

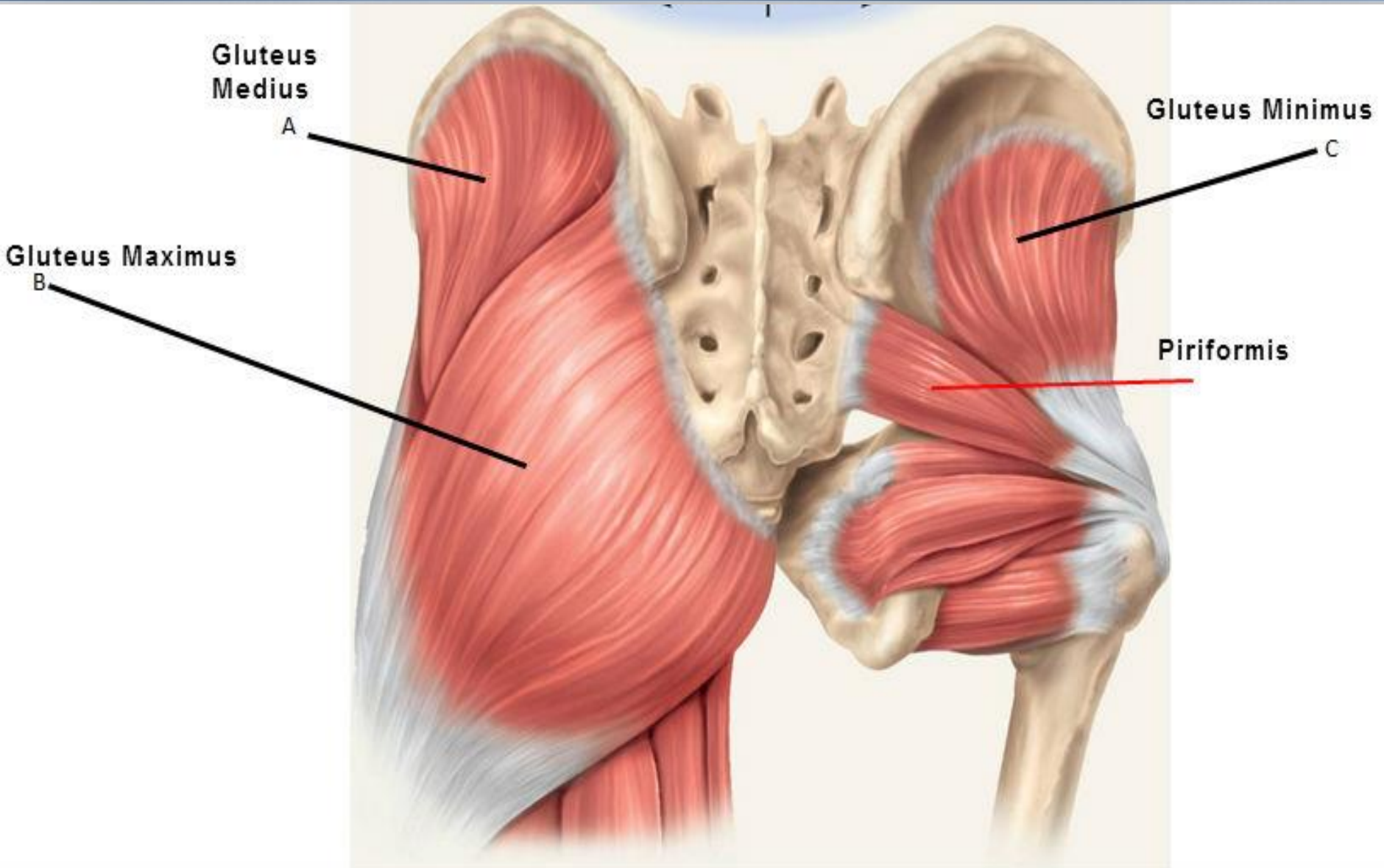
# GLUTEAL REGION AND BACK OF THIGH

**Dr. Ahmed Salman**

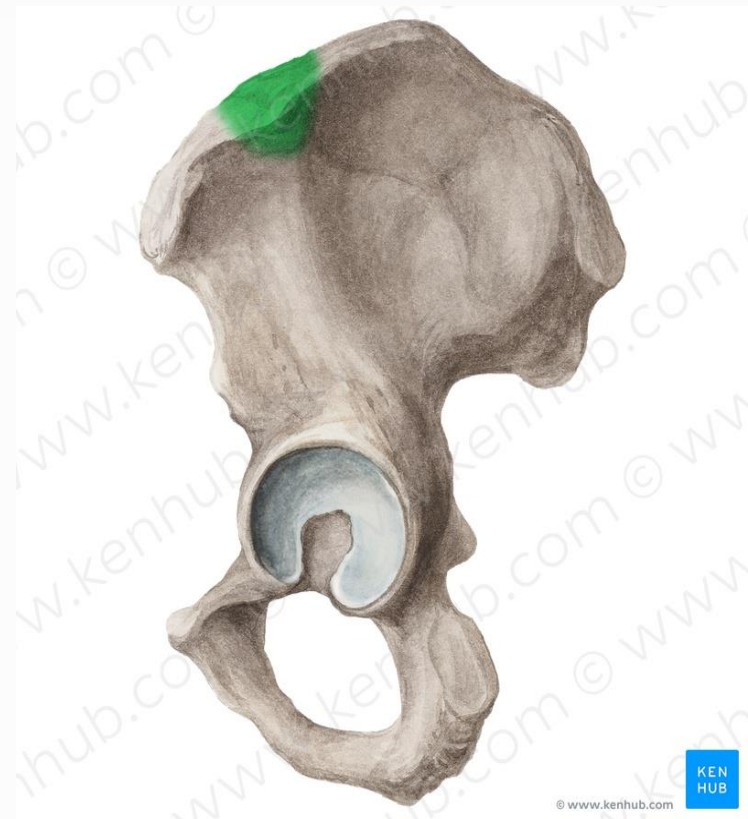
**Dr. Maha ELBeltagy**

Associate Professors of Anatomy, The University Of Jordan

# Gluteal Region



# Iliotibial tract



# Iliotibial tract

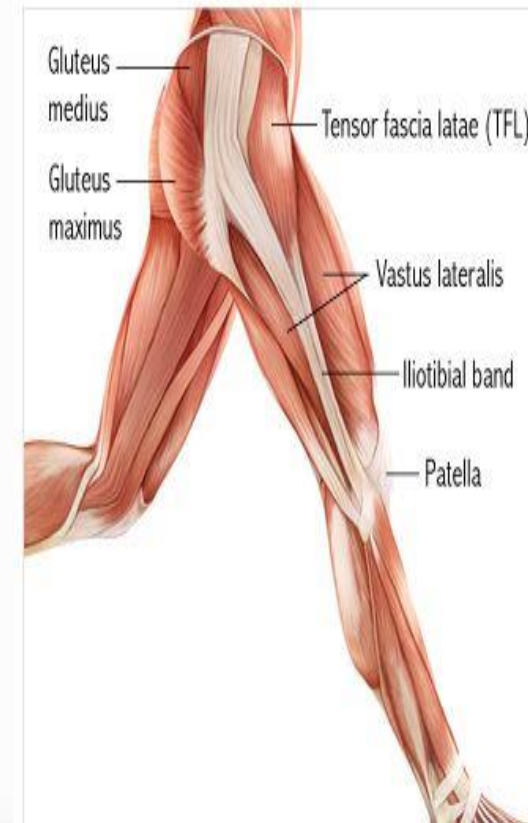
The deep fascia of the thigh is thickened laterally to form **iliotibial tract**

- ✓ Attachment :
  - Above : iliac tubercle
  - Below : the lateral condyle of the tibia.
- ✓ It receives the insertion of the tensor fasciae latae and gluteus maximus muscles
- ✓ Function : -Help in knee extension
  - Steadies femur on the tibia

## Iliotibial Band Syndrome (ITBS)

- It is more common within runners
- It occurred when the Iliotibial tract becomes tight or inflamed .
- Symptom is typically swelling and pain on the outside of the knee

REED ONLY



## **I- Muscles**

1. Gluteus maximus
2. Gluteus medius
3. Gluteus minimus
4. Tensor fascia latae

gluteus medius

gluteus maximus

gluteus minimus

IMPORTANT

tensor fasciae latae

IMPORTANT

sartorius

IMPORTANT

rectus femoris

gemellus superior

gluteus medius

IMPORTANT

gemellus inferior

obturator externus

quadratus femoris

semitendinosus

biceps femoris

adductor magnus

semimembranosus

IMPORTANT

psoas

iliacus

pectineus

gluteus maximus

vastus intermedius

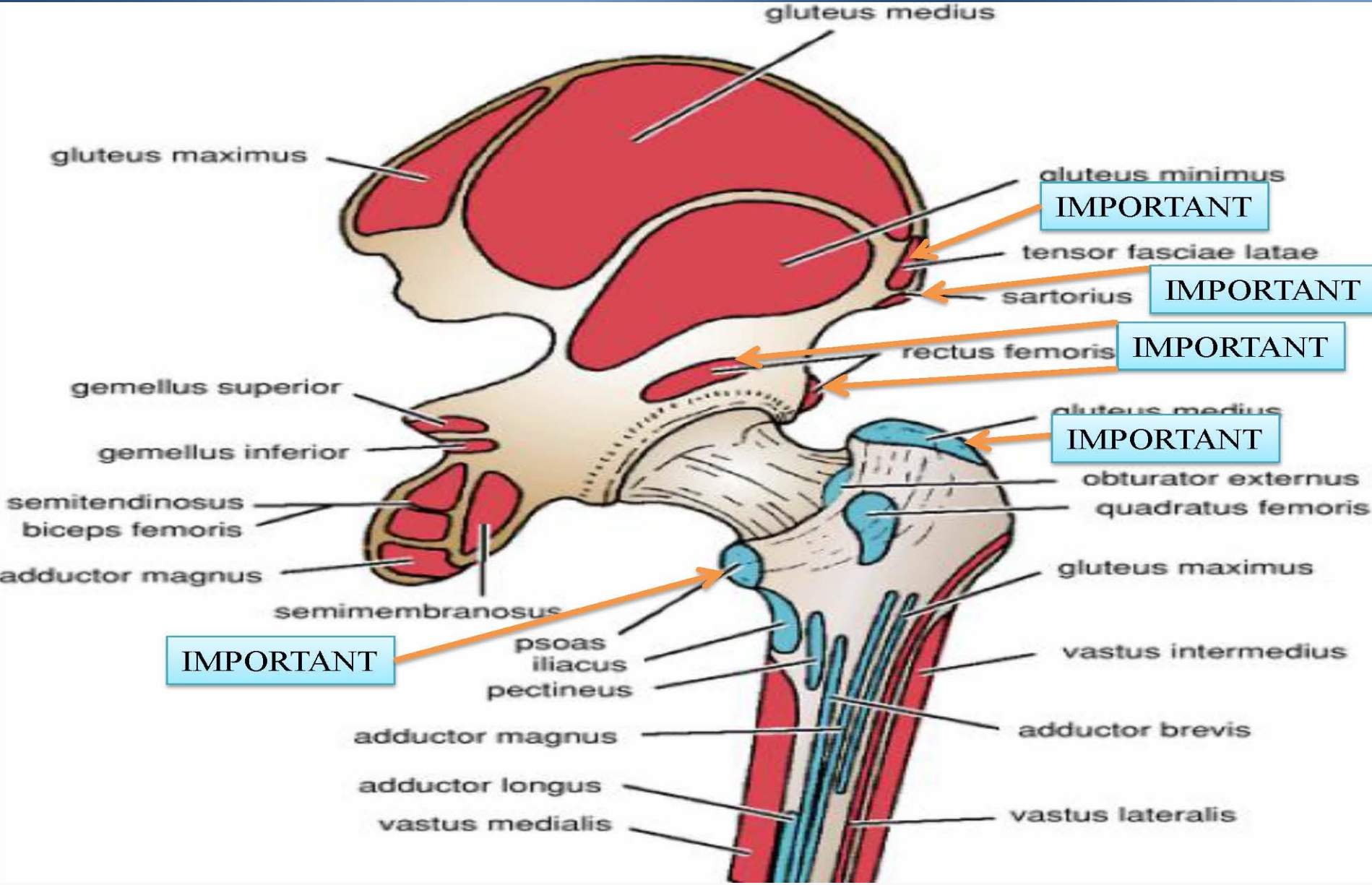
adductor magnus

adductor longus

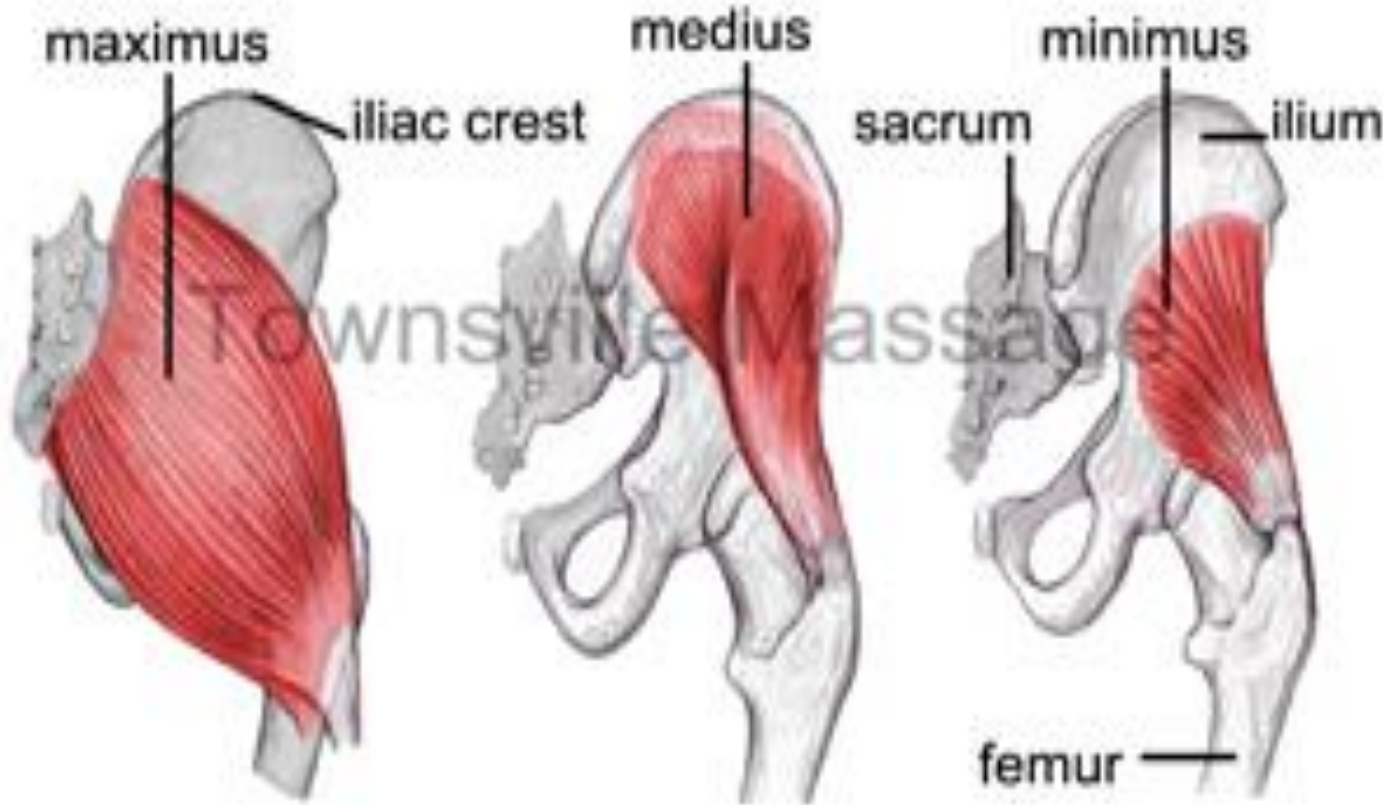
vastus medialis

adductor brevis

vastus lateralis



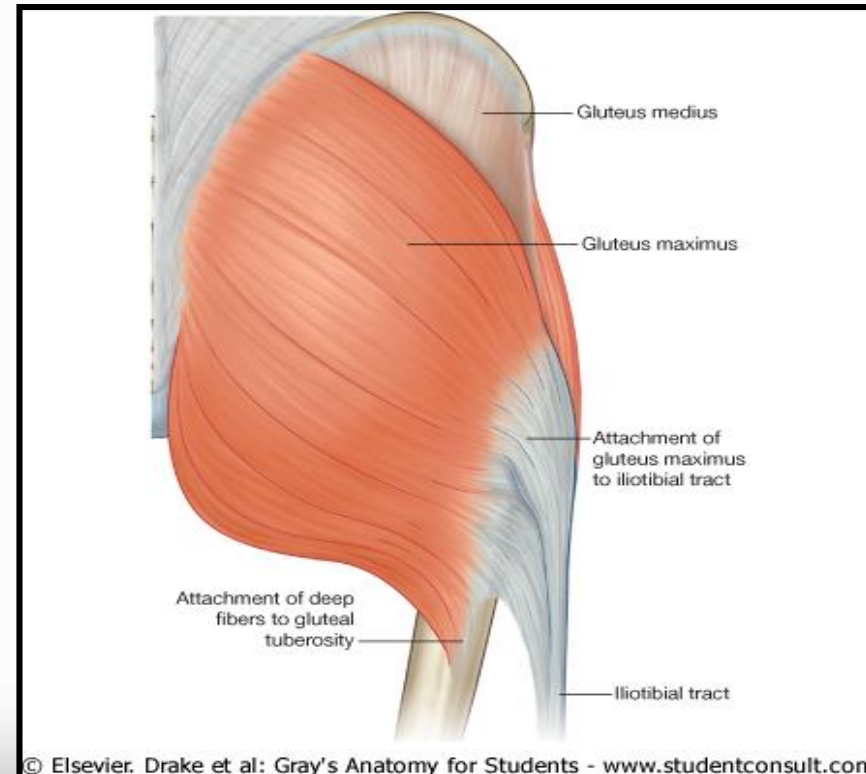
# Gluteal Muscles



All are innervated by the **Superior** gluteal nerve  
**EXCEPT**  
Gluteal maximus by inferior gluteal nerve

# Gluteus maximus

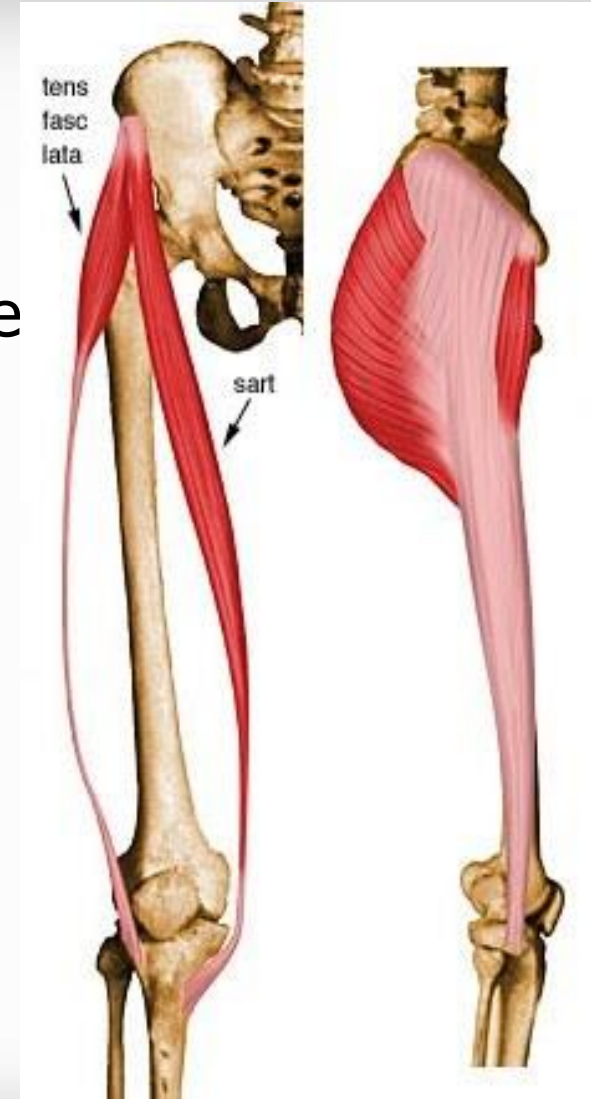
- ✓ **Origin** : Outer surface of Ilium, sacrum and coccyx
- ✓ **Insertion** :  
Gluteal tuberosity of femur  
iliotibial tract
- ✓ **Nerve Supply**:  
Inferior gluteal nerve
- ✓ **Action** :  
Extends and lateral rotation  
of thigh.  
  
Extends the knee (through  
iliotibial tract)





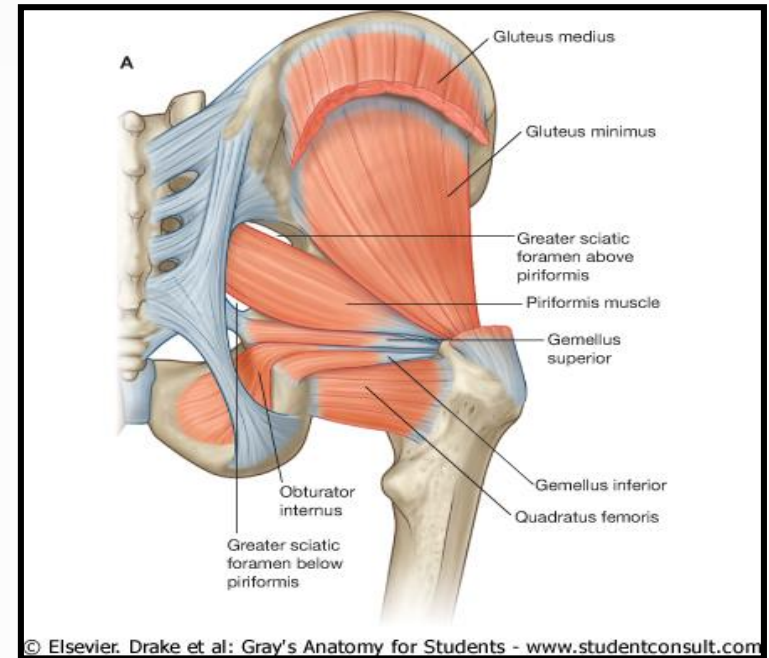
# Tensor fascia latae

- ✓ Origin: Iliac crest
- ✓ Insertion : iliotibial tract
- ✓ Nerve supply : Superior gluteal nerve
- ✓ Action : Helps gluteus maximus in extending the knee joint



# Gluteus medius and minimus

- ✓ Origin: Outer surface of Ilium
- ✓ Insertion : Greater trochanter of femur
- ✓ Nerve supply : Superior gluteal nerve
- ✓ Action :
  - ❖ Abduction
  - ❖ Prevent tilting of the pelvis when the opposite limb is raised





# Clinical Anatomy:

1. In **unilateral paralysis** of Gluteal medius and minimus, the patient exhibits a lurching gait with a positive Trendelenburg's sign.

In standing on the affected side, the pelvis will tilt towards the unsupported side.

2. In **bilateral paralysis** of Gluteal medius and minimus, the patient exhibits a waddling gait in which the trunk is flexed from side to side with each step during walking.

**On standing on the diseased side the sound side sags**

# Paralysis of gluteus medius and minimus

On standing on the diseased side the sound side sags



Normal

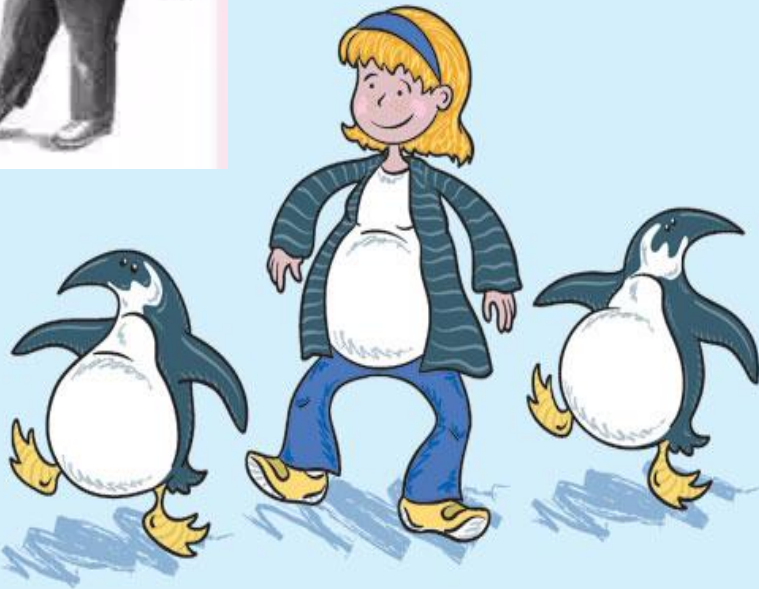


Trendelenburg Sign  
Drop of pelvis when lifting leg  
opposite to weak gluteus medius

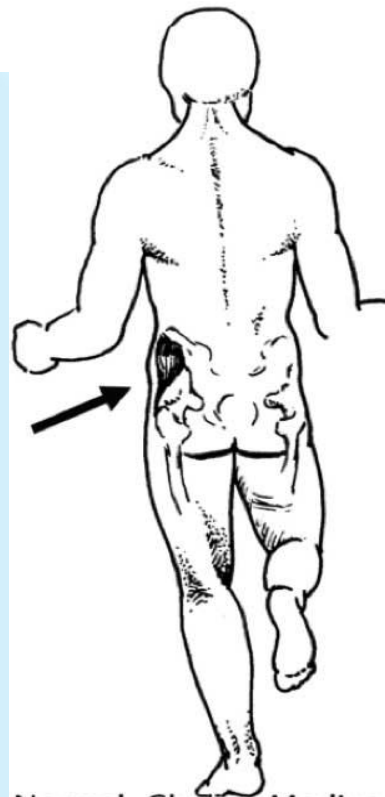
Trendelenburg test

# Injury of superior gluteal nerve

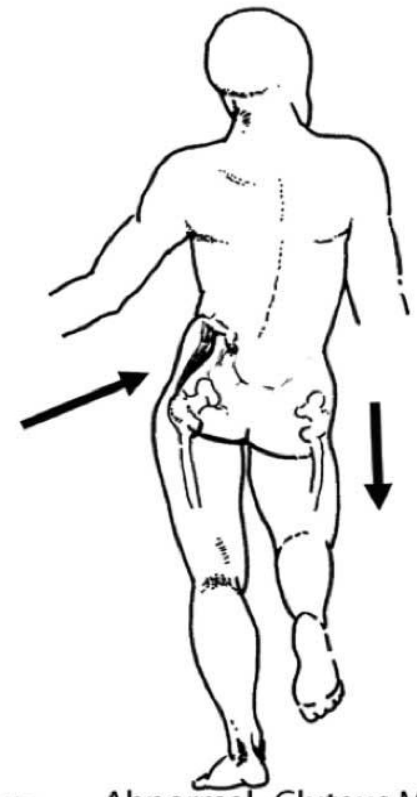
Unilateral injury of superior gluteal nerve leads to lurching gait.  
Bilateral injury of superior gluteal nerve leads to waddling gait.



Trendelenberg Test



Normal- Gluteus Medius contracts  
Opposite hip is elevated



Abnormal- Gluteus Medius  
weak- opposite hip drops

# Lateral rotators of the thigh

1-Piriformis

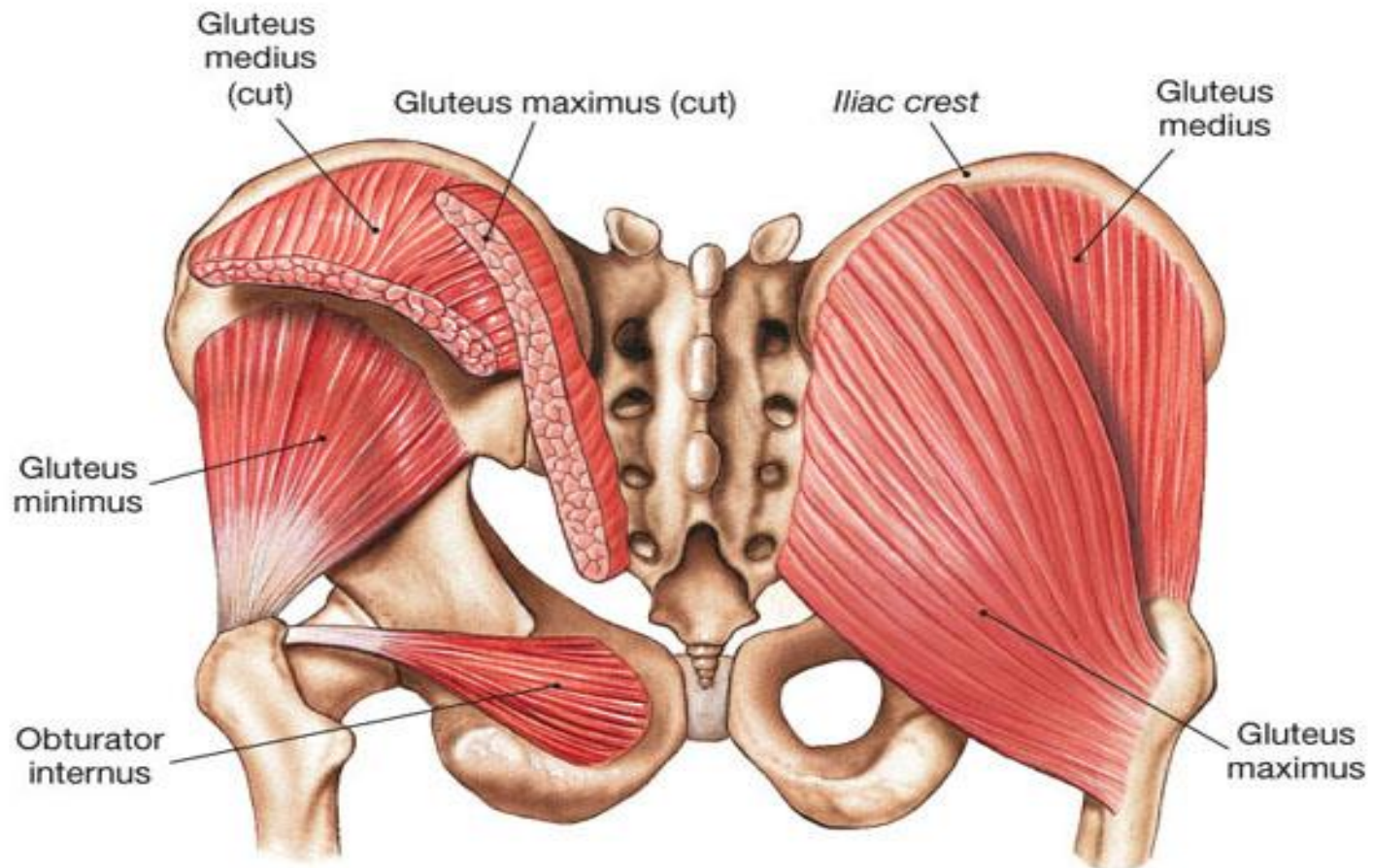
2-Obturator internus

3-Superior gemillus

4-Quadratus femoris

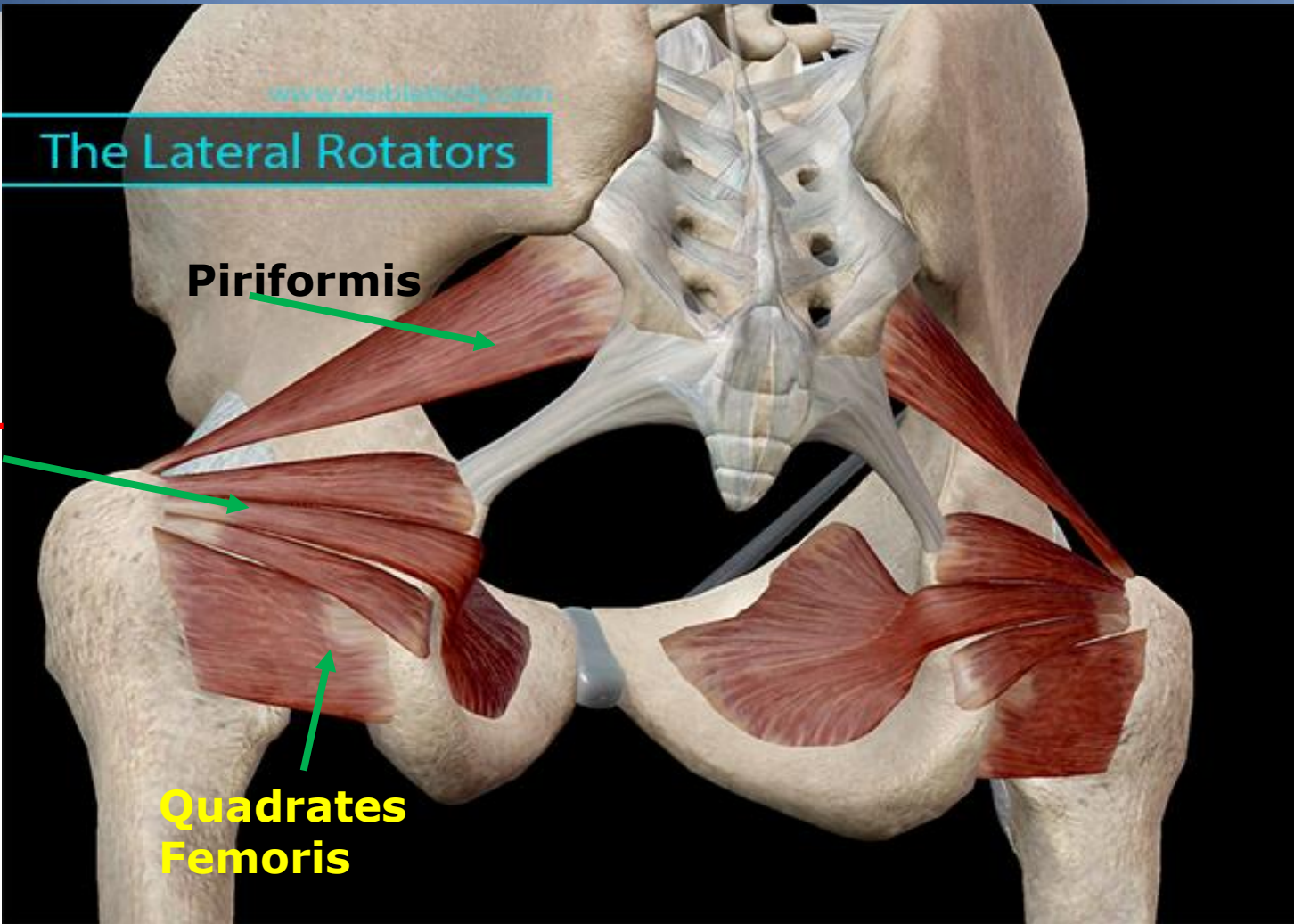
5-Inferior gemillus

6-Obturator externus



**(c) Gluteal and lateral rotators, posterior view**





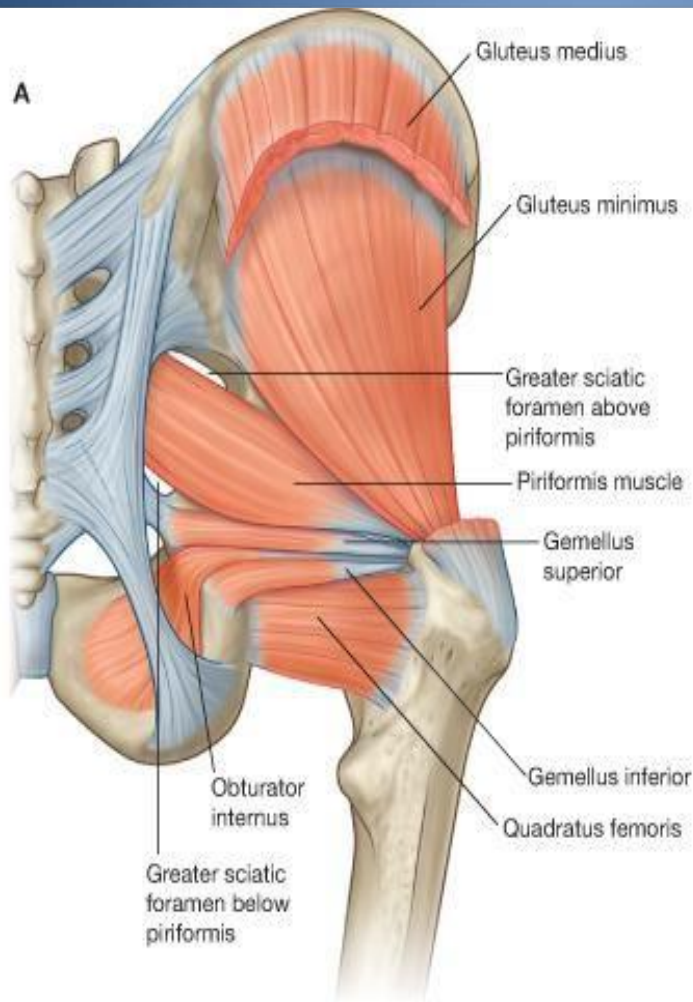
**The Lateral Rotators**

**Piriformis**

**Obturator  
internus  
and two  
Gemelli**

**Quadrates  
Femoris**

# Lateral Rotators



# Lateral rotators of the thigh

1-Piriformis

N.S: S1,S2

2-Obturator internus

N.S: Nerve to obturator internus

3-Superior gemillus

N.S: Nerve to obturator internus

4-Quadratus femoris

Nerve to quadratus femoris.

5-Inferior gemillus

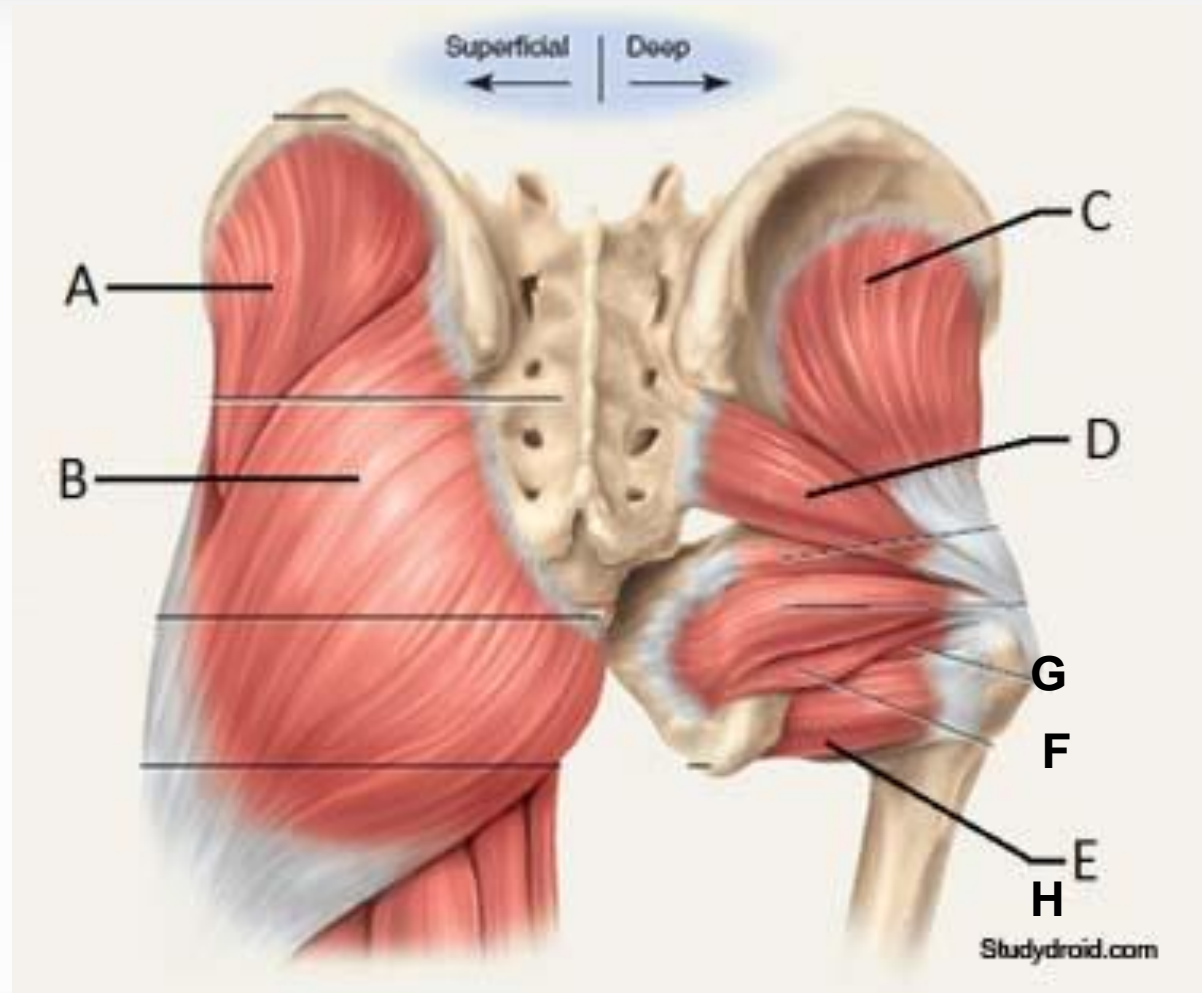
N.S: Nerve to quadratus femoris.

6-Obturator externus:

N.S: Obturator nerve

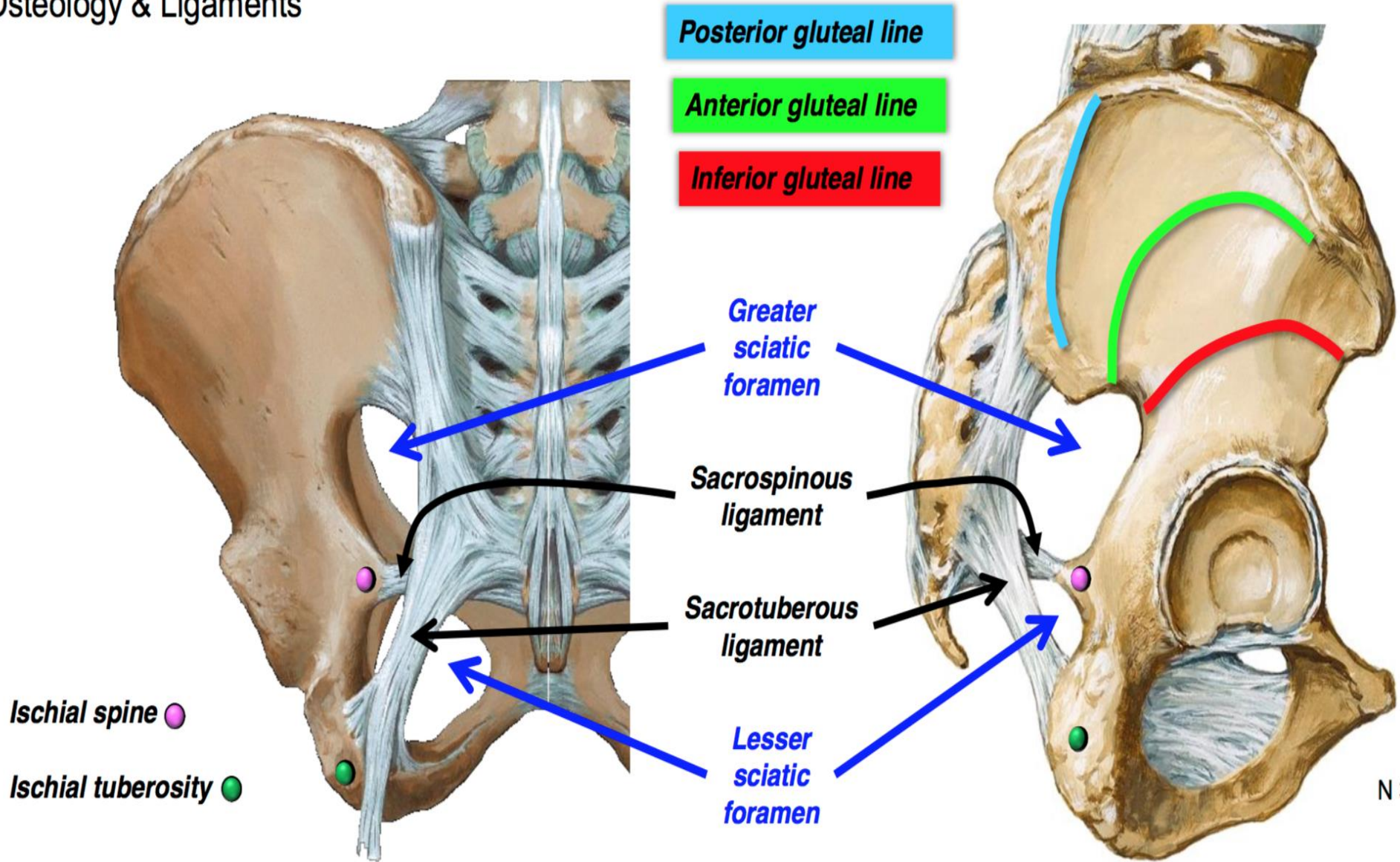
# Identify the marked muscles and their nerve supply

A-  
B-  
C-  
D-  
E-  
F-  
G-  
H-

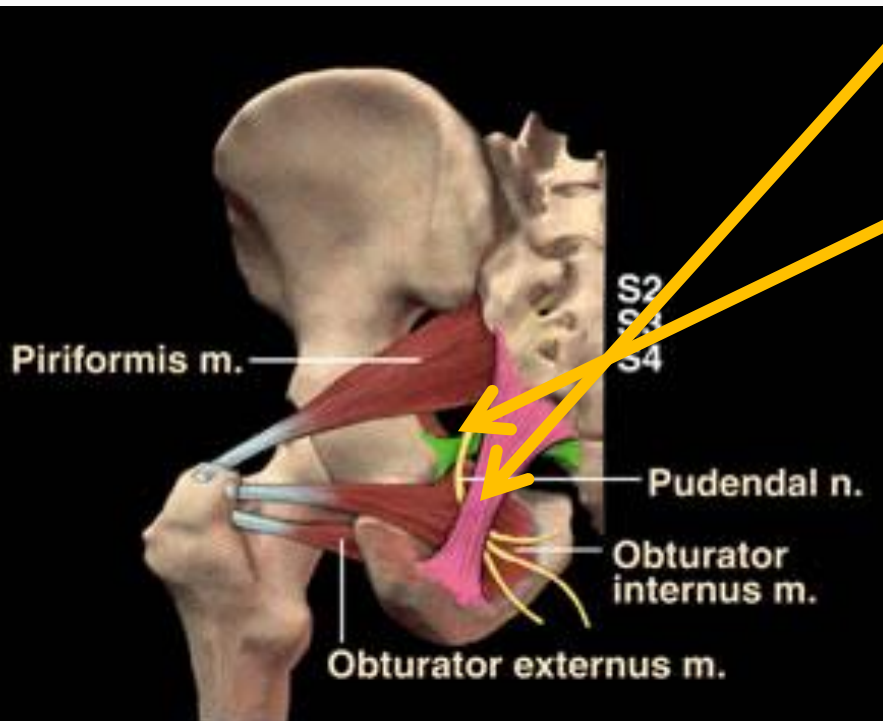


# Greater and lesser sciatic foramens

Osteology & Ligaments



# Greater and lesser sciatic foramens



## **Sacrospinous ligament**

Between ischial spine and back of sacrum & coccyx

## **Sacrotuberous ligament**

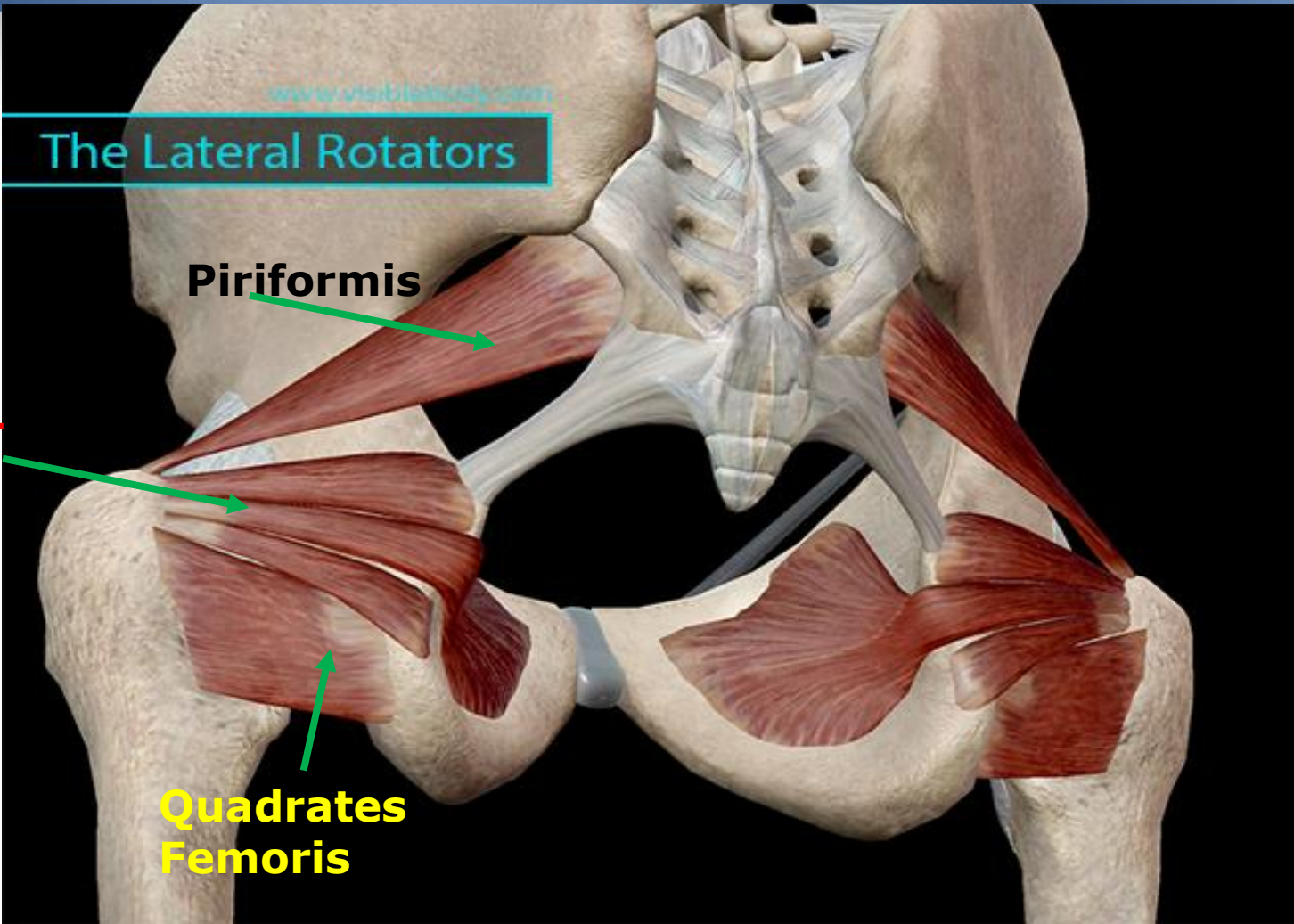
Between ischial tuberosity and back of sacrum & coccyx

## **Greater sciatic foramen**

Between **greater sciatic notch**, sacrospinous and sacrotuberous ligaments.

## **Lesser sciatic foramen**

Between **lesser sciatic notch**, sacrospinous and sacrotuberous ligaments.



**The Lateral Rotators**

**Piriformis**

**Obturator  
internus  
and two  
Gemelli**

**Quadrates  
Femoris**

# Branches of Sacral Plexus

- 1-Sciatic
- 2-Superior gluteal Nerve
- 3-Inferior gluteal nerve
- 4-Posterior cutaneous nerve of thigh
- 5-Nerves to the piriformis
- 6-Nerve to the quadratus femoris
- 7-Nerve to obturator internus
- 8- Pudendal Nerve



# Structures Passing in Greater and Lesser Sciatic Foramen

**Greater sciatic foramen** (7 nerves+3 vessels+1 muscle)

## **Above Piriformis**

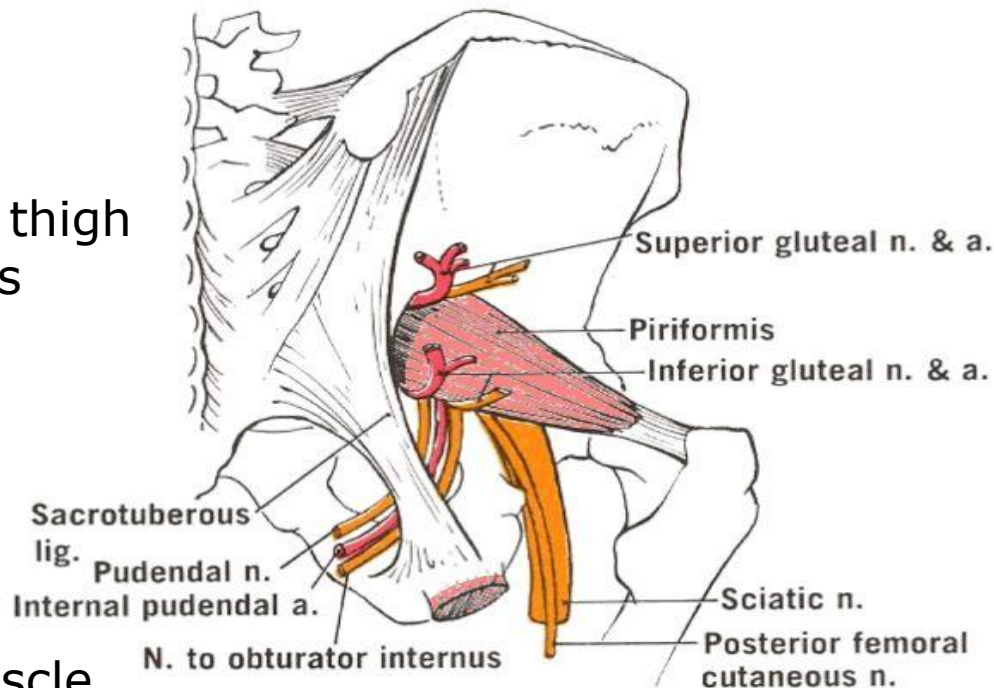
Superior gluteal nerve and vessels

## **Below Piriformis**

- Sciatic nerve
- Posterior cutaneous nerve of the thigh
- Inferior Gluteal nerve and vessels
- Nerve to Quadratus femoris
- **Pudendal nerve**
- **Internal pudendal vessels**
- **Nerve to Obturator Internus**

## **Lesser Sciatic foramen**

- Tendon of Obturator Internus Muscle
- **Pudendal nerve**
- **Internal pudendal vessels**
- **Nerve to obturator internus**



# Sciatic Nerve

## Origin :

From sacral plexus, L4,5  
,S1,2,3.

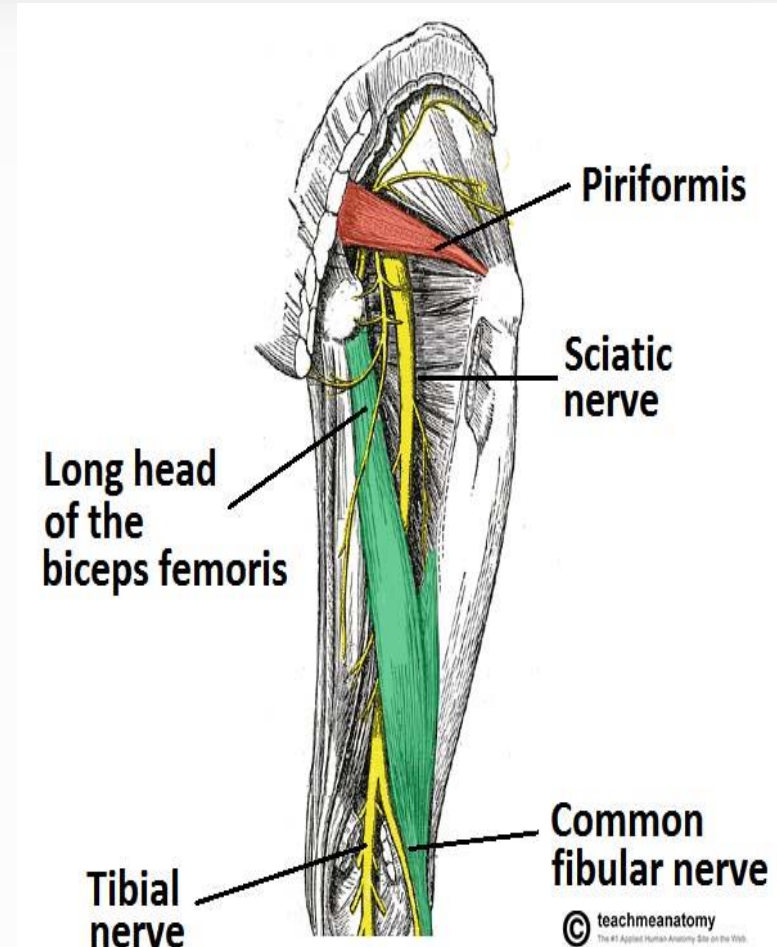
## Course :

-It leaves the pelvis through the greater sciatic foramen below piriformis .

-It descends in the gluteal region and back of the thigh.

## Termination:

It ends at the popliteal fossa by dividing into tibial and common fibular nerves .



**Sciatic nerve**

```
graph TD; A[Sciatic nerve] --> B[Tibial nerve]; A --> C[Common peroneal]; C --> D[Superficial peroneal]; C --> E[Deep peroneal];
```

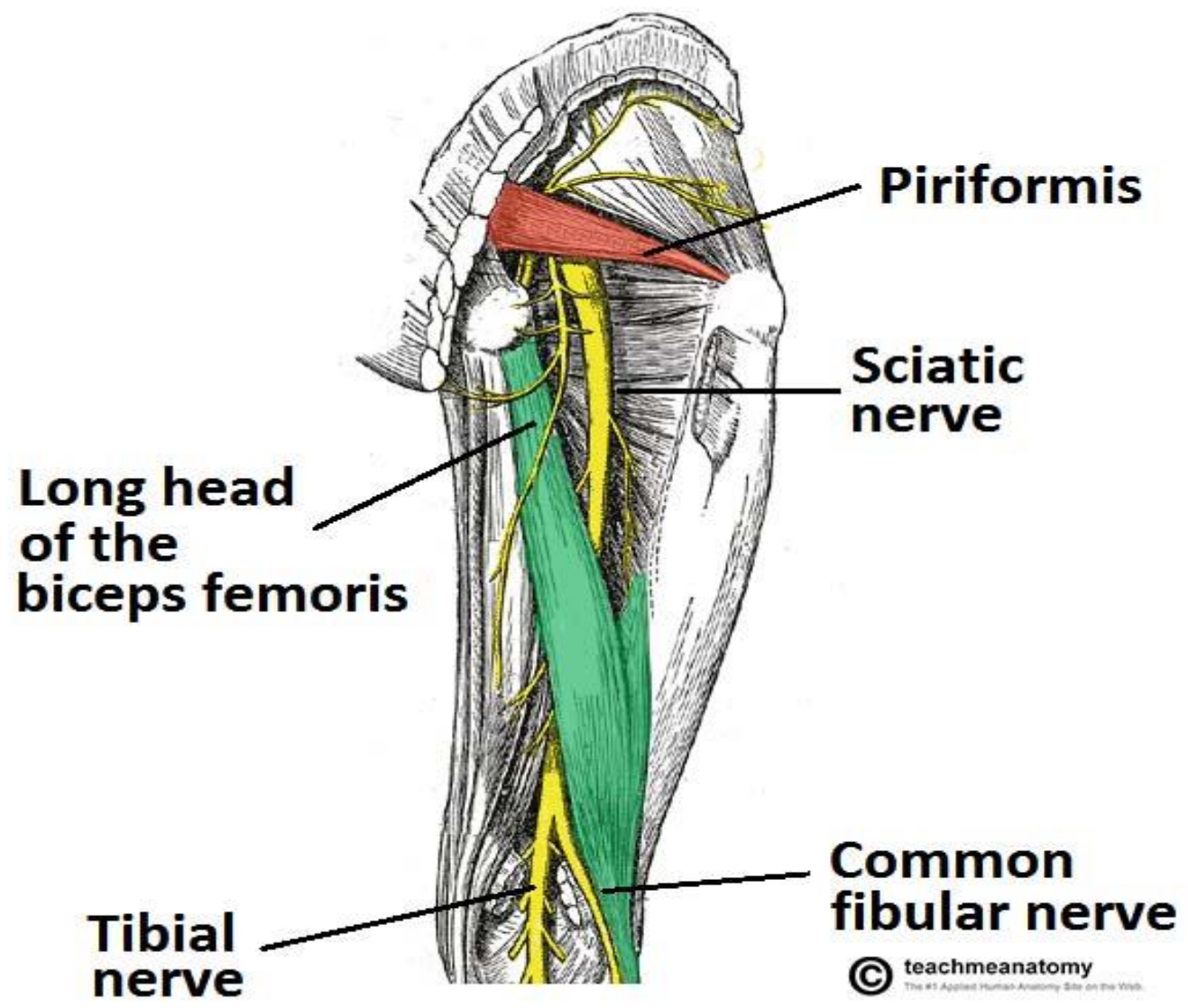
**Tibial nerve**

**Common peroneal**

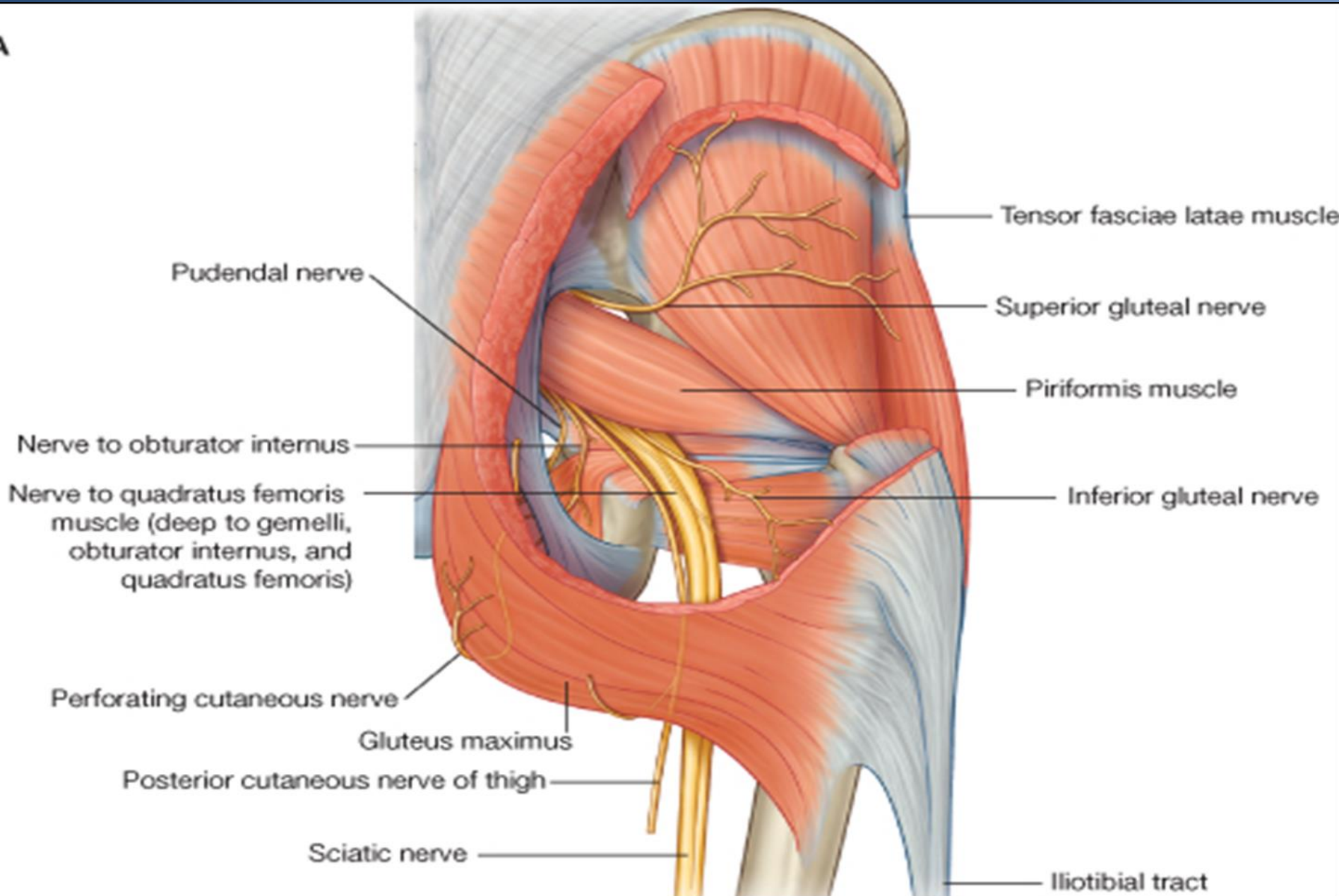
**Superficial peroneal**

**Deep peroneal**

# Sciatic nerve



A



# Sciatica

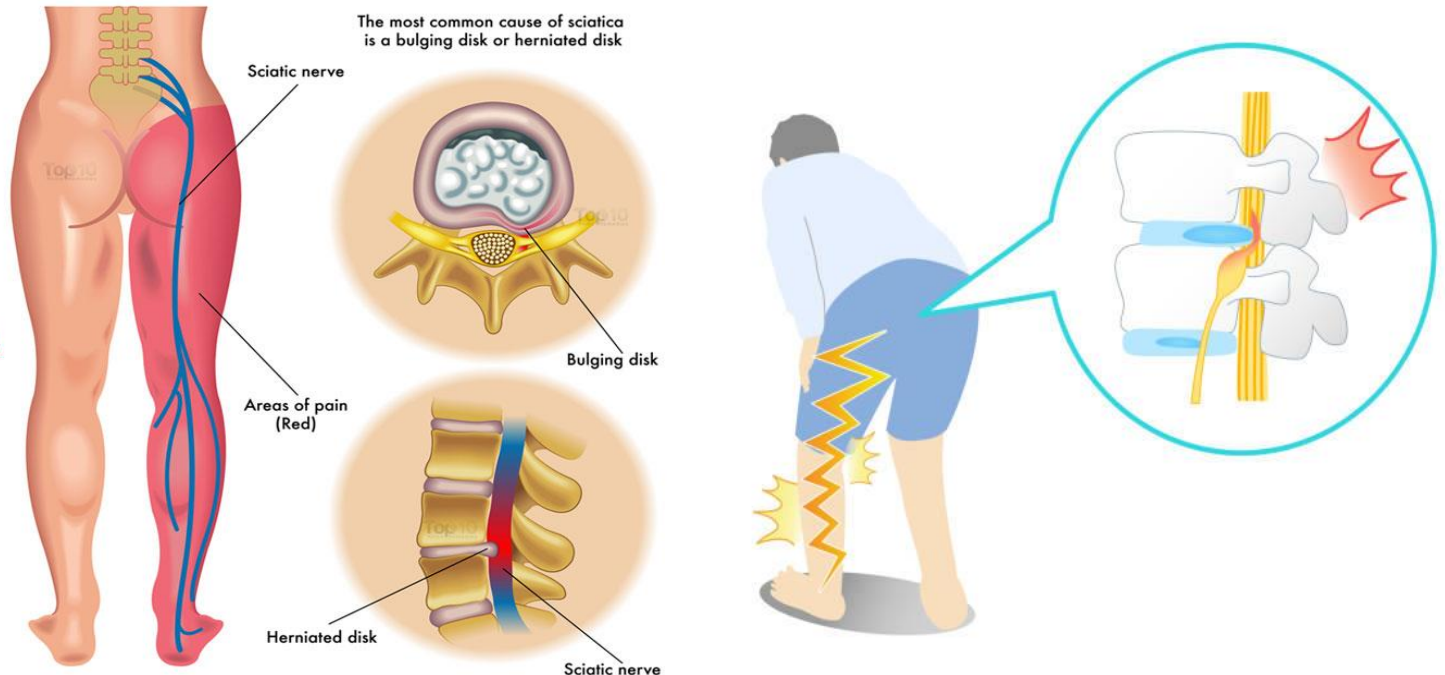
## Causes :

Prolapse of an intervertebral disc with pressure of one or more roots of lower lumbar or sacral nerves.

## Manifestation:

Pain along the sensory distribution of the sciatic nerve as, posterior aspect of the thigh, the posterior and lateral sides of the leg, and the lateral part of the foot.

Top10  
Home Remedies  
**SCIATICA**



# Sciatic nerve Injury

## **Causes :**

Penetrating wounds, fractures of the pelvis, or dislocations of the hip joint and Wrong intramuscular injections.

## **Manifestation :**

### **Motor :**

1-Week flexion of the knee

2-Foot drop

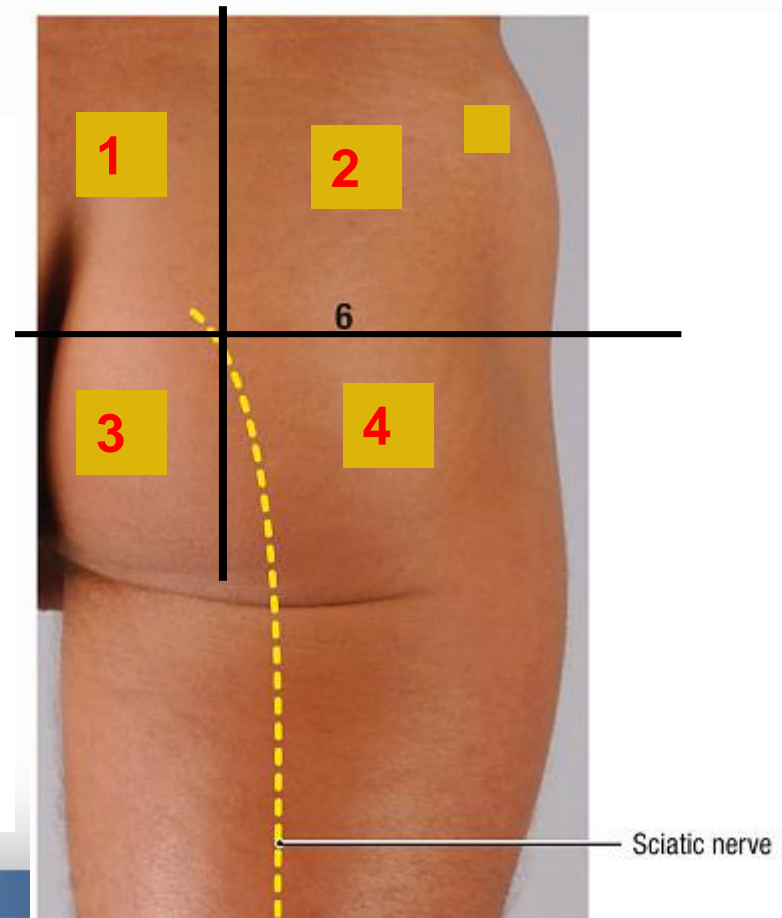
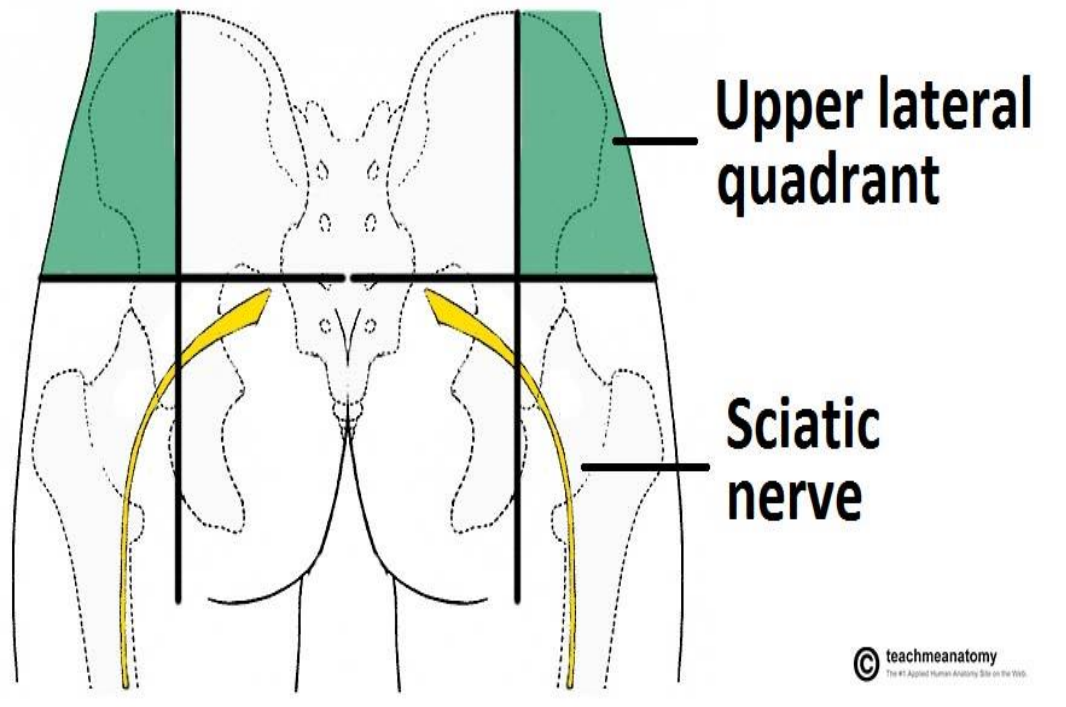
### **Sensory:**

loss of sensation below the knee, except for a narrow area down the medial side of the leg and the medial border of the foot.

# CLINICAL ANATOMY

- I.M (Intramuscular injection)

Which the most suitable quadrangle for IM injection?





# **Posterior Compartment of thigh Hamstring Muscles**

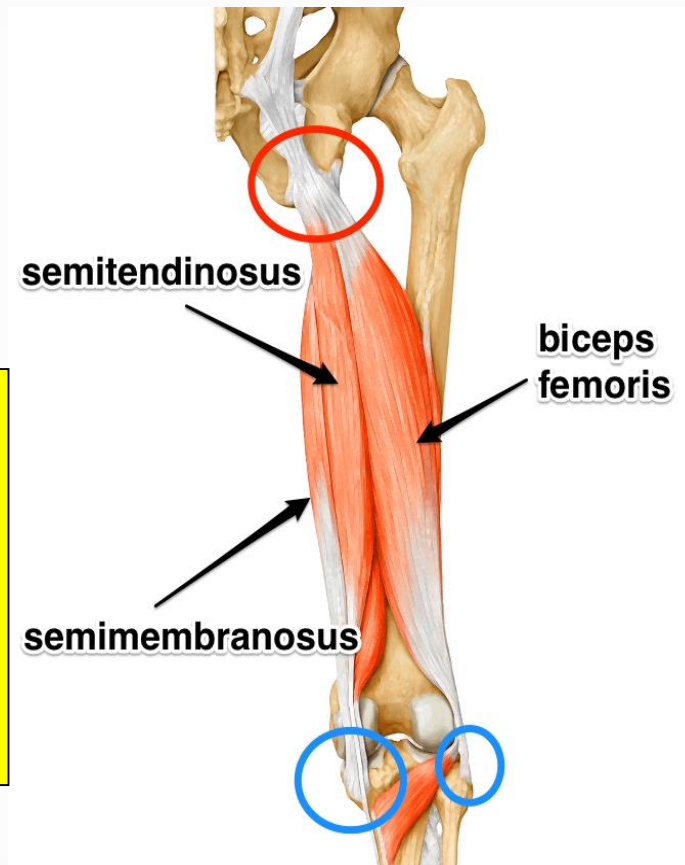
# Posterior Compartment of thigh - Hamstring

1. Biceps femoris (long and short heads)
2. Semitendinosus
3. Semimembranosus
4. Adductor Magnus (Ischial head)

All are innervated by Tibial branch of Sciatic nerve.

**EXCEPT**

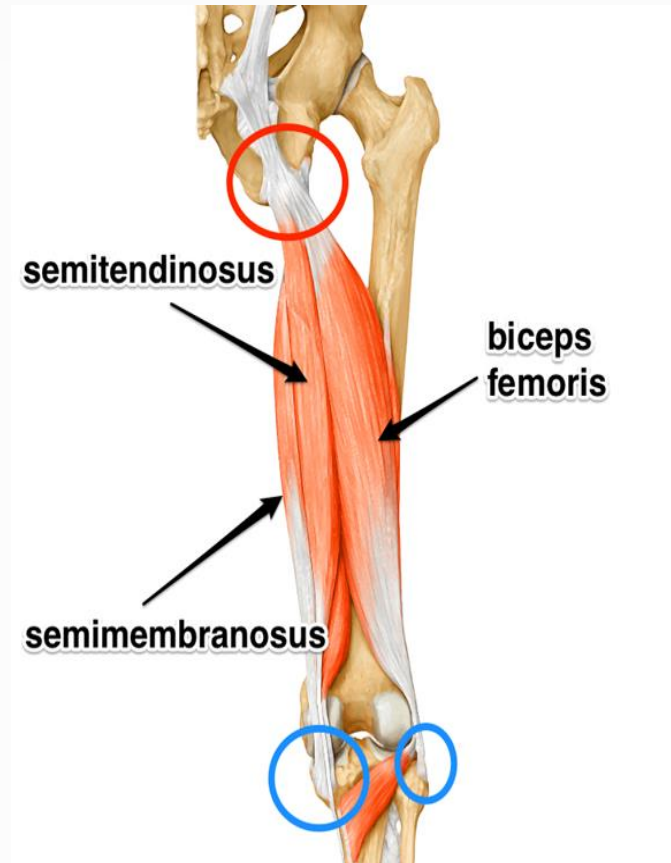
**Short head of biceps femoris** by common peroneal branch of Sciatic nerve



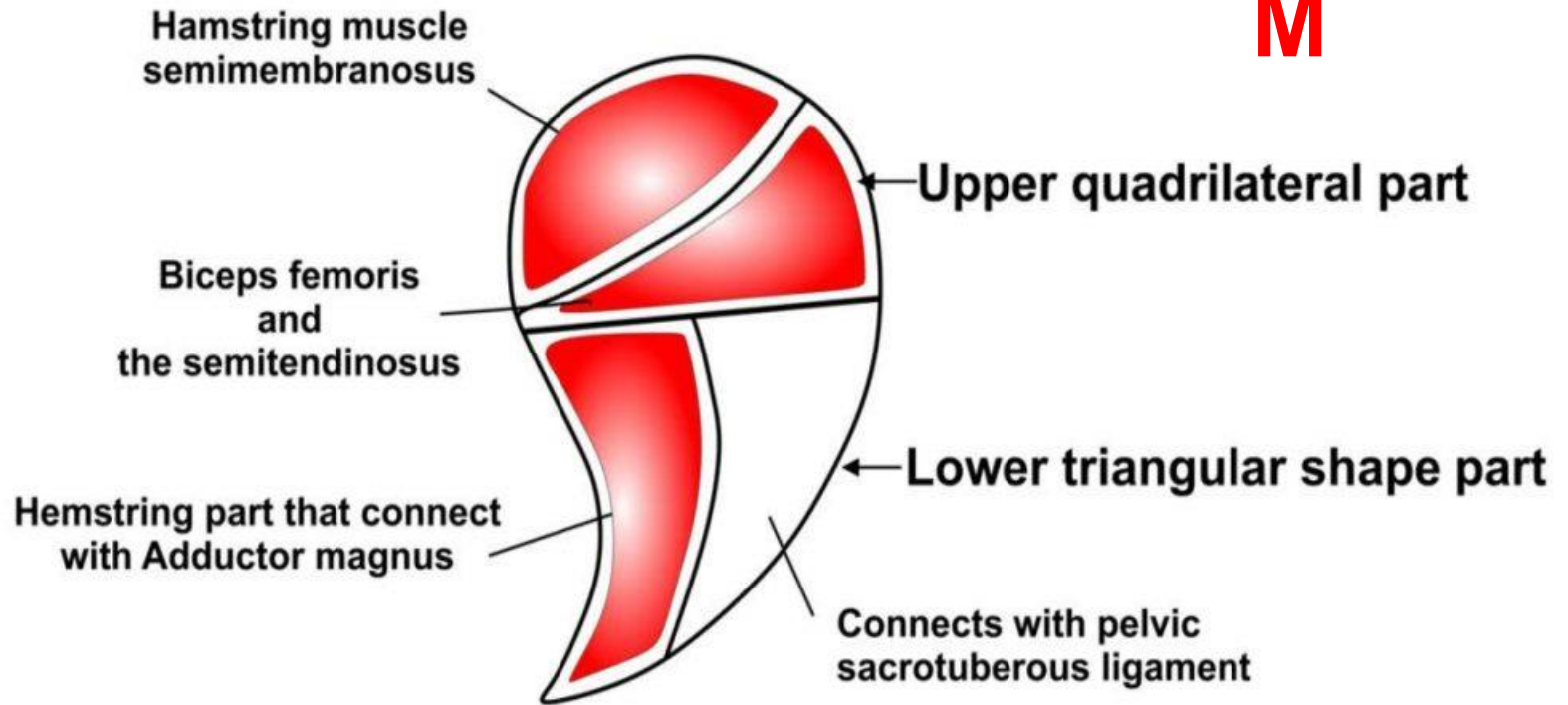
**Origin** : All from Ischial tuberosity **EXCEPT** Short head of biceps femoris from linea aspera and lateral supracondylar line.

✓ **Insertion** :

- ❖ Biceps femoris :  
styloid process of the fibula.
- ❖ Semitendinosus:  
upper part of medial surface of the tibia (SGS).
- ❖ Semimembranosus:  
Back of medial condyle of the tibia
- ❖ Adductor Magnus (Ischial head)  
Adductor tubercle of femur



**M**



Structure/division of Ischial Tuberosity

### **Action :**

All are Extends the hip (**EXCEPT** short head of Biceps ) and flex the knee

**Lateral muscle** rotate the knee laterally

**Medial muscle** rotate the knee medially

# Popliteal fossa

## Location:

Posterior to the knee joint

## Boundaries:

### **1. Above and lateral:**

biceps femoris.

### **1. Above and medial:**

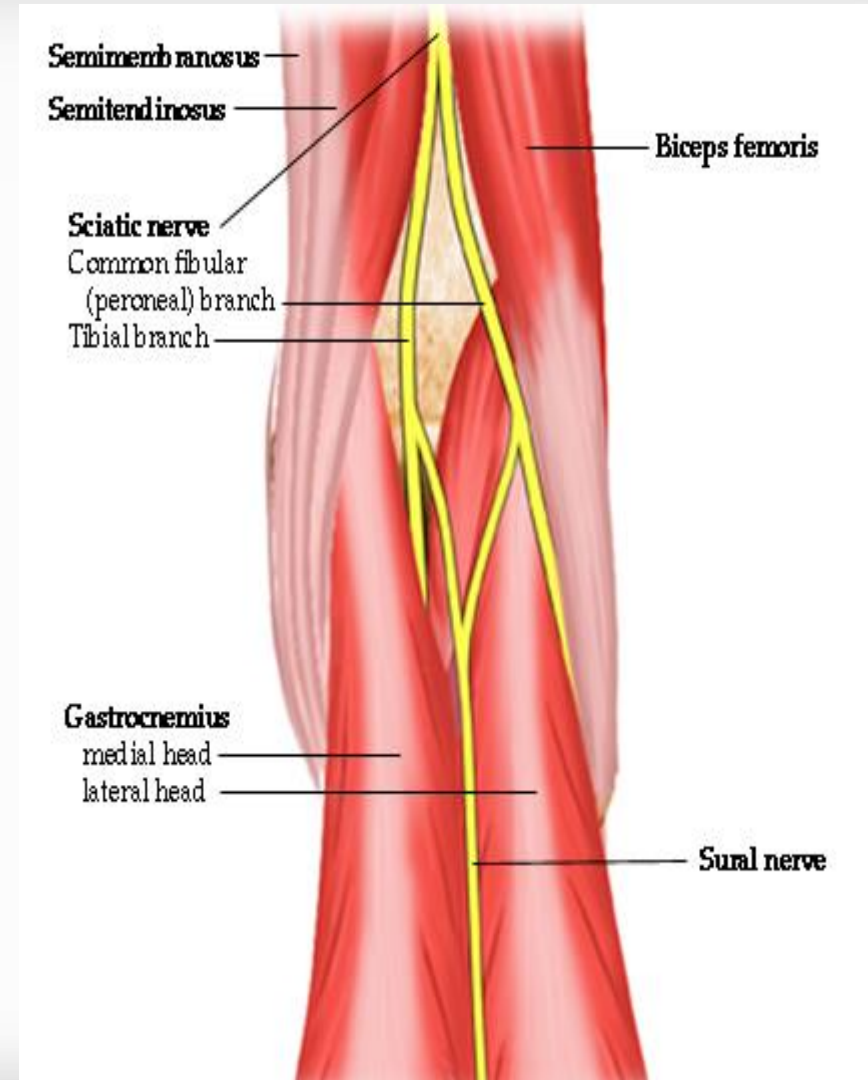
semitendinosus and semimembranosus.

### **2. Below and lateral:**

lateral head of gastrocnemius and plantaris.

### **3. Below and medial:**

medial head of gastrocnemius.



# Popliteal fossa

## Roof:

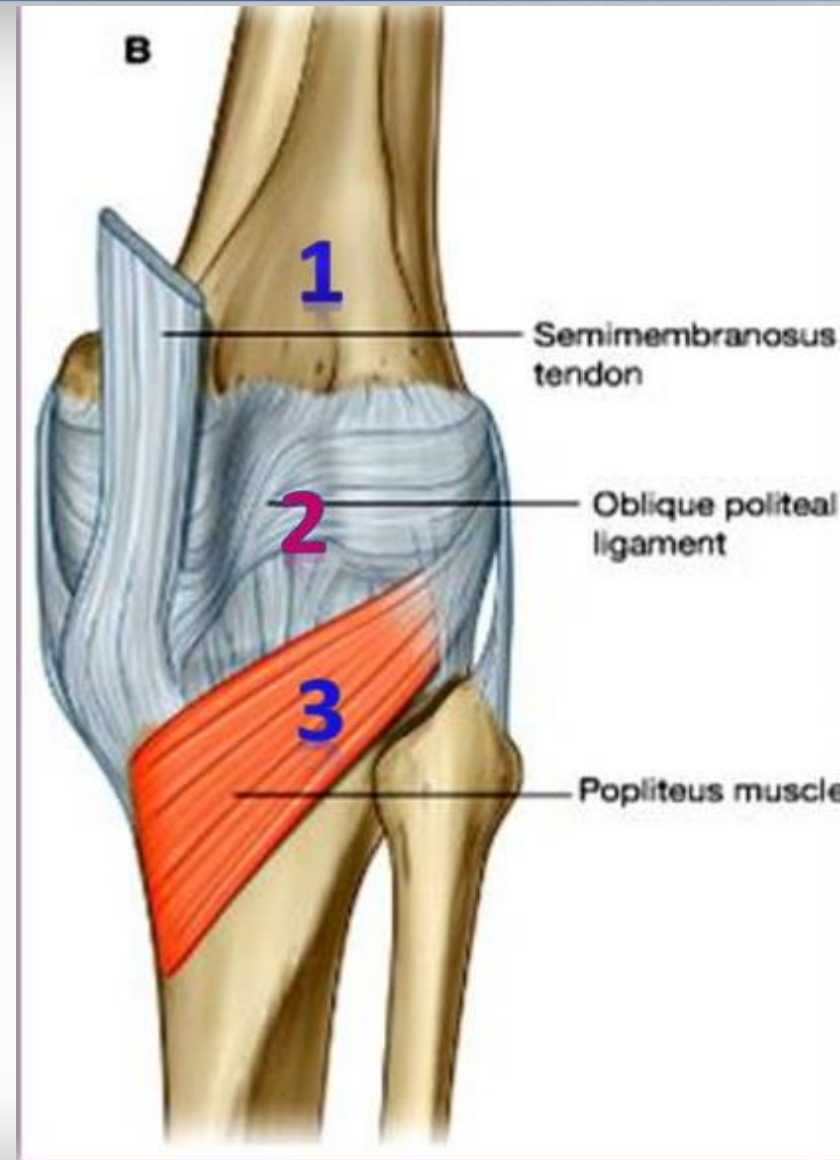
- Skin
- Deep fascia

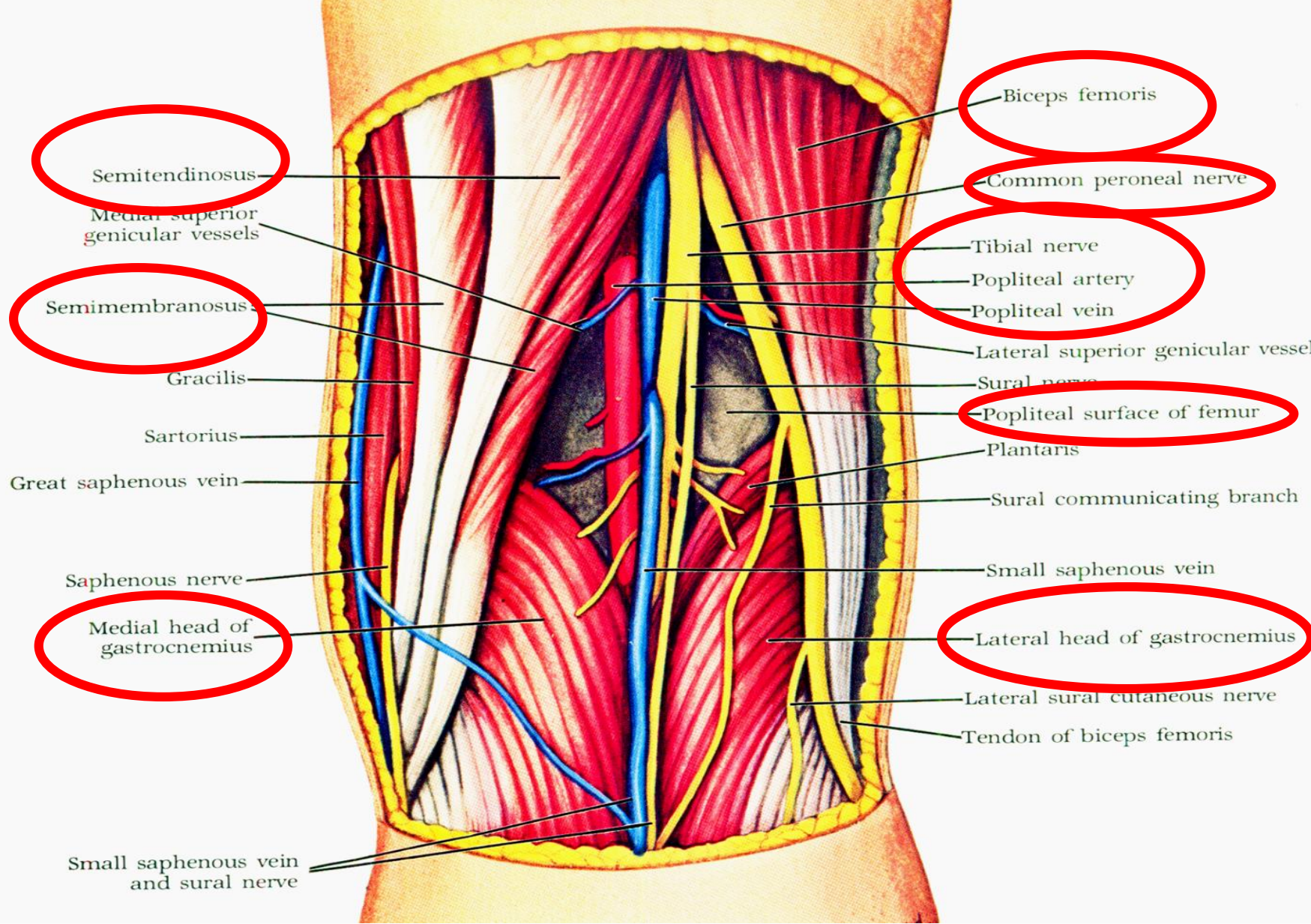
## Floor:

- Popliteal surface of the femur.
- Capsule of the knee joint.
- Popliteus muscle

## Contents

- 1-Popliteal artery (Most deep)
- 2- Popliteal vein
- 3-The common peroneal nerve (lateral popliteal nerve)
- 4- Tibial nerve(medial popliteal nerve)
- 5- The posterior cutaneous nerve of the thigh
- 6- The small saphenous vein





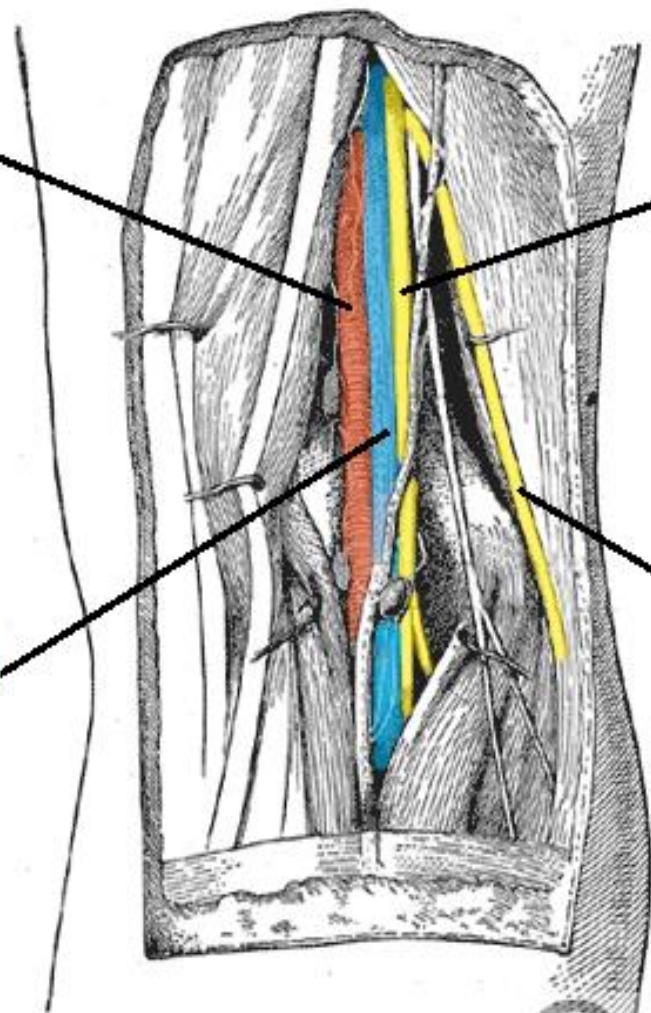


**Popliteal  
artery**

**Tibial  
nerve**

**Popliteal  
vein**

**Common fibular  
nerve**



**teachmeanatomy**

The #1 Applied Human Anatomy Site on the Web.

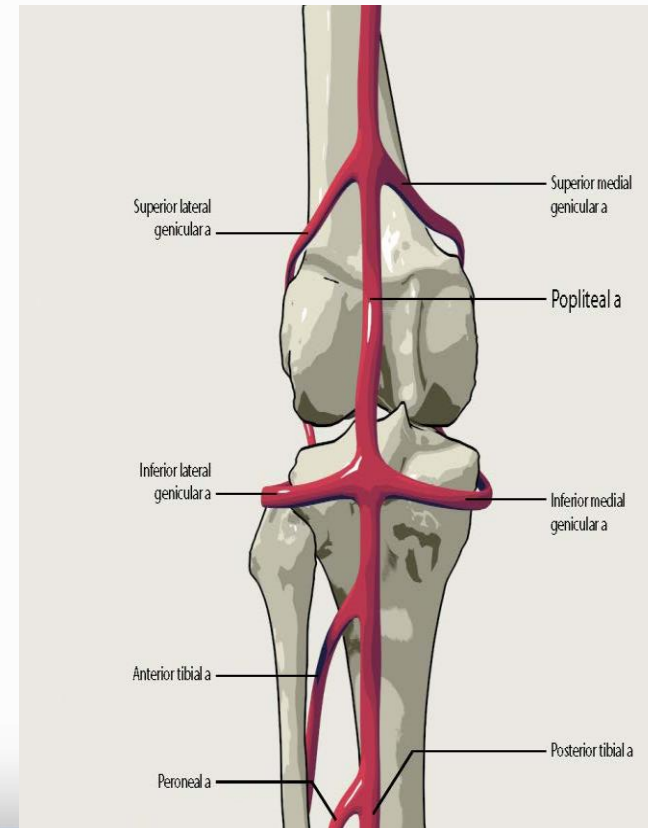
# Popliteal artery

**Beginning :** at opening in adductor magnus as a continuation of femoral artery.

**Termination:** at the lower border of popliteus muscle by dividing into anterior & posterior tibial arteries.

## Branches:

- Five genicular branches to the knee joint (2 superior, 2 inferior & middle).
- Muscular branches to muscles of the back of the leg.



THANK  
YOU!



Best  
Illustrations