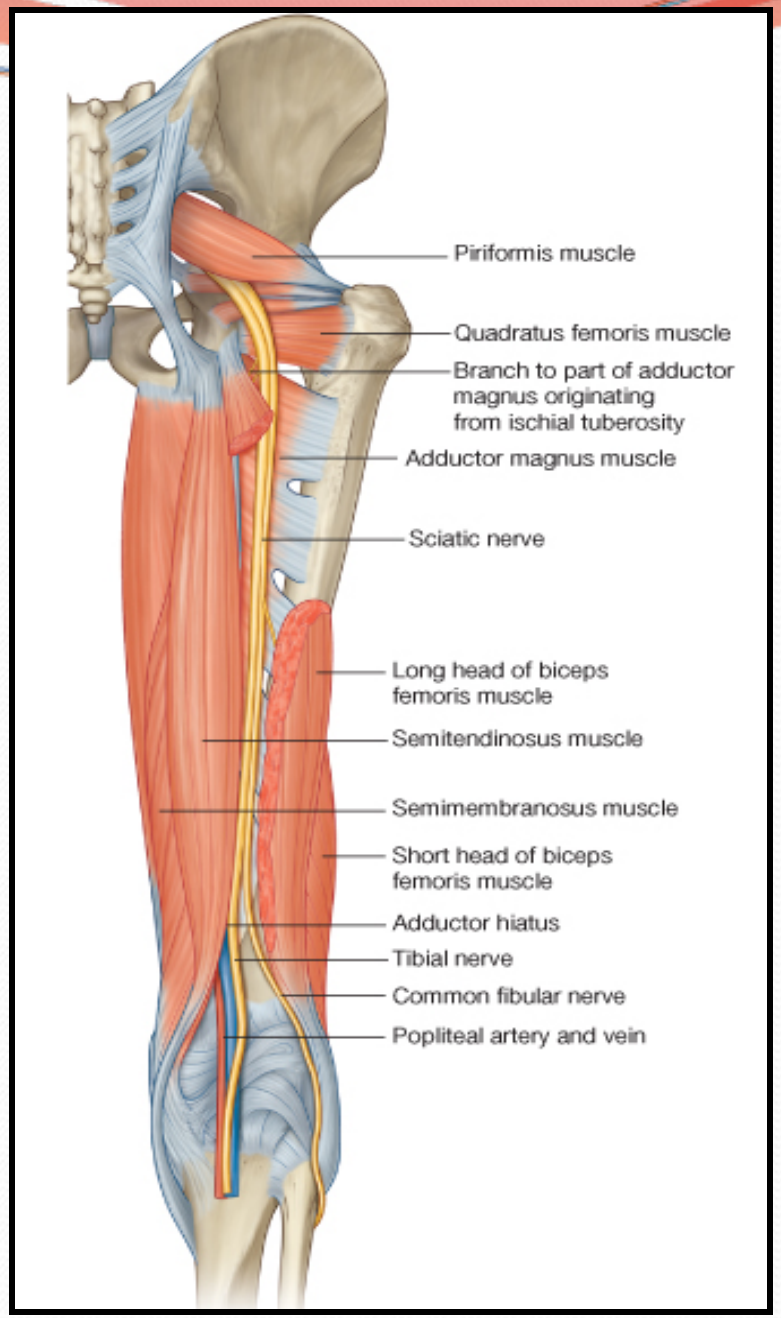
- **To Hamstrings:**

(flexors of knee & extensors of the hip).

(**through tibial part**) to:

1. ***Hamstring part of Adductor Magnus.***
2. ***Long head of Biceps Femoris.***
3. ***Semitendinosus.***
4. ***Semimembranosus.***

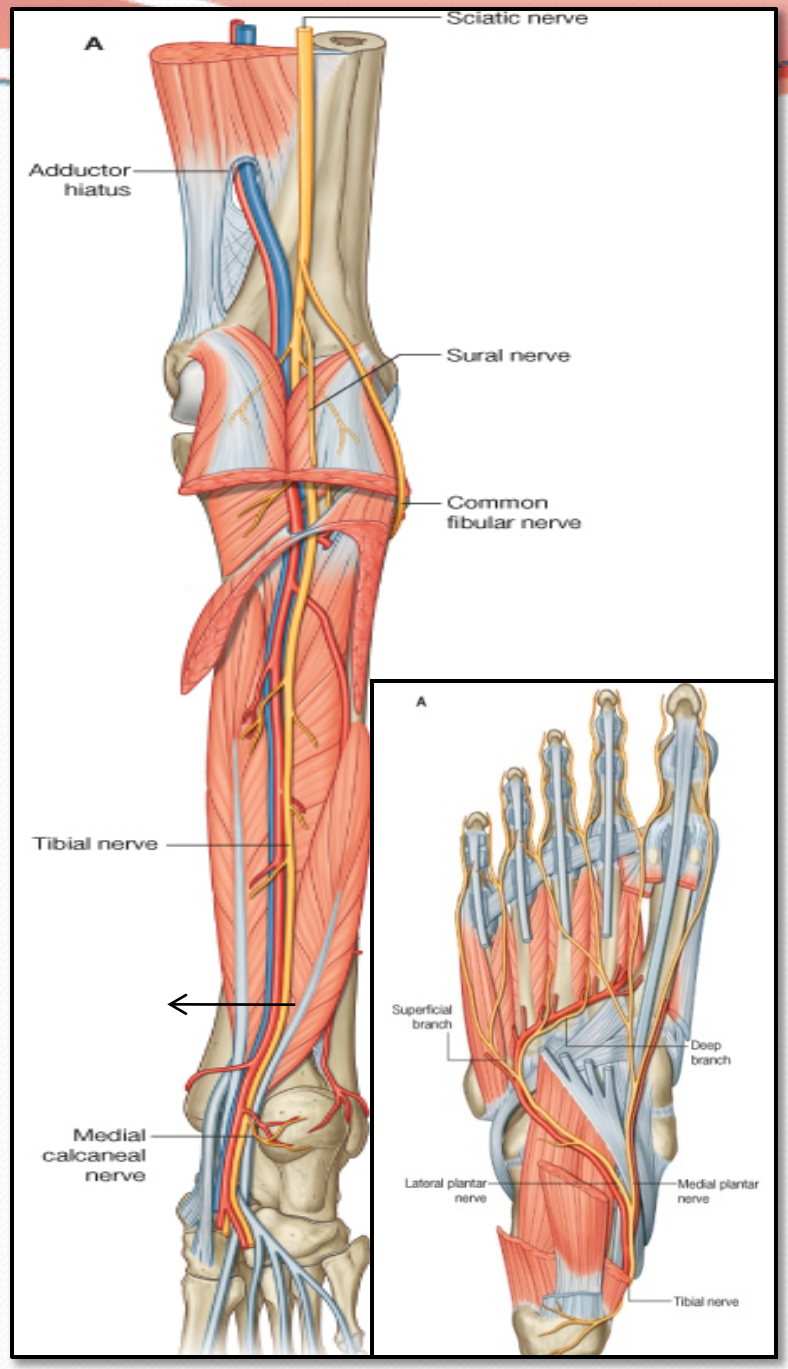
NB. ***The short head of biceps receives its branch from the lateral popliteal (common peroneal) nerve.***



Tibial Nerve

Course:

- Descends through popliteal fossa to posterior compartment of leg, **accompanied with posterior tibial vessels.**
- Passes **deep to flexor retinaculum** (through the tarsal tunnel, behind medial malleolus) to reach the sole of foot where it divides into **2 terminal branches (Medial & Lateral planter nerves.**



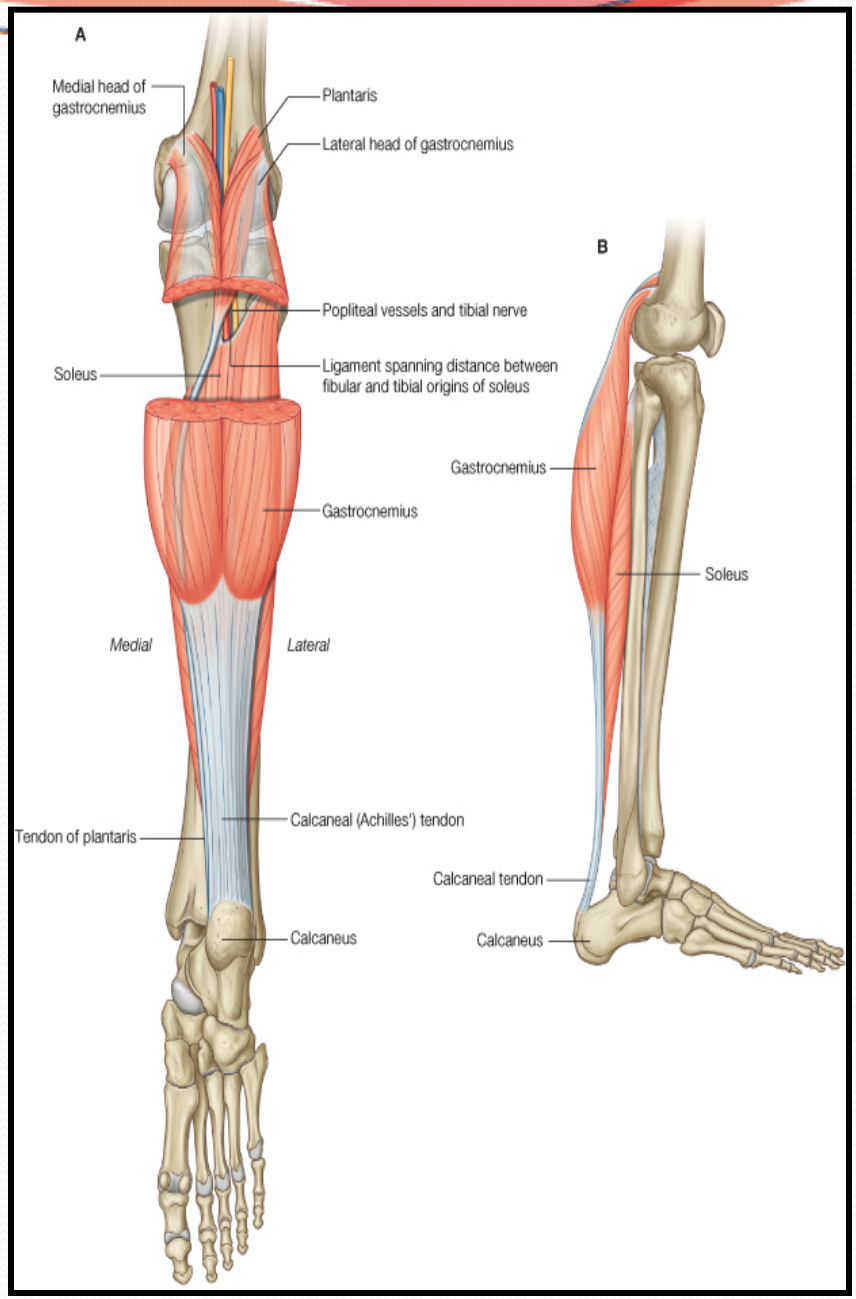
Muscular Branches

1. **Muscles of posterior compartment of leg:**
   Planter flexors of ankle,

Flexors of toes

ONE Invertor of foot (tibialis posterior).

2. **Intrinsic muscles of sole**



Common Peroneal (Fibular) Nerve

Course:

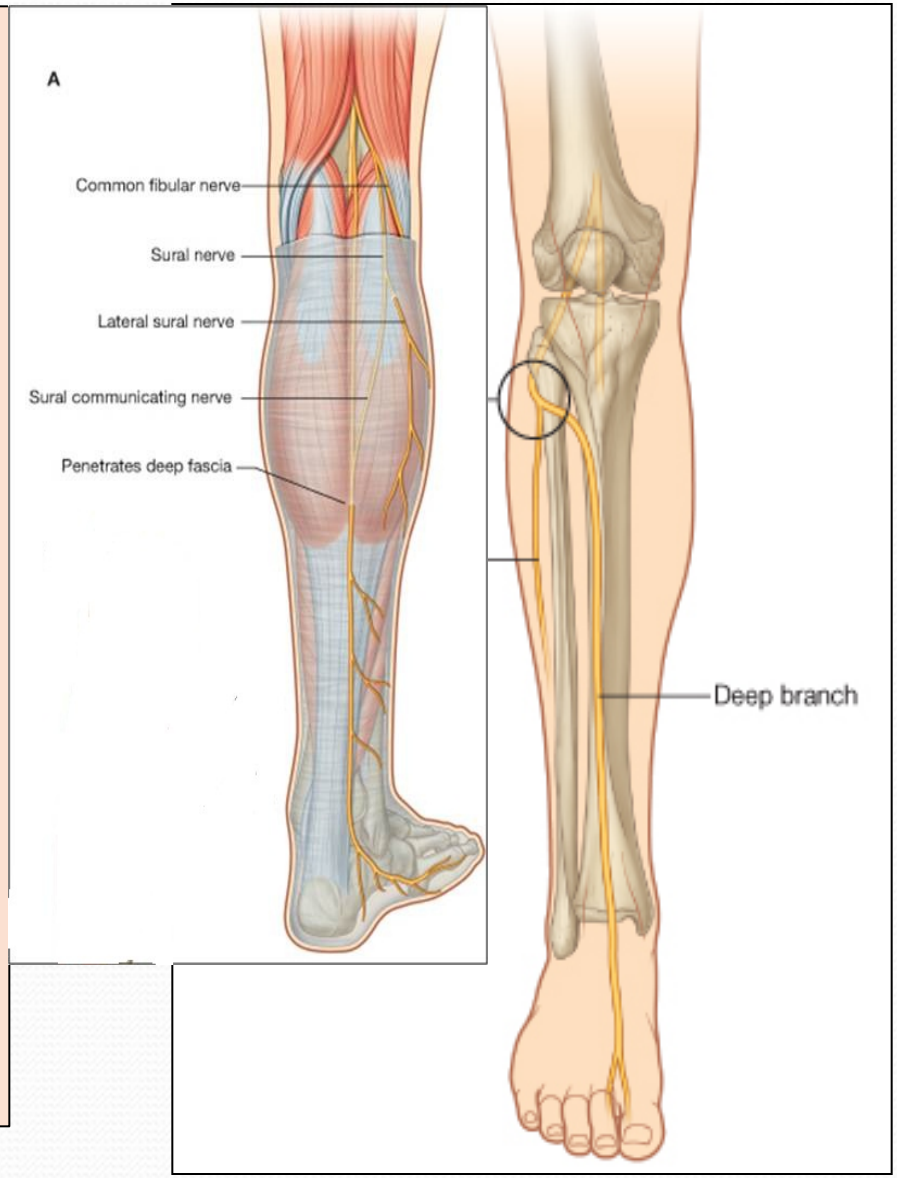
- Leaves popliteal fossa & turns around the **lateral aspect of neck of fibula**, (Dangerous Position).
- Then divides into:

➢ ***Superficial peroneal or (Musculocutaneous) :***

to supply the **Lateral compartment of the leg**.

➢ ***Deep peroneal or (Anterior Tibial)***:

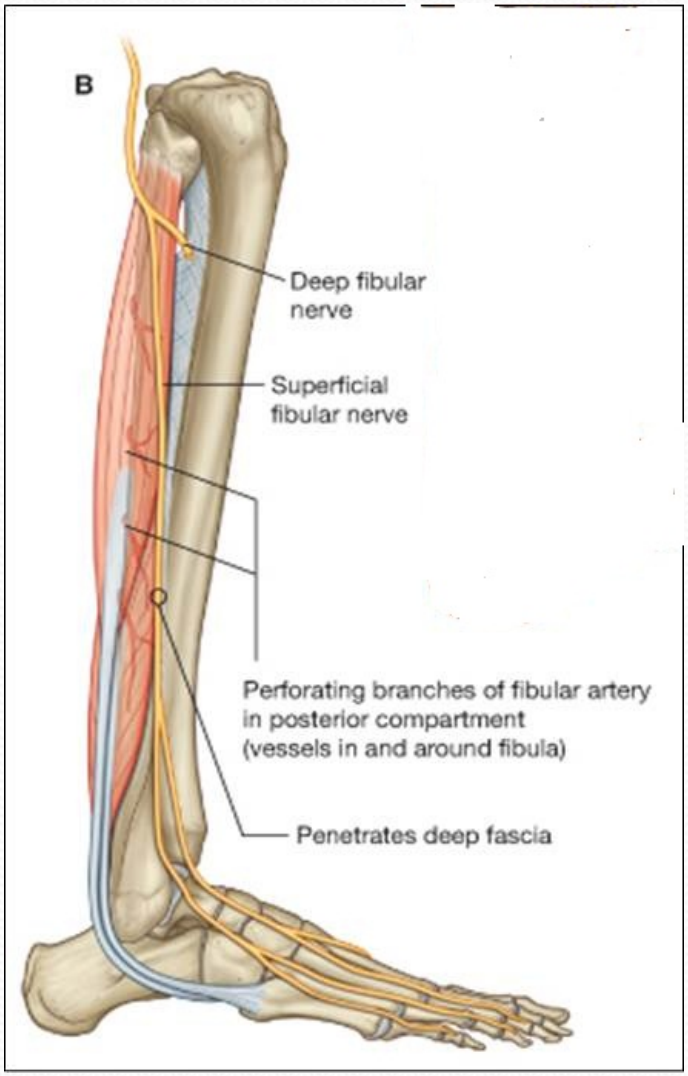
➢ to supply the **Anterior compartment of the leg.**



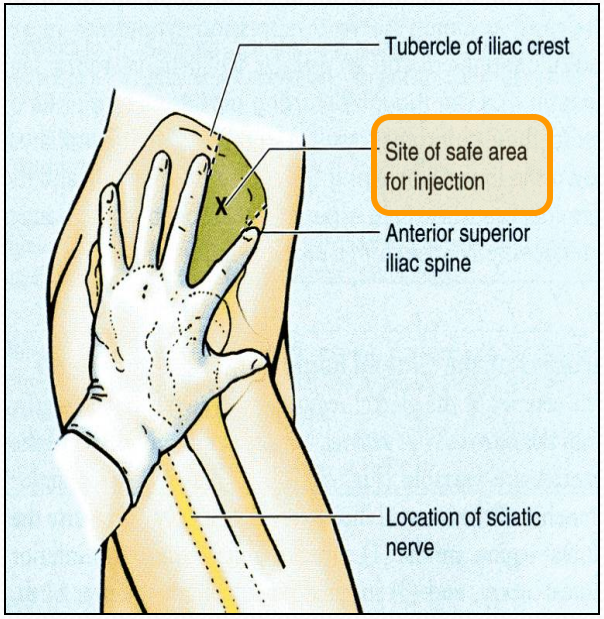
Muscular Branches

Muscles of anterior & lateral compartments of leg:

1. **Dorsi flexors of ankle,**
2. **Extensors of toes,**
3. **Evertors of foot.**



CAUSES OF SCIATIC NERVE INJURY



II-Posterior dislocation of the hip joint

- The sciatic nerve is *most frequently injured* by...?

I- Badly placed intramuscular injections in the gluteal region.

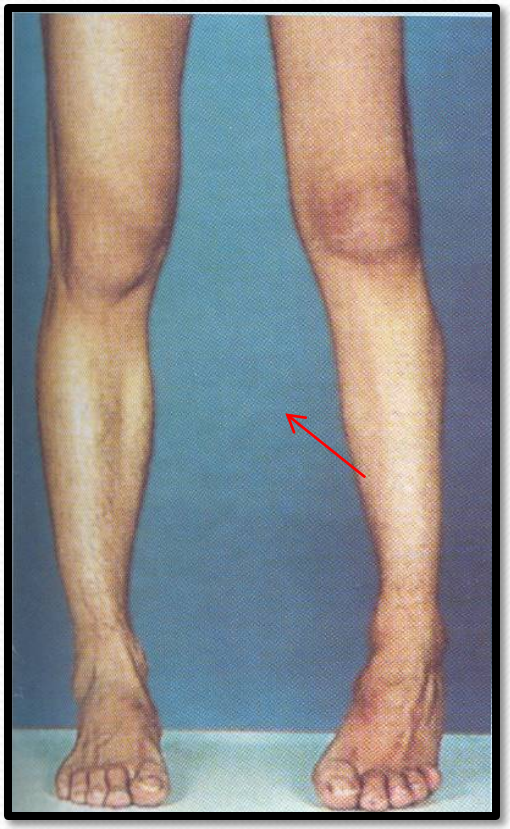
- To avoid this, injections should be done into the gluteus maximus or medius (into the **upper outer quadrant of the buttock).**
- *Most nerve lesions are incomplete,* and **in 90% of injuries, the common peroneal (part of the nerve) is the most affected.** Why?

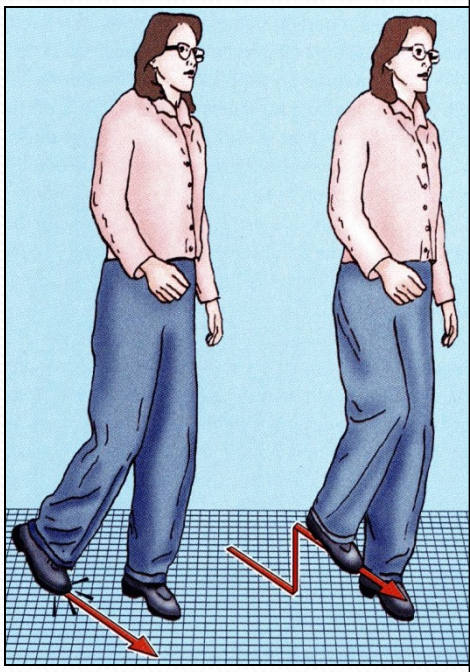
  - The common peroneal nerve fibers lie ***superficial*** in the sciatic nerve.

EFFECTS OF SCIATIC NERVE INJURY

MOTOR EFFECT:

- **Marked wasting of the muscles below the knee.**
- **Weak flexion of the knee (sartorius & gracilis are intact).**
- **Weak extension of hip (gluteus maximus is intact).**
- All the muscles below the knee are paralyzed, and the weight of the foot causes it to assume the ***plantar-flexed position***, or ***Foot Drop.***
- ***(Stamping gait).***





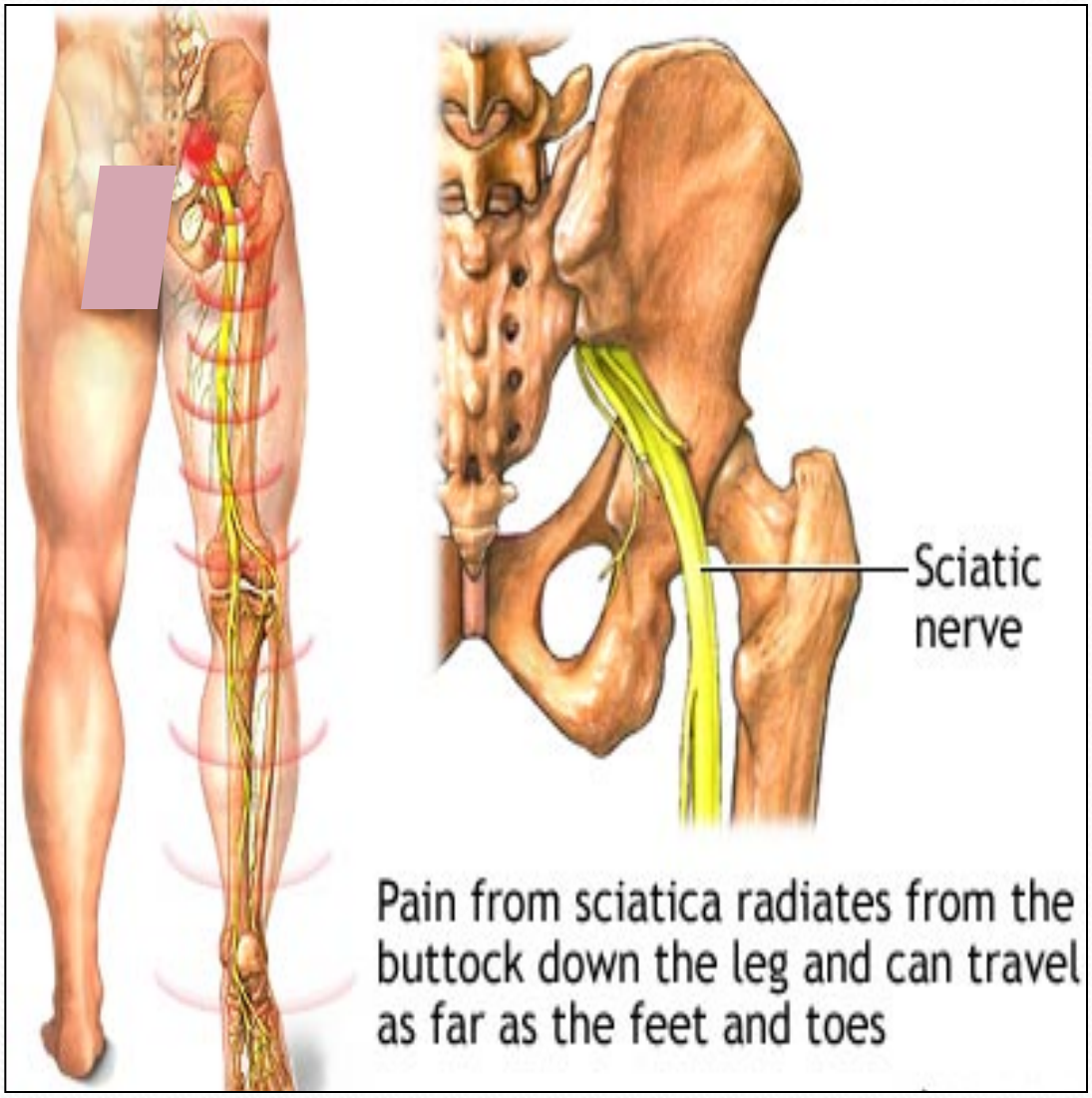
SENSORY EFFECT

- Sensation is lost *below the knee,* **except for a narrow area down the medial side of the lower part of the leg (blue)** and along the medial border of the foot as far as the ball of the big toe, which is supplied by the **saphenous nerve** (femoral nerve).

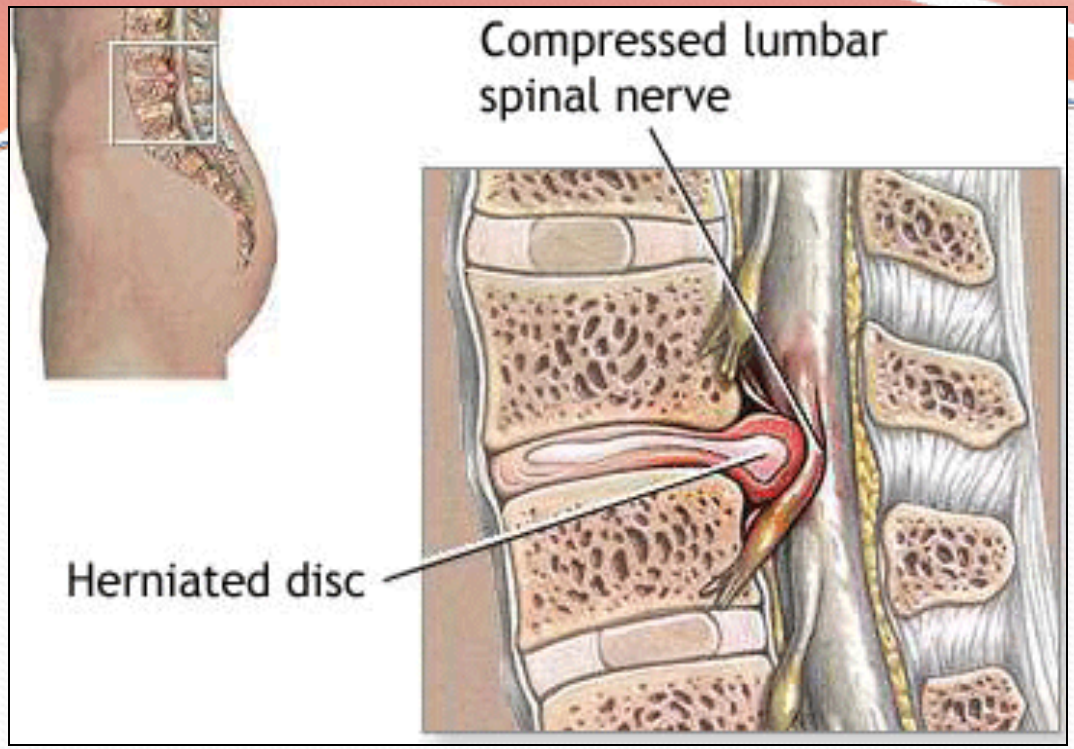
EFFECT OF SCIATIC NERVE INJURY

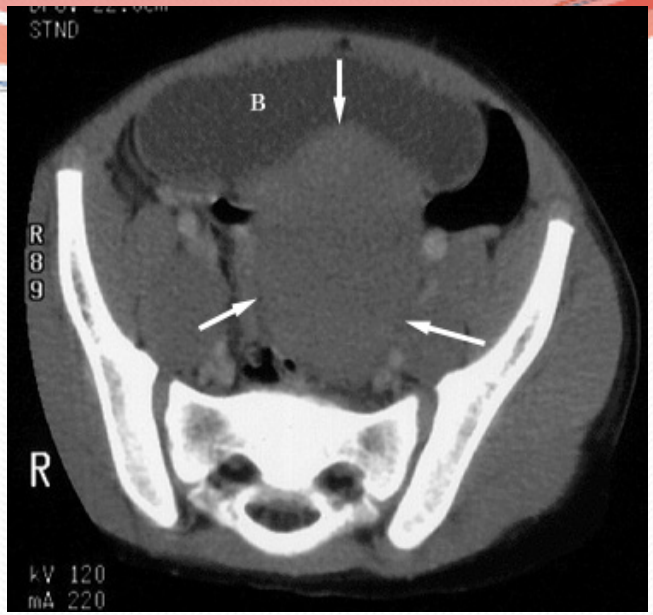
MOTOR EFFECT	Paralysis	Movements affected
	Hamstrings	Flexion of knee &
		Extension of hip
	All muscles of Leg & Foot	All movements of the leg & Foot
SENSORY EFFECT	Loss of sensation of the areas supplied by sciatic nerve (below knee).	EXCEPT area supplied by the (Saphenous nerve).

SCIATICA



- Sciatica describes the condition in which patients have ***pain along the sensory distribution of the sciatic nerve.***
- **Thus the pain is experienced in the posterior aspect of the thigh, the posterior and lateral sides of the leg, and the lateral part of the foot.**

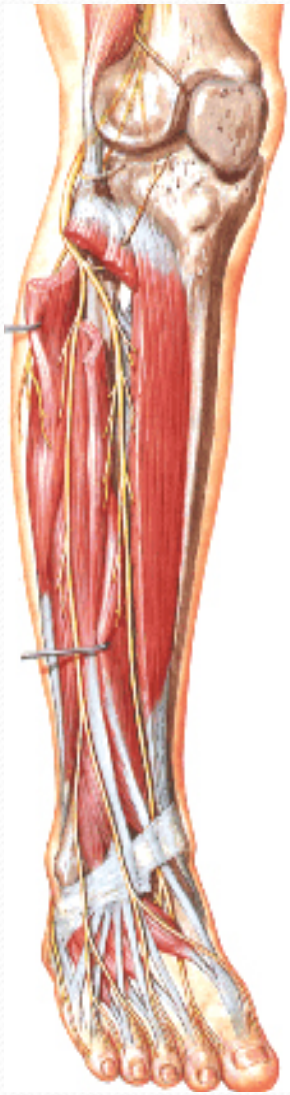




Causes of Sciatica :

- Prolapse of an intervertebral disc, with pressure on one or more roots of the lower lumbar and sacral spinal nerves,
- Pressure on the sacral plexus or sciatic nerve by an intrapelvic tumor,
- Inflammation of the sciatic nerve or its terminal branches.

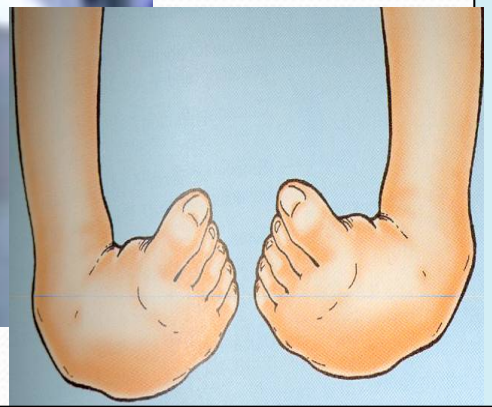
Common Peroneal Nerve Injury



The **common peroneal nerve** is in an *exposed position* as it leaves the popliteal fossa it winds around neck of the fibula to enter peroneus longus muscle, (**Dangerous Position**).

The common peroneal nerve is commonly injured In Fractures of the neck of the fibula and By pressure from casts or splints.

Manifestations of Common Peroneal Nerve Injury



Motor:

- ***The muscles of the anterior and lateral compartments of the leg are paralyzed,***
- As a result, the opposing muscles, the plantar flexors of the ankle joint and the invertors of the subtalar joints, ***cause the foot to be Plantar Flexed (Foot Drop) and Inverted,*** an attitude referred to as **Talipes Equinovarus.**

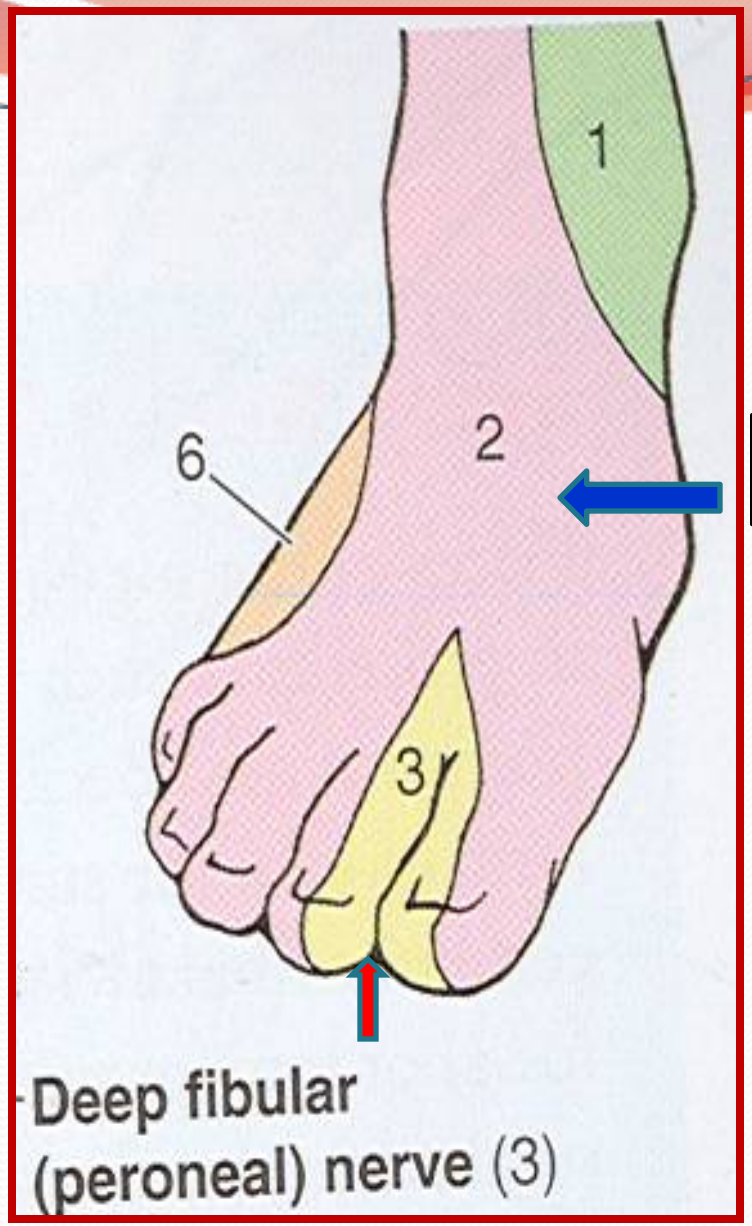
Sensory

Sensation is lost between the first and second toes.

Dorsum of the foot and toes.

Medial side of the big toe.

Lateral side of the leg.



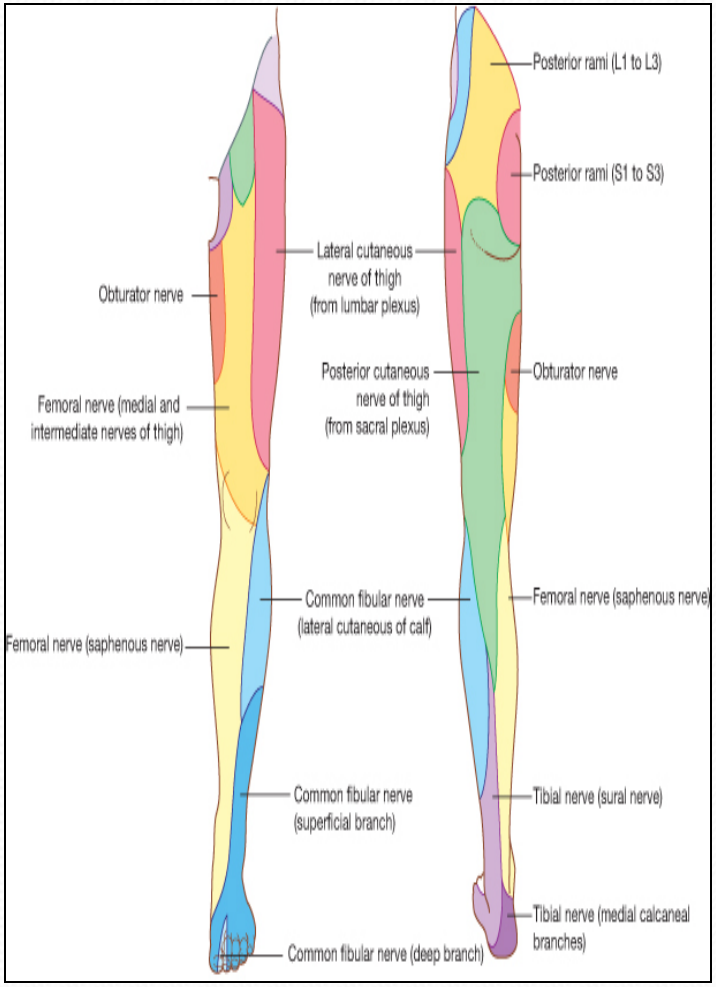
Tibial Nerve Injury

- **Because of its deep and protected position, the tibial nerve is *rarely injured.***
- Complete division results in the following clinical features:
- **Motor:**
- ***All the muscles in the back of the leg and the sole of the foot are paralyzed.***
- The opposing muscles ***Dorsiflex*** the foot at the ankle joint ***and*** ***Evert the foot*** at the subtalar joint, an attitude referred to as **Taleps Calcaneovalgus.**

Sensory :

Sensation is lost on the Lateral side of the leg and foot & **Trophic ulcers** in the sole.

(also seen in case of **Sciatic nerve injury)**



THANK YOU