Summary of Main Nerves of Lower Limb

and their muscular branches

Introduction

Compartments of Thigh

The thigh is divided into 3 compartments by 3 septa extending from the deep fascia of thigh to reach linea aspera of femur.

a. Anterior compartment:

Contains: quadriceps femoris and femoral nerve.

b. Posterior compartment:

Contains: hamstring muscles and sciatic nerve.

c. Medial compartment

Contains: adductor muscles and obturator nerve.

![Diagram showing: Compartments of Thigh and Their Nerves](image)

Sciatic Nerve:

- It is the largest nerve in body.
- It is the largest branch of sacral plexus (L_4,5;S_{1,2,3}).
- It leaves the pelvis through the greater sciatic foramen.
- It appears in the gluteal region below the piriformis muscle.
- It leaves the gluteal region to the back of thigh in the midline.
- In thigh, it lies between the hamstrings posteriorly and adductor magnus anteriorly.
- In the lower third of thigh, it terminates by dividing into 2 branches; tibial and common peroneal branches.
- Branches: It supplies the hamstring muscles and the hamstring part of adductor magnus.
- **N.B.:**
  - It is the nerve of the posterior compartment of thigh, supplying hamstring muscles).
  - All branches arise in the thigh from the medial (tibial) component of the nerve.
  - No branches arise in the gluteal region.

**Femoral Nerve**

It is the nerve of the anterior compartment of the thigh.

It is the largest branch of lumbar plexus within the psoas major muscle.

It appears on the lateral border of psoas major,
then it descends between it and iliacus.

It passes behind the iliac fascia.

It enters the thigh behind the inguinal ligament, lateral to the femoral sheath (outside it).

It terminates 1.5 inches below the inguinal ligament.

It supplies the muscles of front of thigh;
- Sartorius
- Pectineus
- Quadriceps femoris (branches to its 4 muscles)

**Obturator Nerve**

It is the nerve of the medial compartment of thigh.

It is a branch of the lumbar plexus.

It appears on the medial side of psoas major muscle, in the abdomen.

It leaves the pelvis through the upper part of obturator foramen.

It supplies the muscles of adductor group;

- Pectineus (This muscle is also supplied by femoral nerve)
- Adductor longus
- Adductor brevis
- Adductor magnus
- Gracilis.
**Nerves of Popliteal fossa**

**Tibial Nerve**

It is the larger of the 2 terminal branches of sciatic nerve.

It nearly bisects the popliteal fossa, from the upper angle to the lower angle.

It leaves the fossa at the lower border of popliteus muscle, where it continues in the posterior compartment of leg, as the posterior tibial nerve.

Muscular branches: to the muscles of the popliteal fossa including:

- 2 heads of gastrocnemius muscle.
- Soleus muscle.
- Plantaris muscle.
- Popliteus.

**Common peroneal nerve**

It is the smaller of the 2 terminal branches of sciatic nerve.

It passes downwards and laterally along the medial border of biceps to the lateral angle of popliteal fossa.

It curves forwards lateral to neck of fibula.

It pierces the peroneus longus, then divides into 2 terminal branches:

- Superficial peroneal and deep peroneal nerves.
Nerves of Leg

Introduction

Compartments of Leg

The leg is divided into 3 compartments by 3 septa extending from the deep fascia of thigh to reach tibia and fibula.

a. Anterior compartment:
Contains: tibialis anterior and long extensors muscles and Deep peroneal nerve.

b. Posterior compartment:
Contains: tibialis posterior and long flexors muscles and Tibial nerve.

C. Lateral compartment
Contains: 2 peroneus 'longus and brevis' muscles and Superficial peroneal nerve.
Tibial Nerve (Posterior tibial nerve)

"Nerve of posterior compartment of leg"

It passes between the deep and superficial muscles of posterior compartment of leg.

It supplies:

- soleus muscle and muscle of deep compartment;
- tibialis posterior,
- flexor hallucis longus and
- flexor digitorum longus.

It ends deep to flexor retinaculum, where it divides into 2 plantar nerves passing to foot.

Deep peroneal nerve (Anterior tibial nerve)

"Nerve of anterior compartment of leg"

It gives muscular branches to muscles of the anterior compartment of leg, including;
- Tibialis anterior
- Extensor hallucis longus
- Extensor digitorum longus.

**Superficial peroneal nerve (Musculocutaneous nerve)**

"Nerve of lateral compartment of leg"

It gives muscular branches to muscles of lateral compartment of leg, including;

- Peroneus longus
- Peroneus brevis.

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**Motor Effect of Sciatic Nerve Lesion**

1. Paralysis of hamstring muscles, leading to weak flexion of knee.
2. Paralysis of all muscles below the knee, leading to foot drop, as the weight of the foot puts it in a plantar flexion.

**Motor Effect of Common Peroneal Nerve Lesion**

- Paralysis of anterior muscles of leg, leading foot drop, due to pull by muscles of the posterior compartment.
- Paralysis of lateral muscles of leg, leading inversion of foot, due to pull by muscles of the 2 tibialis muscles.

The deformity is called: **equinovarus**.

**Motor Effect of Tibial Nerve Lesion**

- Paralysis of posterior muscles of leg, leading dorsiflexion of foot.