

Name : Manahil Shakoor  
ID# : 16053  
Departm : DPT  
Section : "A"  
Subject : Anatomy.

Q1 Enumerate muscles of the posterior compartment .....

### "Muscles in the Posterior compartment of the leg"

The posterior compartment of the leg contains seven muscles, organized into two layers - superficial and deep.

- 1) The two layers are separated by a band of fascia.
- 2) The posterior leg is the largest of the three compartments. Collectively, the muscles in this area plantar flex and invert the foot.
- 3) They are innervated by the tibial nerve, a terminal branch of the

Sciatic nerve.

## "Superficial Muscles"

The superficial muscles from the characteristics "cdf" shape of the posterior leg. They all insert into the calcaneus of the foot the calcaneal tendon.

The calcaneal reflex tests spinal roots S1-S2.

Subcutaneous calcaneal bursa - lies between the ~~tendon~~<sup>skin</sup> and the calcaneus tendon.

Deep bursa of the calcaneal tendon. lies between the tendon and the calcaneus.

## "Gastrocnemius"

- The gastrocnemius is the most superficial of all the muscles in the posterior leg.

⇒ It has two heads.

⇒ medial and lateral - which converge to form a single muscle belly.

**Action:-**

It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there.

**Innervation:-**

Tibial nerve.

**"Plantaxis"**

The plantaxis is a small muscle with a long tendon, which can be mistaken for a nerve.

- 1) It descends down the leg.
- 2) It is absent in 10% of people.

**Action:-**

It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there, it is not a vital muscle for these movements.

**Innervation:-**

Tibial nerve.

**"Clinical Relevance"**

- 1) Rupture of the clinical tendon refers to a partial or complete tear of the tendon. It is more likely to occur in people with history

of calcaneal tendinitis (chronic inflammation of the tendon).

- \*) The injury is usually sustained during forceful plantar flexion of the foot. The patient will be unable to plantar flex of the foot against resistance, and the affected foot will be permanently dorsiflexed. The gastrocnemius and soleus can contract to form a lump in the calf region.

- \*) Treatment of a ruptured calcaneal tendon is usually conservative (Physiotherapy), except in those with active lifestyles.

### Soleus:-

- \*) The soleus is located deep to the gastrocnemius.
- \*) It is large and flat.

### Action:-

Plantar flexes the foot and the ankle joint.

### Innervation:-

Tibial nerve.

## "Deep Muscles"

- ) These are four muscles in the deep compartment of the posterior leg.
- ) one muscle, the popliteus, acts only on the knee joint. The remaining three muscles (tibialis posterior, flexor hallucis longus and flexor digitorum longus) act on the ankle and foot.

## "The Popliteus"

- ) The popliteus is located superiorly in the leg. It lies behind the knee joint, forming the base of the popliteus fossa.
- ) There is a bursa (fluid filled sac) that lies between the popliteal tendon and the posterior surface of the knee joint.
- ) It is called the popliteus bursa.

## Actions:

Laterally, rotates the femur on the tibia - "unlocking" the

the knee joint so that flexion can occur.

### Innervation:-

Tibia nerve.

22 Explain the following?

#### a) "Foot Drop"

- 1) Foot drop is a clinical sign indicating paralysis of the muscles in the anterior compartment of the leg.
- 2) It is most commonly seen when the common fibular nerve (from which the deep fibular nerve arises) is damaged.
- 3) In foot drop, the muscles in the anterior compartment are paralyzed.
- 4) The unopposed pull of the plantar flexor produces permanent plantar flexion.

- 1.) This can interfere with walking as the affected limb can drag along the ground.

### Explanation:-

Foot drop is a gait abnormality in which the dropping of the forefoot happens due to weakness, irritation or damage to the common fibular nerve including the sciatic nerve, or paralysis of the muscles in the anterior portion of the lower leg.

It is usually a symptom of a greater problem, not a disease in itself.

### "Causes of foot drop"

Foot drop is caused by weakness or paralysis of the muscles involved in lifting the front part of the foot.

Causes of foot drop might include Nerve injury. The most common cause of foot drop is compression of a nerve in your leg that controls

the muscles involved in lifting the foot (peroneal nerve).

## b) "Deep venous thrombosis"

Deep venous thrombosis is a serious condition that occurs when a blood clot forms in a vein located deep inside your body. A blood clot is a clump of blood that's turned to a solid state.

Deep vein blood clots typically form in your thigh or lower leg, but they can also develop in other areas of your body.

### Symptoms:-

Common symptoms include:

- ) Swelling in your foot, ankle, or leg usually on one side
- ) Cramping pain in your affected leg that usually begins in your calf.



- .) Severe, unexplained pain in foot and ankle.
- .) Skin over the affected area turning pale or a reddish or bluish colour.
- .) weakness in hand.
- .) Pain that moves from the arm to the forearm.
- .) Shoulder pain
- .) neck pain also.

## "Causes of Deep thrombosis"

injury. Damage to a blood vessel's wall can narrow or block blood flow.

Surgery. Blood vessels can be damaged during surgery, which can lead to the development of a blood clot.

Reduced mobility or inactivity. When we sit frequently, blood can collect in your legs especially the lower parts. This can cause a clot to develop.

Describe anatomical course, motor and sensory function of sciatic nerve?

### 'Anatomical course'

- The sciatic nerve is derived from the lumbosacral plexus.
- Information its, it leaves the pelvis and enters the gluteal region via greater sciatic foramen.
- It emerged inferiorly to the periformis muscles and it descends in an inferolateral direction.
- The nerves moves through the gluteal region, it crosses the posterior surfaces of the superior gemellus, obturator internus, inferior gemellus and quadratus femoris muscles.
- Posterior thigh by passing deep to the long head of the

biceps femoris

- 1) The nerve gives rise to branches to the hamstring muscles and adductor magnus.
- 2) When the sciatic nerve reaches the apex of the popliteal fossa, it terminates by bifurcating into the tibial and common fibular nerves.

## "Sciatic Nerve"

- 1) The sciatic nerve is a major nerve of the lower limb.
- 2) Sciatic nerve is a thick flat band, approximately 2 cm wide - the largest nerve in the body.
- 3) The sciatic nerve is the largest and longest nerve in the human body.

## "Origin"

The sciatic nerve starts in the lower spine and follows a long path through the buttock, down the back of the thigh.

and leg, and finally ends in the foot.

## "Functions of Sciatic Nerve"

The sciatic nerve supplies major parts of the thighs, legs, and feet has both motor and sensory functions.

## "Motor functions"

The motor functions include:-

- 1) Knee flexion: Bending the knee.
- 2) Hip adduction: Bringing the thighs together movement of the leg toward the midline of the body.
- 3) Planter flexion: Pointing the foot downward.
- 4) Flexion of toes: Pointing the toes downward.
- 5) Dorsiflexion of foot:- Pointing the foot upward.
- 6) Extension of toes: Pointing the toes upward.

when the sciatic nerve is compressed it is common to experience reduce

reduced motor function and weakness in the affected leg.

### "Sensory Functions"

The sciatic nerve provides sensation to the skin over the following areas:-

- 1) Front, back, and outer part of the thigh.
- 2) Front, back and outer parts of the lower leg.
- 3) The ~~lower~~ top and outer side of the foot.
- 4) Sole of foot.
- 5) The web between the first and second toes.

Sensory system symptoms such as burning, tingling, and or numbness may be experienced when the sciatic nerve is inflamed or irritated.

Q5 Enumerate muscles of the medial compartment of thigh, what is tarsal tunnel syndrome?

### "Medial Compartment of thigh"

~~The~~ The medial compartment of the thigh is frequently called the adductor compartment because the major action of this group of muscles is adduction, except for the hamstring portion of the adductor magnus which performs as a hamstring and is supplied by a different nerve than the obturator, which supplies the muscles of the medial compartment.

1) Adductor magnus:

It is a large triangular muscle, situated on the medial side of the thigh.  
origin: Pubis, tuberosity of the ischium.

### Gracilliss:-

- 1) Gracilliss is one of the muscle found in the groin.
- 2) It starts at the external point of the ischiopubic ramus (on the Pubic bone)

### Adductor longus:-

In the human body, the adductor longus is a skeletal muscle located in the thigh. one of the adductor muscles of the hip.

### Adductor brevis:-

It is a muscle in the thigh situated immediately deep to the pectineus and adductor muscle group.

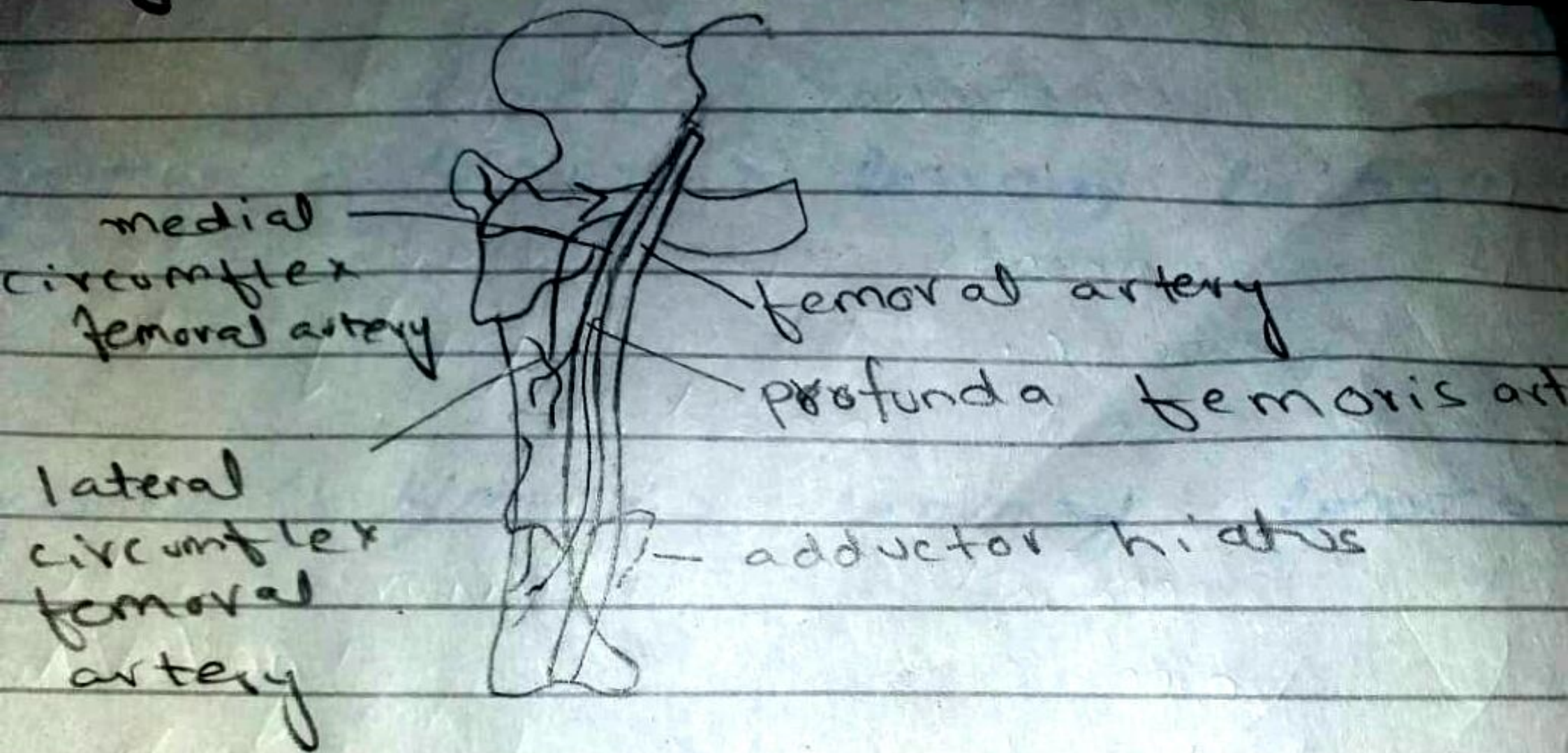
### Obturator externus:-

- 1) It is located in the pelvis on the anterior aspect of the innominate bones.
- 2) It covers the obturator foramen and is located deep to pectineus and superior parts of the adductor of the thigh.

## "Tarsal Tunnel Syndrome"

- \*) This is a condition where the tibial nerve is compressed within the tarsal tunnel, (posterior to the medial)
- \*) These are varying causes of which the main three are:
  - \*) osteoarthritis.
  - \*) Rheumatoid arthritis.
  - \*) Post-trauma ankle deformities.
- \*) Patients complain of paraesthesia in the ankle and sole of the foot, which can radiate up the leg slightly.
- \*) It is aggravated by activity and relieved by rest.
- \*) Tarsal tunnel symptoms can be treated conservatively by anti-inflammatory drugs and changes in footwear.
- \*) If these interventions are not successful, the flexor retinaculum can be cut surgically, which releases the pressure.





# Blood Supply to thigh and gluteal region:-

## Femoral Artery:-

Main artery of thigh limb is femoral artery. Femoral artery is continuation of external iliac artery.

## Femoral Triangle:-

The external iliac artery becomes femoral artery when it enters the femoral triangle.

## Branches:-

In femoral triangle the profunda femoris artery arises which travels distally and posteriorly giving three branches:-

- 1- Perforating Branch
- 2- Lateral femoral circumflex artery
- 3- Medial femoral circumflex artery

## 1- Perforating Branch:-

It consist three or four arteries. It supply medial and posterior thigh.

## 2- Medial femoral circumflex artery:-

It surrounds posterior side of femur. It supply the neck and head.

## 3- Lateral femoral circumflex artery:-

It surrounds anterior side of femur and supply blood to lateral side of thigh.

## Adductor Canal:-

When exit femoral triangle the femoral artery descends down anterior surface of thigh through adductor canal. It supply anterior thigh muscles.

## Adductor hiatus:-

The adductor canal ends at the adductor magnus opening, called adductor hiatus.

## Entering:-

The femoral artery enters into posterior compartment through this opening.

## Popliteal Artery:-

The femoral artery is called as popliteal artery.