

# **Lower Limb Muscles**

## **Muscles of the Gluteal Region**

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# **Gluteal Muscles**

- 1. Gluteus maximus.**
- 2. Gluteus medius.**
- 3. Gluteus minimus.**
- 4. Tensor fasciae latae.**
- 5. Piriformis.**
- 6. Superior gemellus.**
- 7. Inferior gemellus.**
- 8. Obturator internus.**
- 9. Quadratus femoris.**

**Table 13-17 Muscles of the Gluteal Region**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Gluteus maximus	Outer surface of ilium, sacrum, coccyx, sacrotuberous ligament	Iliotibial tract and gluteal tuberosity of femur	Inferior gluteal nerve	L5; <b>S1, 2</b>	Extends and laterally rotates hip joint; through iliotibial tract, it extends knee joint
Gluteus medius	Outer surface of ilium	Lateral surface of greater trochanter of femur	Superior gluteal nerve	<b>L5</b> ; S1	Abducts thigh at hip joint; tilts pelvis when walking to permit opposite leg to clear ground
Gluteus minimus	Outer surface of ilium	Anterior surface of greater trochanter of femur	Superior gluteal nerve	<b>L5</b> ; S1	Abducts thigh at hip joint; tilts pelvis when walking to permit opposite leg to clear ground
Tensor fasciae latae	Iliac crest	Iliotibial tract	Superior gluteal nerve	L4; 5	Assists gluteus maximus in extending the knee joint
Piriformis	Anterior surface of sacrum	Upper border of greater trochanter of femur	First and second sacral nerves	<b>L5</b> ; <b>S1, 2</b>	Lateral rotator of thigh at hip joint
Obturator internus	Inner surface of obturator membrane	Upper border of greater trochanter of femur	Sacral plexus	<b>L5</b> ; <b>S1</b>	Lateral rotator of thigh at hip joint
Gemellus superior	Spine of ischium	Upper border of greater trochanter of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint
Gemellus inferior	Ischial tuberosity	Upper border of greater trochanter of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint
Quadratus femoris	Lateral border of ischial tuberosity	Quadratus tubercle of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint

<sup>a</sup> The predominant nerve root supply is indicated by bold face type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 611.

# **Gluteus maximus**

## ➤ **Origin:**

1. Outer surface of ilium.
2. Posterior surface of sacrum.
3. Sacrotuberous ligament.

## ➤ **Insertion:**

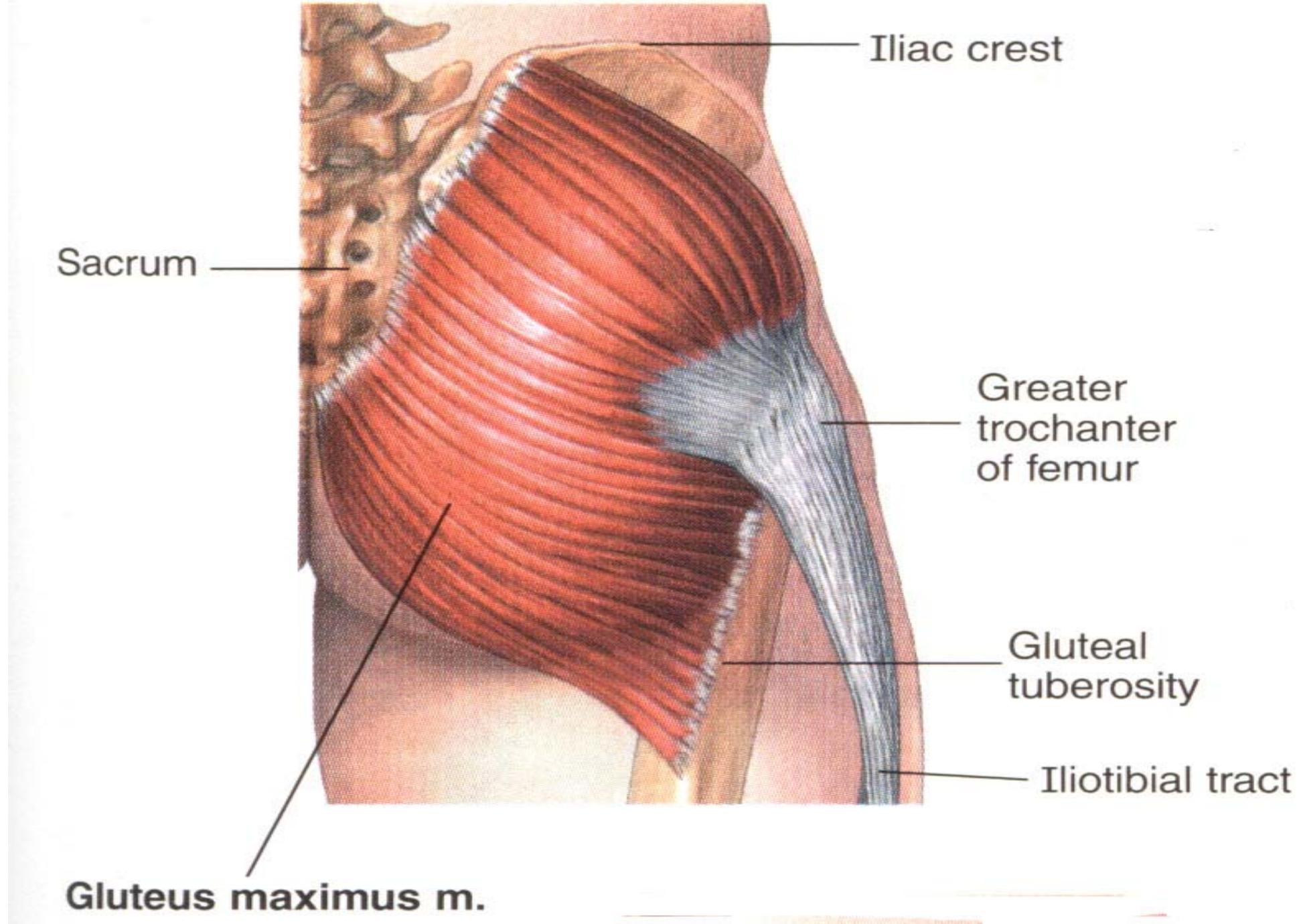
1. Ilio-tibial tract.
2. Gluteal tuberosity of femur.

## ➤ **Nerve Supply:**

Inferior gluteal nerve.

## ➤ **Action:**

- A. Extension of the hip joint.
- B. Lateral rotation of the hip joint.
- C. Maintenance of the extended knee joint.



# **Gluteus medius**

➤ **Origin:**

Outer surface of ilium.

➤ **Insertion:**

Lateral surface of the greater trochanter of femur

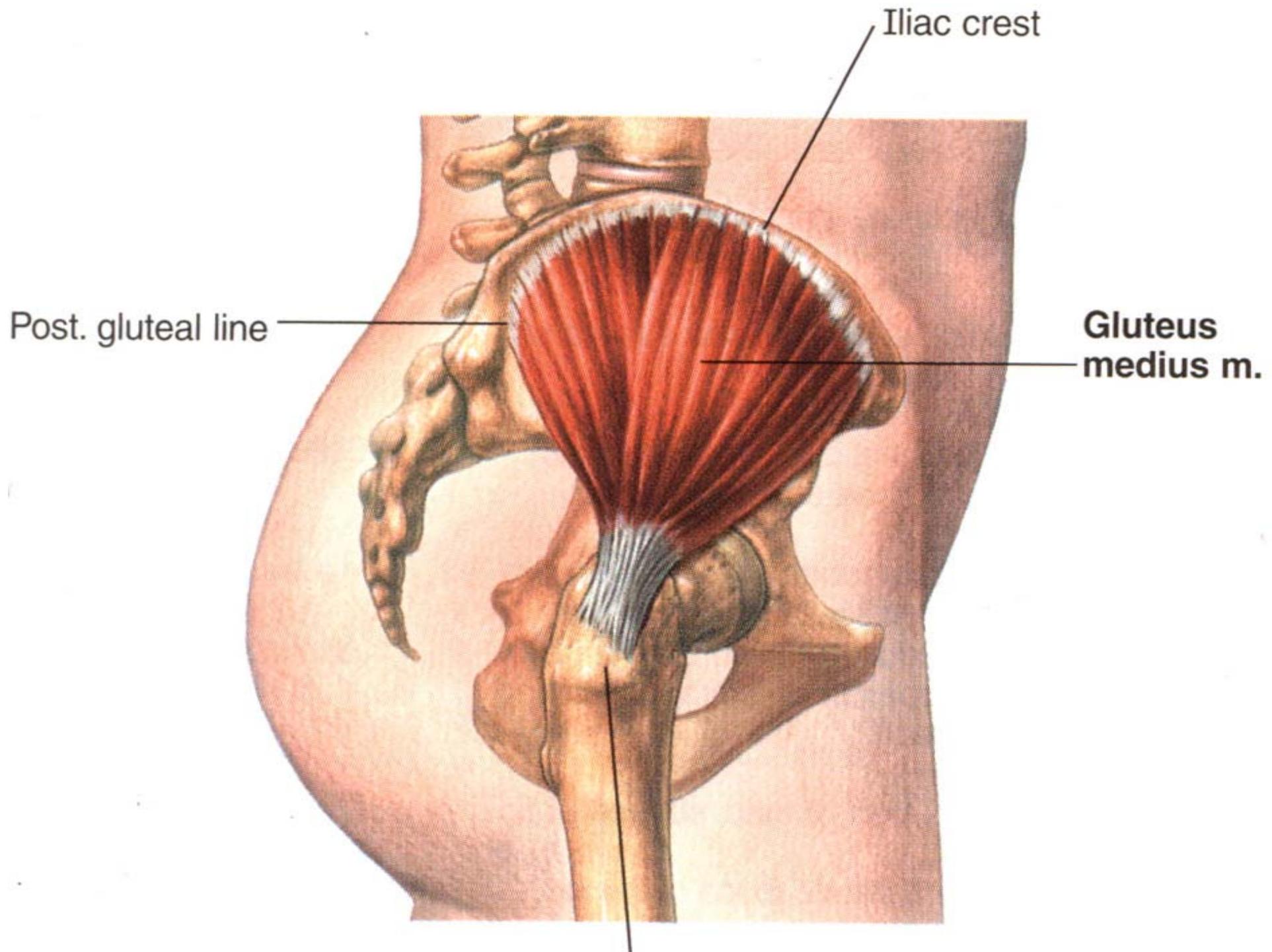
➤ **Nerve Supply:**

Superior gluteal nerve.

➤ **Action:**

A. Abduction of the thigh (with gluteus minimus and tensor fasciae latae).

B. Medial rotation of the thigh (anterior fibers).



# **Gluteus minimus**

➤ **Origin:**

Outer surface of ilium.

➤ **Insertion:**

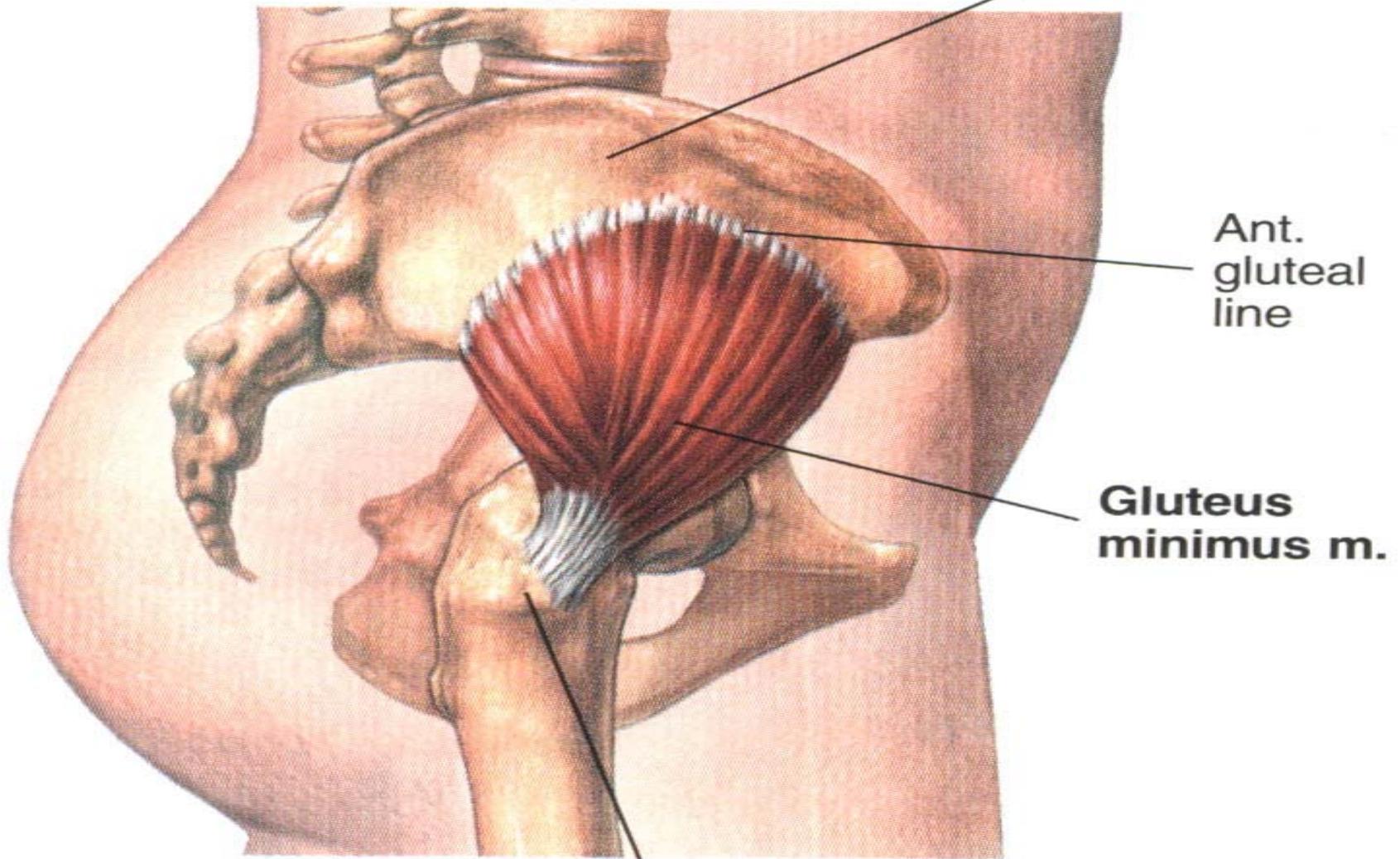
Anterior surface of the greater trochanter of femur

➤ **Nerve Supply:**

Superior gluteal nerve.

➤ **Action:**

- A. Abduction of the thigh (with gluteus medius and tensor fasciae latae).
- B. Medial rotation of the thigh (anterior fibers).



Ilium

Ant.  
gluteal  
line

**Gluteus  
minimus m.**

Greater trochanter of femur

# Tensor Fasciae Latae

➤ **Origin:**

Outer lip of iliac crest.

➤ **Insertion:**

Through the ilio-tibial tract to the lateral condyle of the tibia

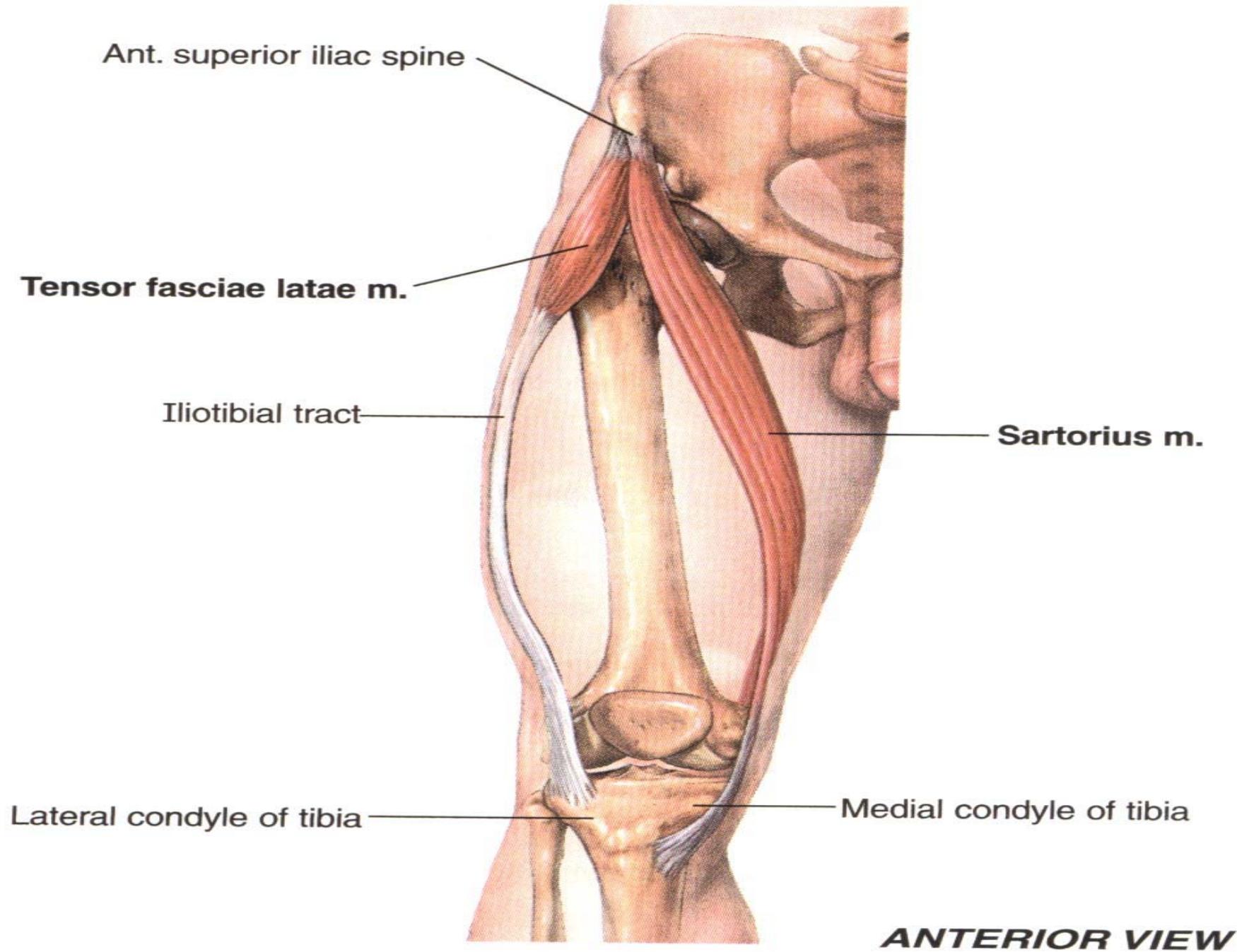
➤ **Nerve Supply:**

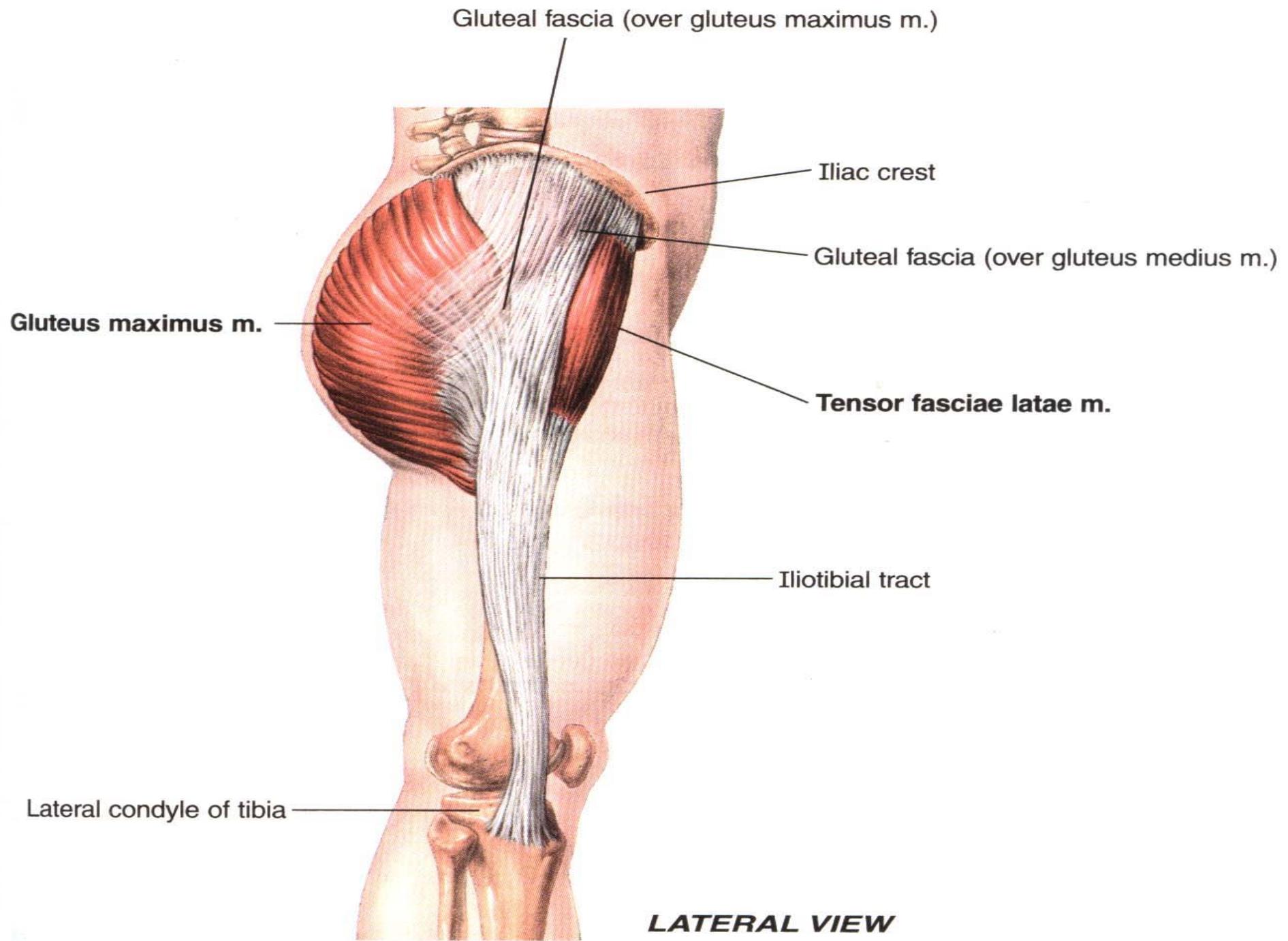
Superior gluteal nerve.

➤ **Action:**

A. Abduction of the thigh (with gluteus medius and minimus).

B. Maintenance of the extended knee (with gluteus maximus).





# Piriformis

## ➤ Origin:

Anterior surface of the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> sacral vertebrae.

## ➤ Insertion:

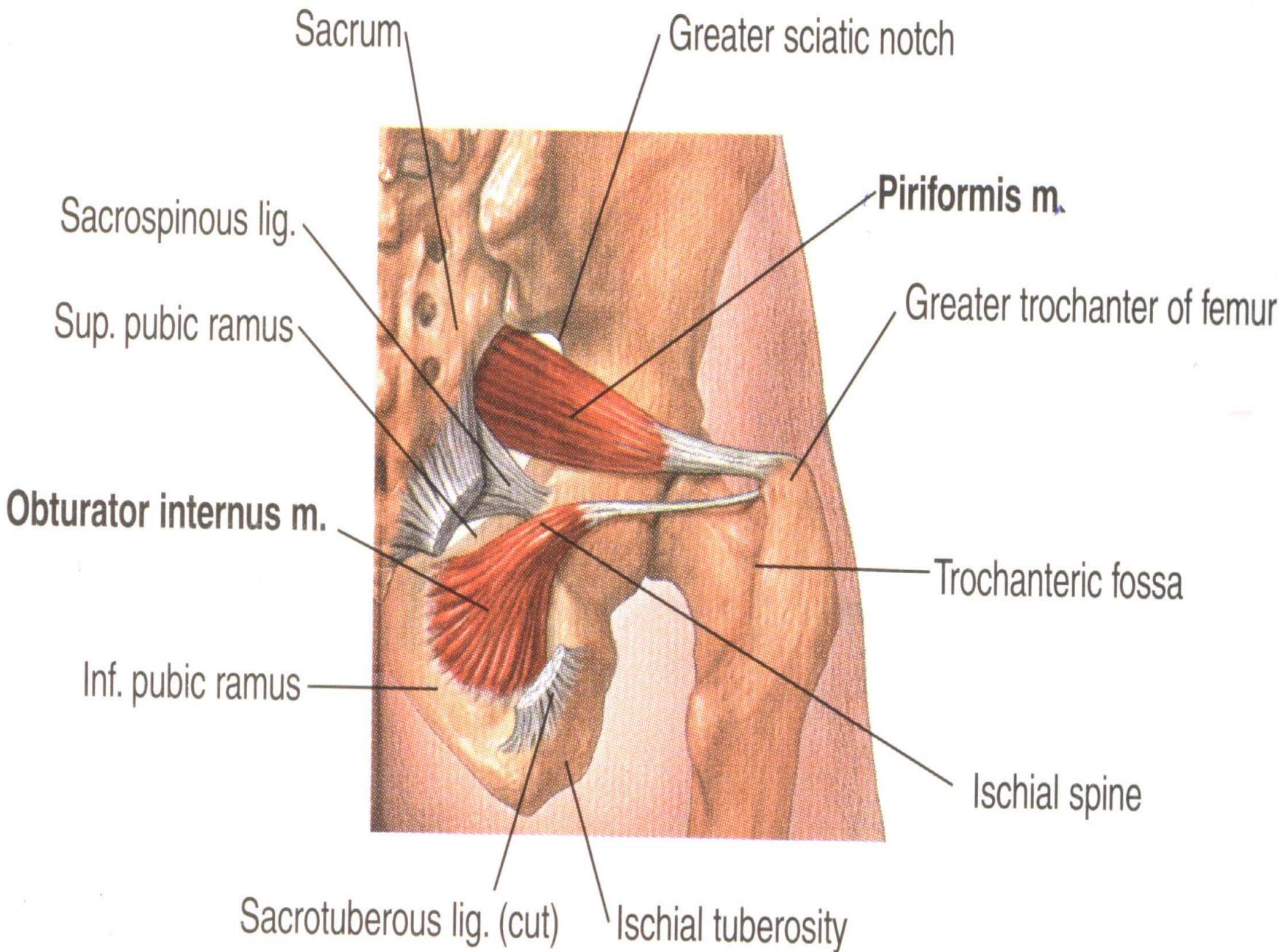
Upper border of the greater trochanter of femur

## ➤ Nerve Supply:

Anterior rami of the 1<sup>st</sup> and 2<sup>nd</sup> sacral nerves.

## ➤ Action:

Lateral rotation of the thigh (hip joint).



# **Superior gemellus**

➤ **Origin:**

Spine of ischium.

➤ **Insertion:**

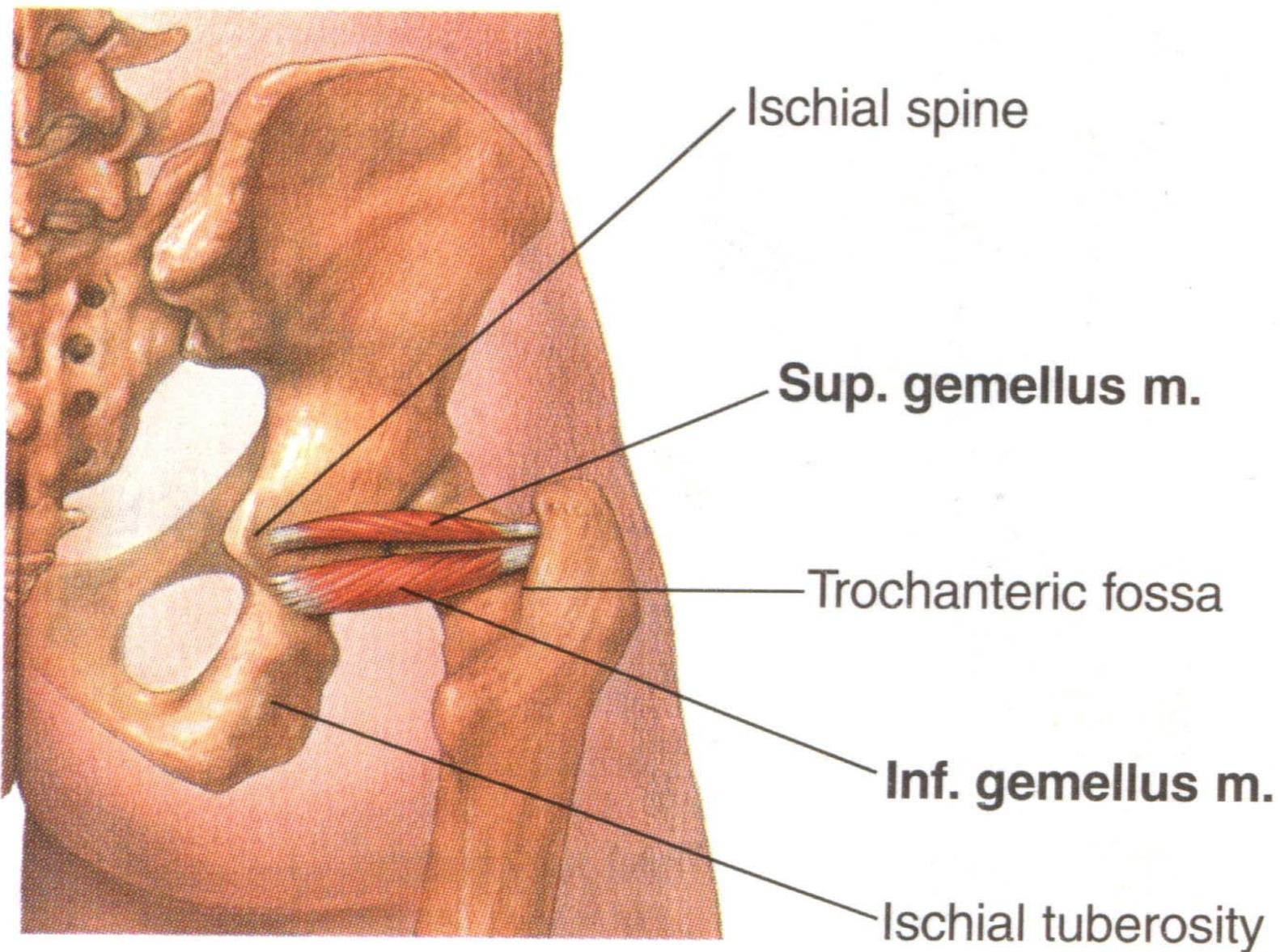
Through the tendon of the obturator internus,  
it is inserted into the upper border of the  
greater trochanter of femur.

➤ **Nerve Supply:**

Nerve to obturator internus.

➤ **Action:**

Lateral rotation of the thigh (hip joint).



# Inferior gemellus

## ➤ Origin:

Upper margin of ischial tuberosity.

## ➤ Insertion:

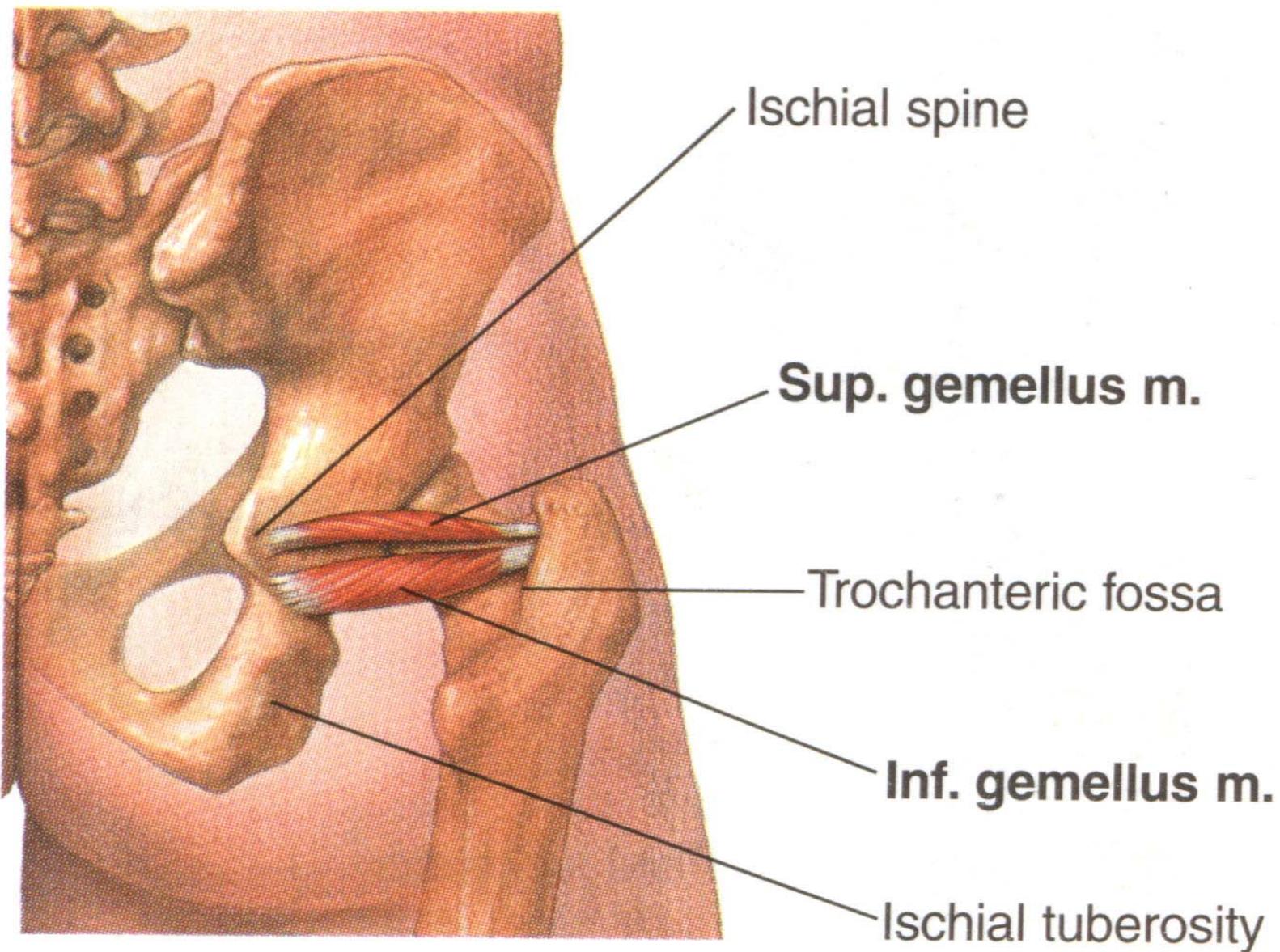
Through the tendon of the obturator internus,  
it is inserted into the upper border of the  
greater trochanter of femur.

## ➤ Nerve Supply:

Nerve to quadratus femoris.

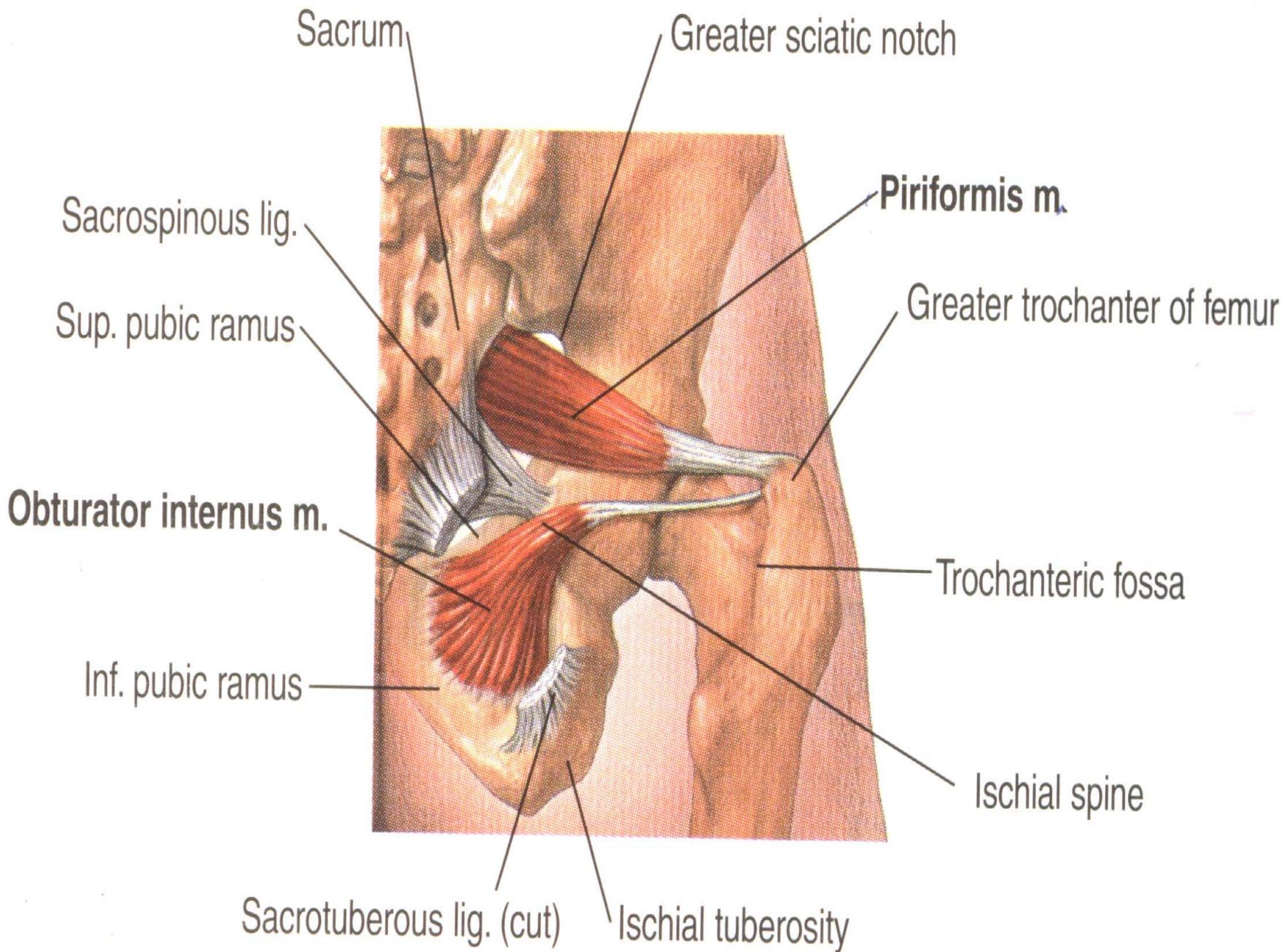
## ➤ Action:

Lateral rotation of the thigh (hip joint).



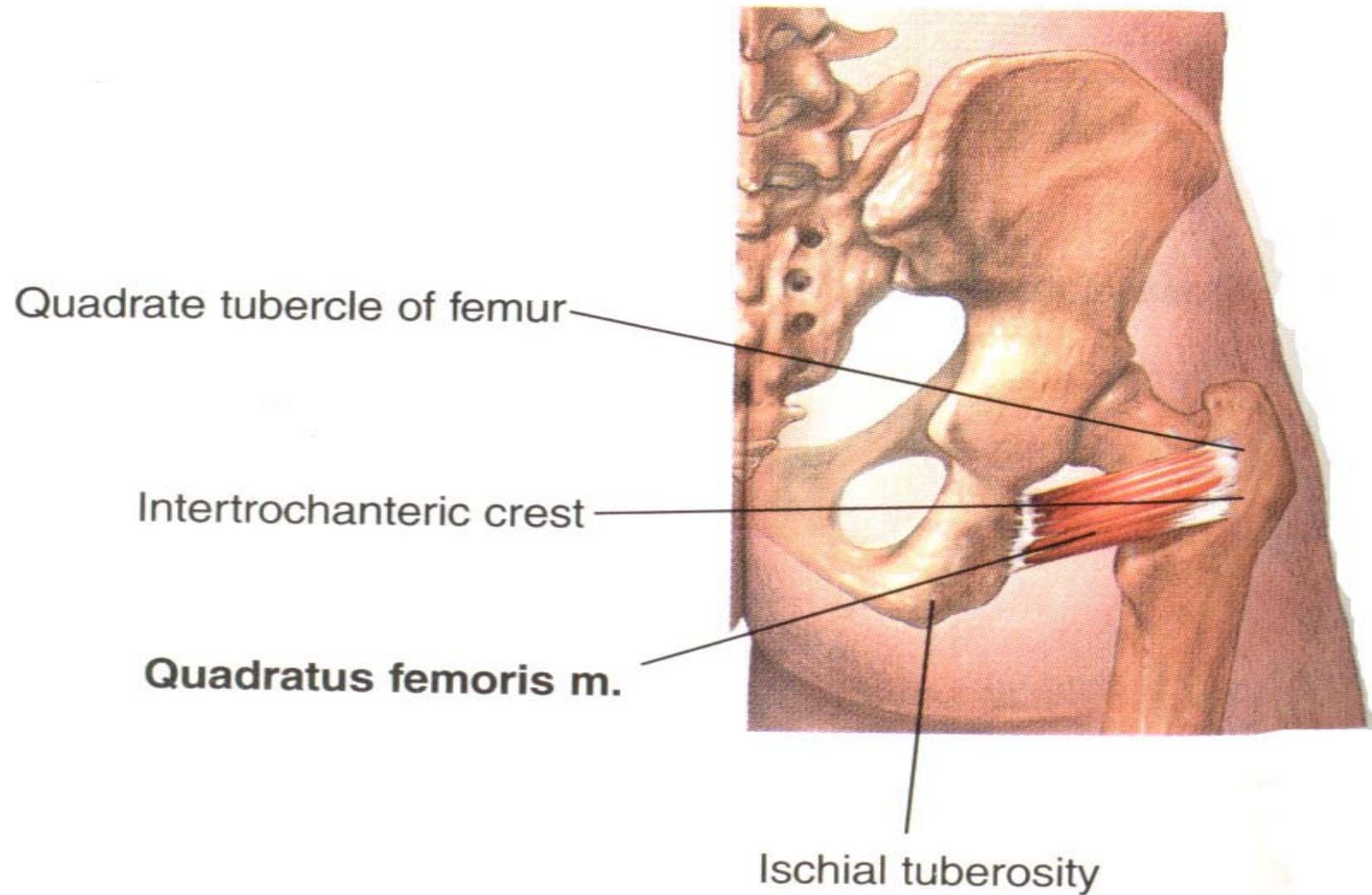
# **Obturator internus**

- **Origin:**  
Inner surface of obturator membrane  
and surrounding bones.
- **Insertion:**  
Upper border of the greater trochanter of  
femur
- **Nerve Supply:**  
Nerve to obturator internus.
- **Action:**  
Lateral rotation of the thigh (hip joint).



# **Quadratus Femoris**

- **Origin:**  
Lateral border of ischial tuberosity.
- **Insertion:**  
Quadrate tubercle of the femur
- **Nerve Supply:**  
Nerve to quadratus femoris.
- **Action:**  
Lateral rotation of the thigh (hip joint).



# **Muscles:**

**1. Sartorius.**

**2. Iliacus.**

**3. Psoas major.**

**4. Pectineus.**

**5. Quadriceps Femoris.**

**Muscles of the Anterior  
Compartment of the Thigh**

**Table 13-18 Muscles of the Anterior Fascial Compartment of the Thigh**

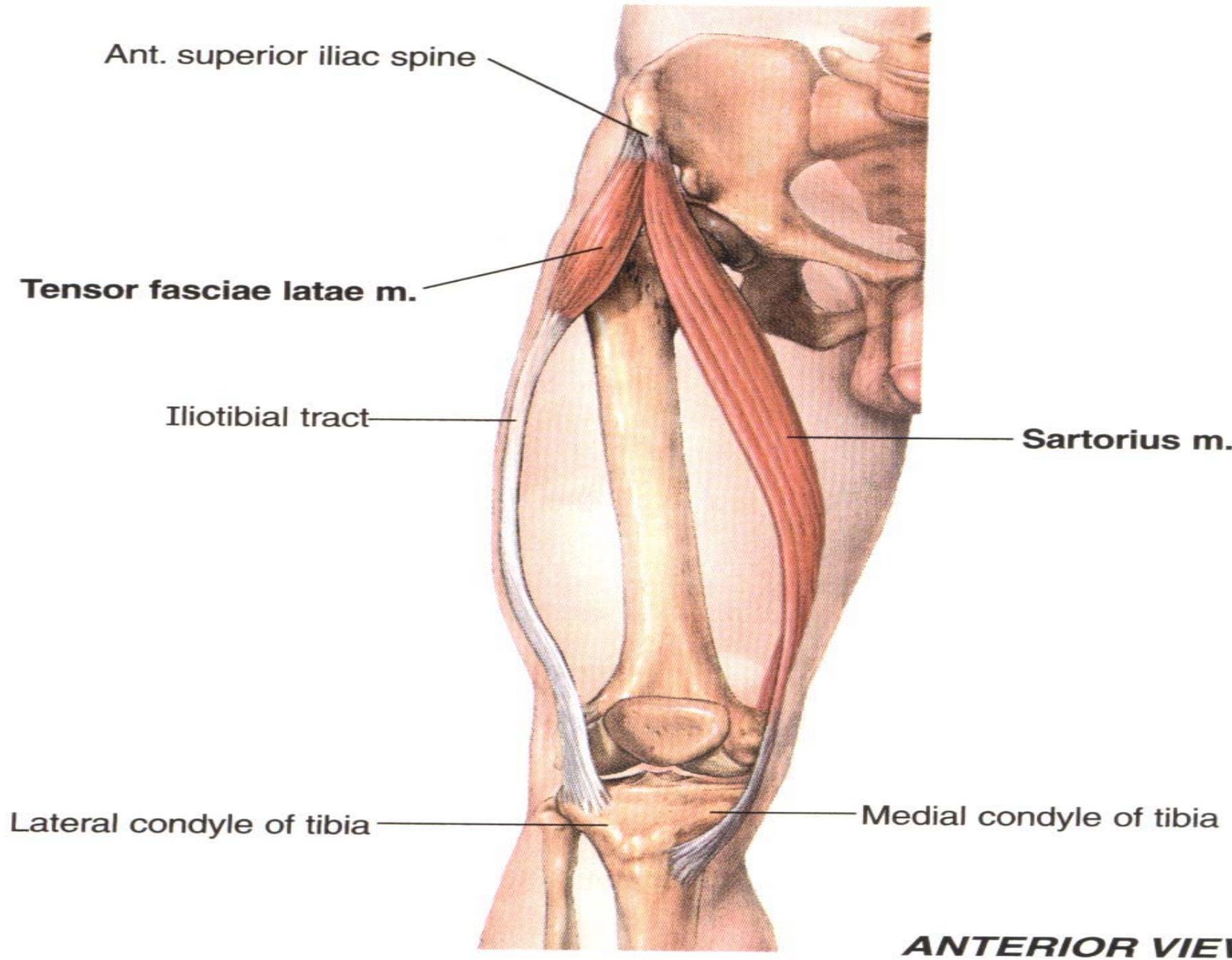
Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Sartorius	Anterior superior iliac spine	Upper medial surface of shaft of tibia	Femoral nerve	L2, 3	Flexes, abducts, laterally rotates thigh at hip joint; flexes and medially rotates leg at knee joint
Iliacus	Iliac fossa of hip bone	With psoas into lesser trochanter of femur	Femoral nerve	<b>L2, 3</b>	Flexes thigh on trunk; if thigh is fixed, it flexes the trunk on the thigh as in sitting up from lying down
Psoas	Transverse processes, bodies, and intervertebral discs of the twelfth thoracic and five lumbar vertebrae	With iliacus into lesser trochanter of femur	Lumbar plexus	<b>L1, 2, 3</b>	Flexes thigh on trunk; if thigh is fixed, it flexes the trunk on thigh as in sitting up from lying down
Pectineus	Superior ramus of pubis	Upper end of linea aspera of shaft of femur	Femoral nerve	<b>L2, 3</b>	Flexes and adducts thigh at hip joint
Quadriceps femoris Rectus femoris	Straight head: anterior inferior iliac spine  Reflected head: ilium above acetabulum	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	<b>L2, 3, 4</b>	Extension of leg at knee joint; flexes thigh at hip joint
Vastus lateralis	Upper end and shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	<b>L2, 3, 4</b>	Extension of leg at knee joint
Vastus medialis	Upper end and shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	<b>L2, 3, 4</b>	Extension of leg at knee joint; stabilizes patella
Vastus intermedius	Anterior and lateral surfaces of shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	<b>L2, 3, 4</b>	Extension of leg at knee joint; articularis genus retracts synovial membrane

<sup>a</sup>The predominant nerve root supply is indicated by boldface type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 625.

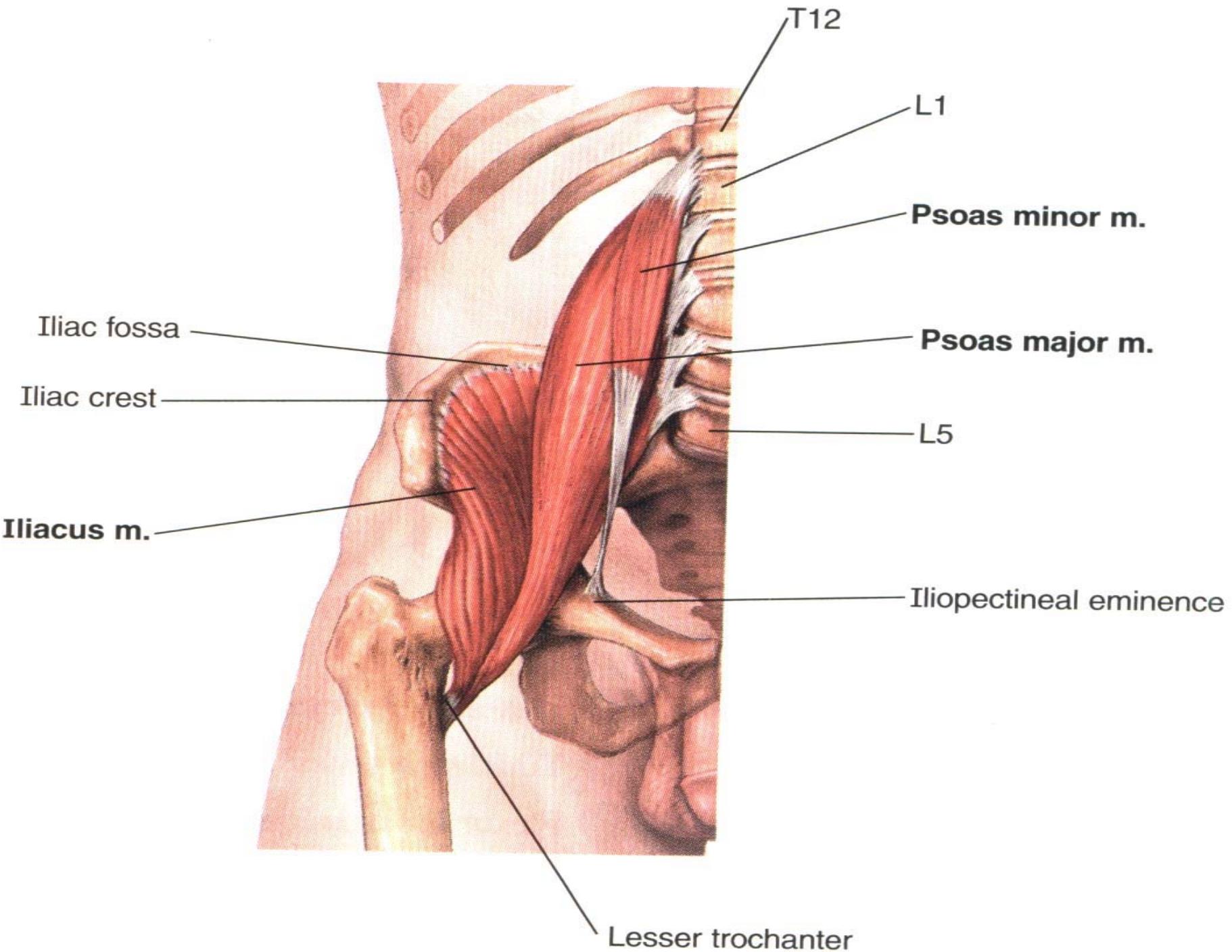
# Sartorius

- **Origin:**  
Anterior superior iliac spine.
- **Insertion:**  
Upper part of the medial surface of the shaft of the tibia.
- **Nerve Supply:**  
Femoral nerve.
- **Action:**
  - A. Flexion, abduction and lateral rotation of the thigh.
  - B. Flexion and medial rotation of the leg.



# Iliacus

- **Origin:**  
Iliac fossa.
- **Insertion:**  
Lesser trochanter of the femur.
- **Nerve Supply:**  
Femoral nerve.
- **Action:**
  - A. Flexion of the thigh.
  - B. Helps in Medial rotation of thigh.



# Psoas major

➤ **Origin:**

Transverse processes and sides from  
12<sup>th</sup> thoracic to 5<sup>th</sup> lumbar vertebrae.

➤ **Insertion:**

Lesser trochanter of the femur.

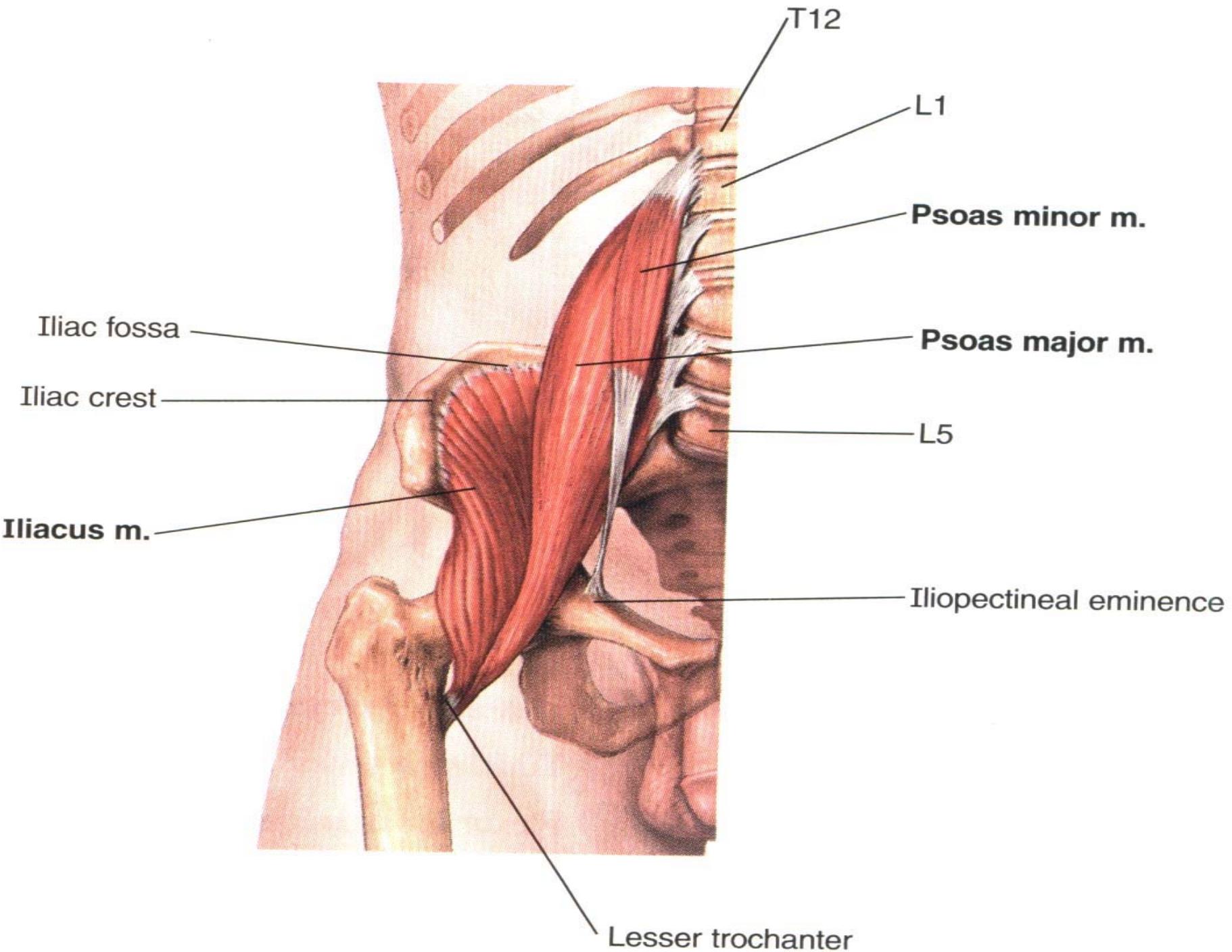
➤ **Nerve Supply:**

Branches from lumbar plexus.

➤ **Action:**

A. Flexion of the thigh.

B. Helps in Medial rotation of thigh.



# Pectineus

➤ **Origin:**

Superior pubic ramus.

➤ **Insertion:**

Upper end of linea aspera of femur.

➤ **Nerve Supply:**

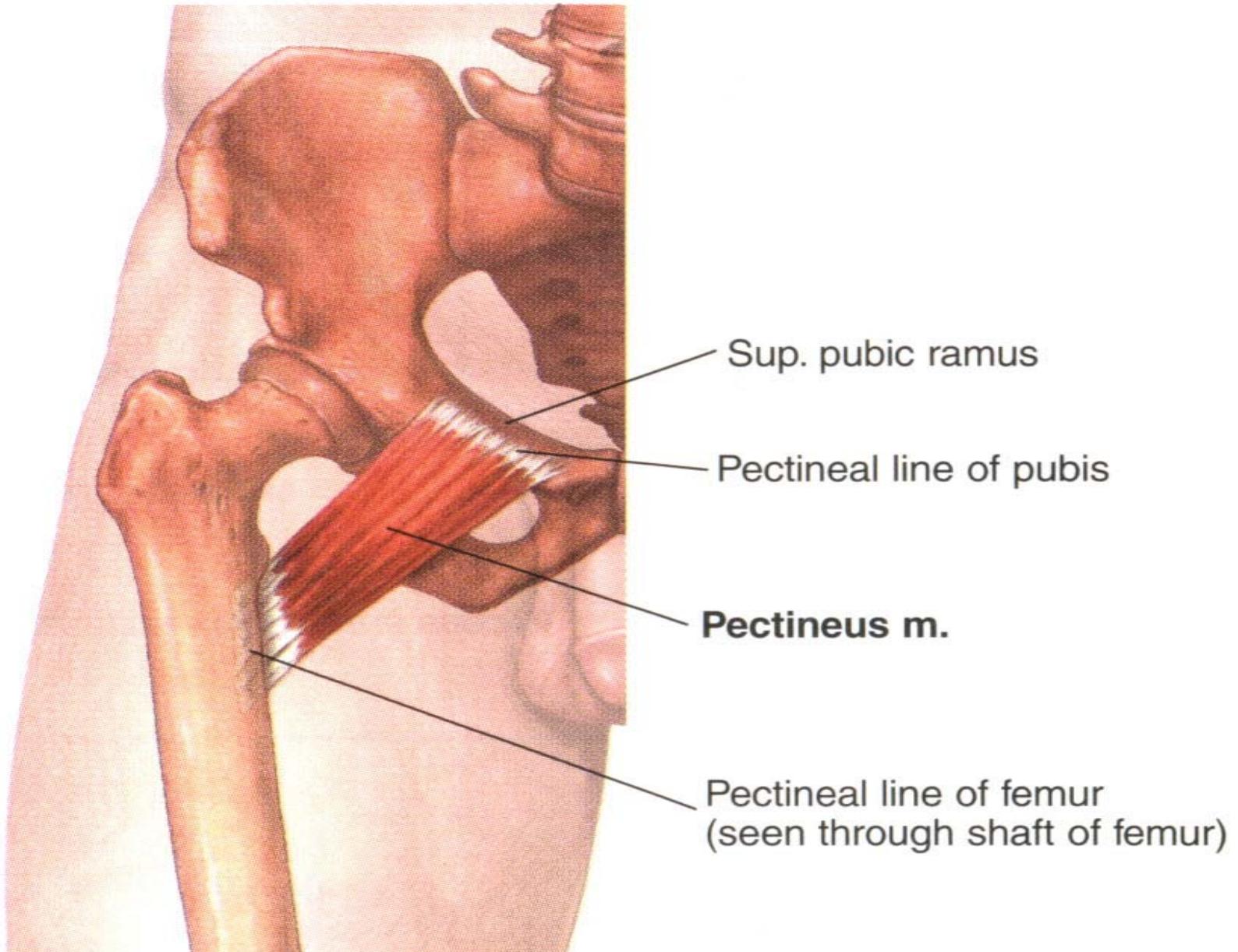
1. Femoral nerve.

2. Obturator nerve.

➤ **Action:**

A. Flexion of the thigh.

B. Adduction of the thigh.



# **Quadriceps Femoris**

## **Rectus Femoris**

➤ **Origin:**

Ant. Sup. Iliac Spine + Ilium above acetabulum

➤ **Insertion:**

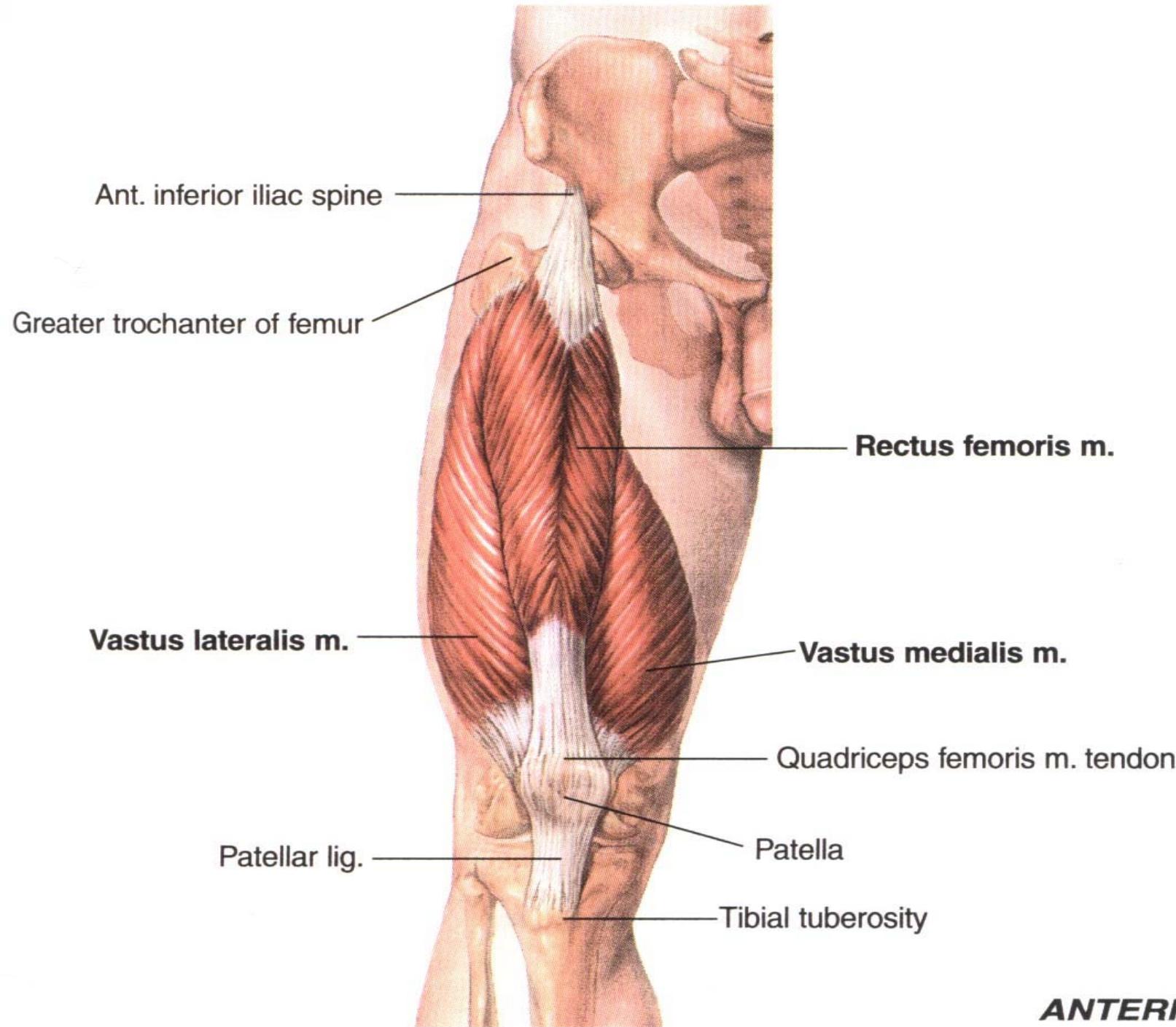
Quadriceps tendon and patella.

➤ **Nerve Supply:**

Femoral nerve.

➤ **Action:**

Extension of the knee joint.



**ANTERIOR VIEWS**

# **Quadriceps Femoris**

## **Vastus Lateralis**

- **Origin:**  
Inter-trochanteric line + linea aspera
- **Insertion:**  
Quadriceps tendon and patella.
- **Nerve Supply:**  
Femoral nerve.
- **Action:**  
Extension of the knee joint.

# **Quadriceps Femoris**

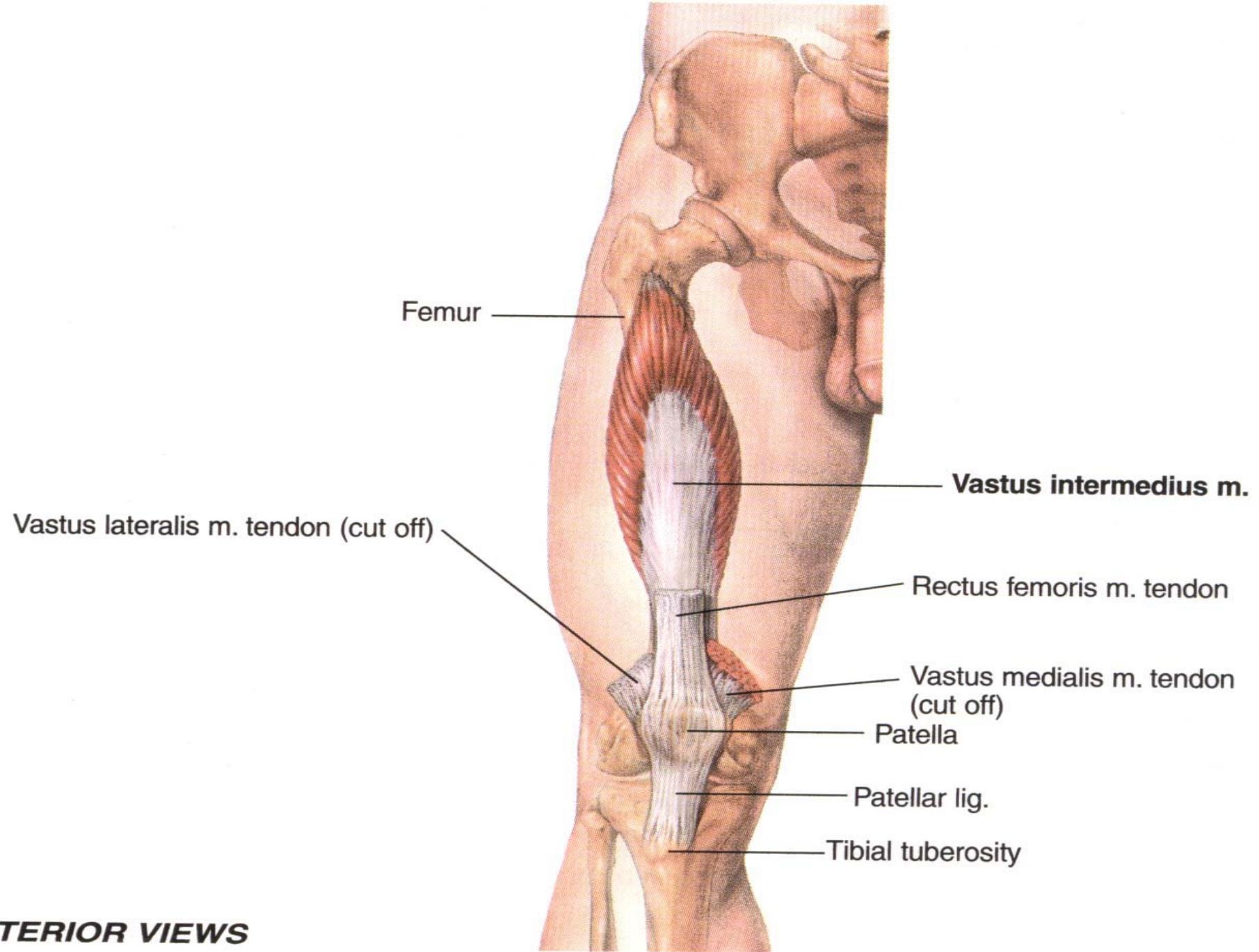
## **Vastus Medialis**

- **Origin:**  
Inter-trochanteric line + linea aspera
- **Insertion:**  
Quadriceps tendon and patella.
- **Nerve Supply:**  
Femoral nerve.
- **Action:**  
Extension of the knee joint.

# **Quadriceps Femoris**

## **Vastus Intermedius**

- **Origin:**  
Anterior and lateral surfaces of the shaft  
of the femur
- **Insertion:**  
Quadriceps tendon and patella.
- **Nerve Supply:**  
Femoral nerve.
- **Action:**  
Extension of the knee joint.



**ANTERIOR VIEWS**

# **Muscles:**

- 1. Gracilis.**
- 2. Adductor longus.**
- 3. Adductor brevis.**
- 4. Adductor magnus.**
- 5. Obturator externus.**

**Muscles of the Medial  
Compartment of the Thigh**

**Table 13-19** Muscles of the Medial Fascial Compartment of the Thigh

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Gracilis	Inferior ramus of pubis, ramus of ischium	Upper part of shaft of tibia on medial surface	Obturator nerve	L2, 3	Adducts thigh at hip joint; flexes leg at knee joint
Adductor longus	Body of pubis, medial to pubic tubercle	Posterior surface of shaft of femur (linea aspera)	Obturator nerve	L2, <b>3, 4</b>	Adducts thigh at hip joint and assists in lateral rotation
Adductor brevis	Inferior ramus of pubis	Posterior surface of shaft of femur (linea aspera)	Obturator nerve	L2, <b>3, 4</b>	Adducts thigh at hip joint and assists in lateral rotation
Adductor magnus	Inferior ramus of pubis, ramus of ischium, ischial tuberosity	Posterior surface of shaft of femur, adductor tubercle of femur	Adductor portion: obturator nerve	L2, <b>3, 4</b>	Adducts thigh at hip joint and assists in lateral rotation; hamstring portion extends thigh at hip joint
Obturator externus	Outer surface of obturator membrane and pubic and ischial rami	Medial surface of greater trochanter	Hamstring portion: sciatic nerve Obturator nerve	L3, <b>4</b>	Laterally rotates thigh at hip joint

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 633.

# **Gracilis**

➤ **Origin:**

Inferior pubic ramus and ischial ramus.

➤ **Insertion:**

Upper part of the medial surface of the shaft of the tibia.

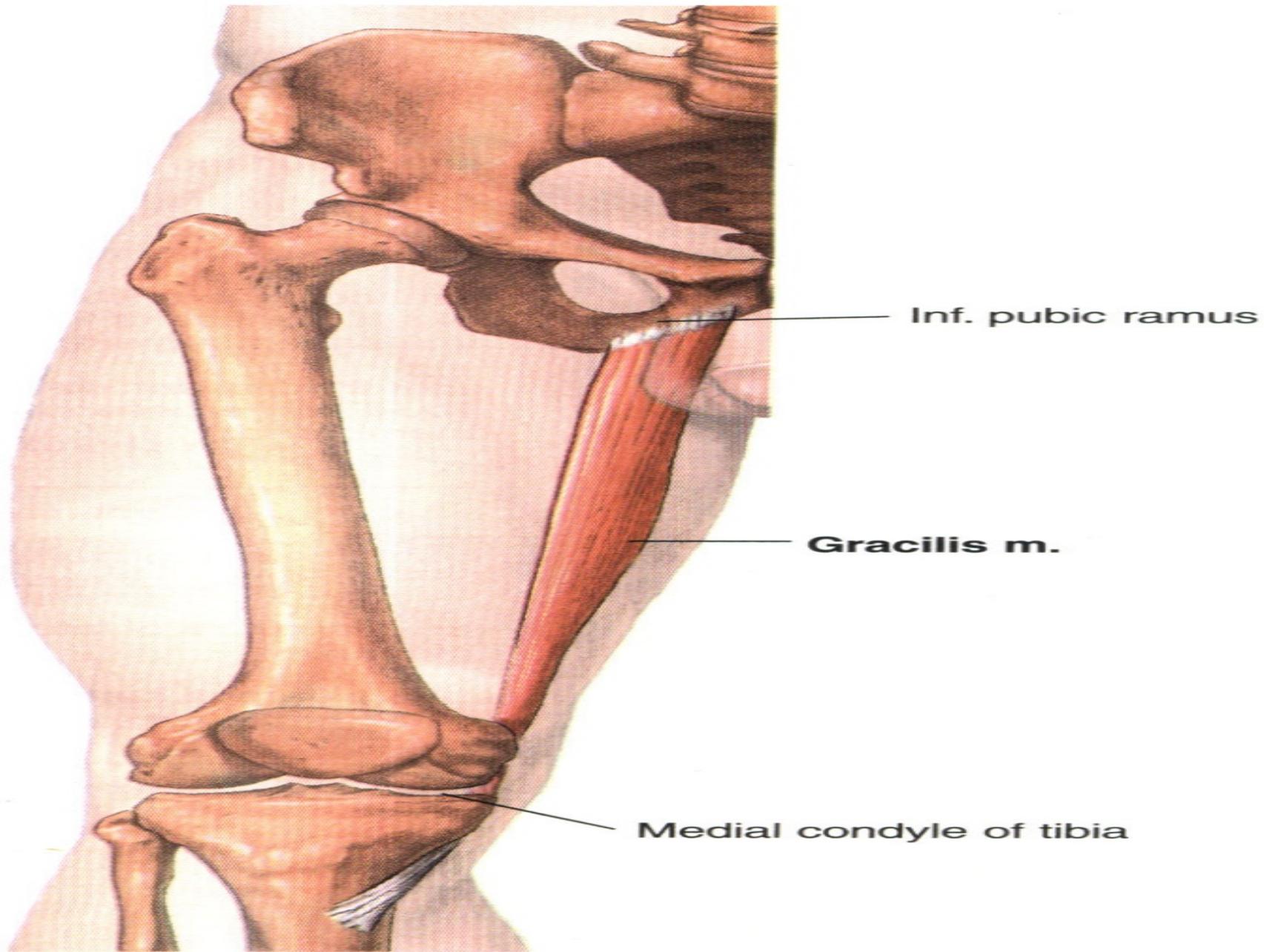
➤ **Nerve Supply:**

Obturator nerve

➤ **Action:**

A. Abduction of the thigh.

B. Flexion of the leg.



# Adductor Longus

## ➤ Origin:

Body of the pubic bone.

## ➤ Insertion:

Linea aspera of the femur.

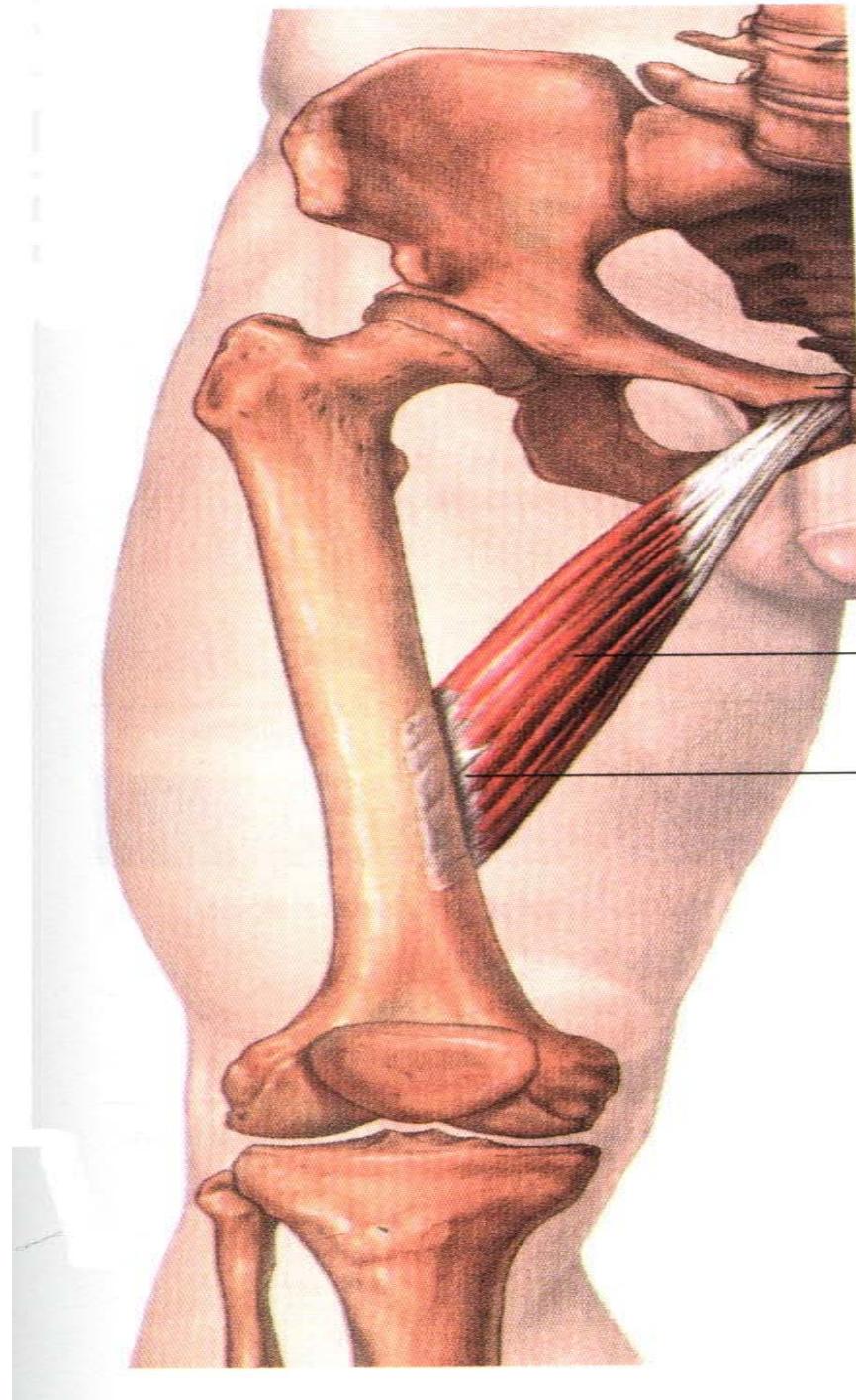
## ➤ Nerve Supply:

Obturator nerve.

## ➤ Action:

A. Abduction of the thigh.

B. Helps in medial rotation of the thigh.



Pubic crest

**Adductor longus m.**

Linea aspera (seen through femoral shaft)

# Adductor Brevis

➤ **Origin:**

Inferior pubic ramus.

➤ **Insertion:**

Linea aspera of the femur.

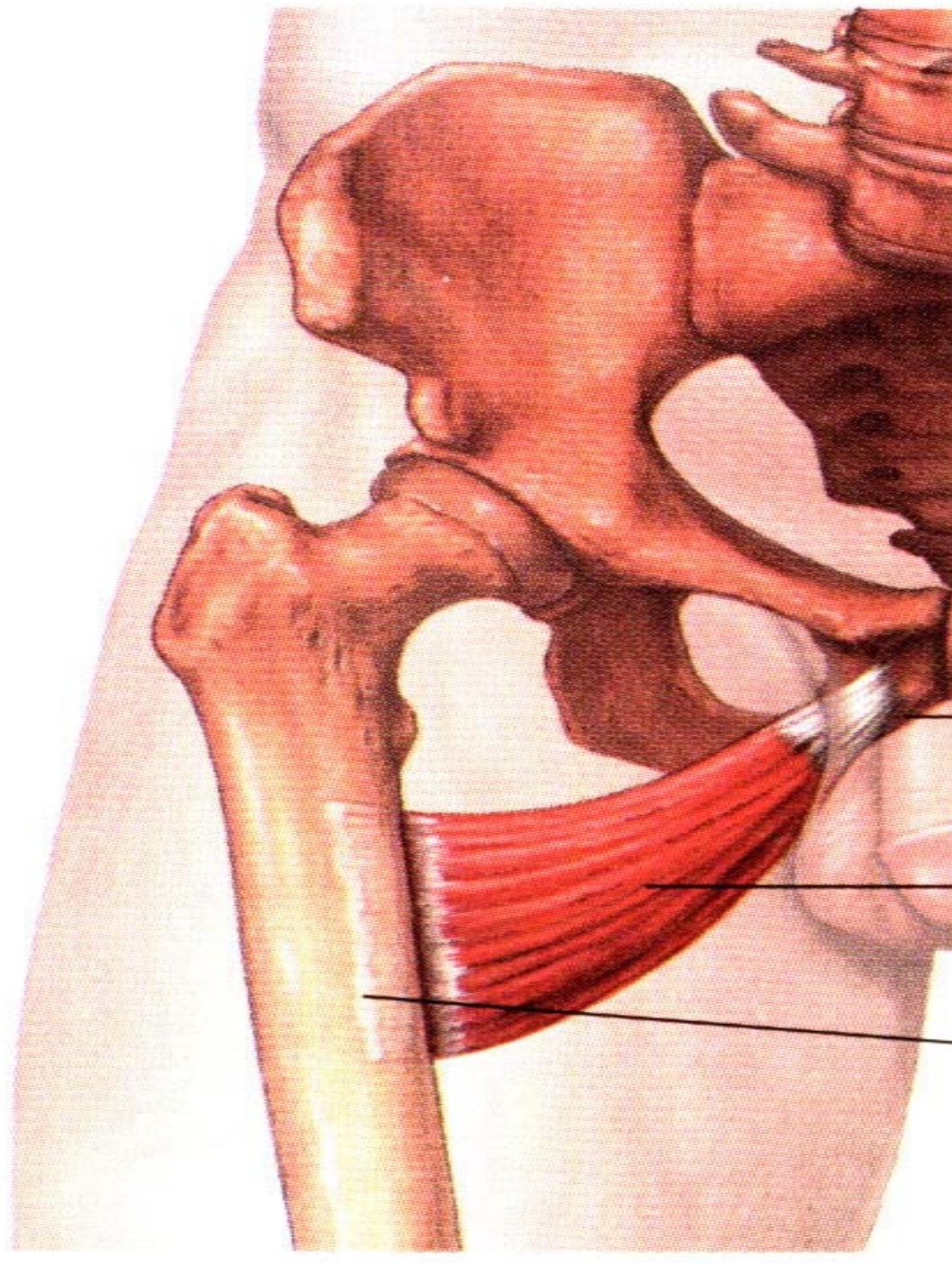
➤ **Nerve Supply:**

Obturator nerve.

➤ **Action:**

A. Abduction of the thigh.

B. Helps in medial rotation of the thigh.



Inf. pubic ramus

**Adductor brevis m.**

Linea aspera (seen  
through femoral shaft)

# Adductor Magnus

## ➤ Origin:

1. **Pubic part:** from Inferior pubic ramus.
2. **Ischial part:** from Ischial ramus and ischial tuberosity.

## ➤ Insertion:

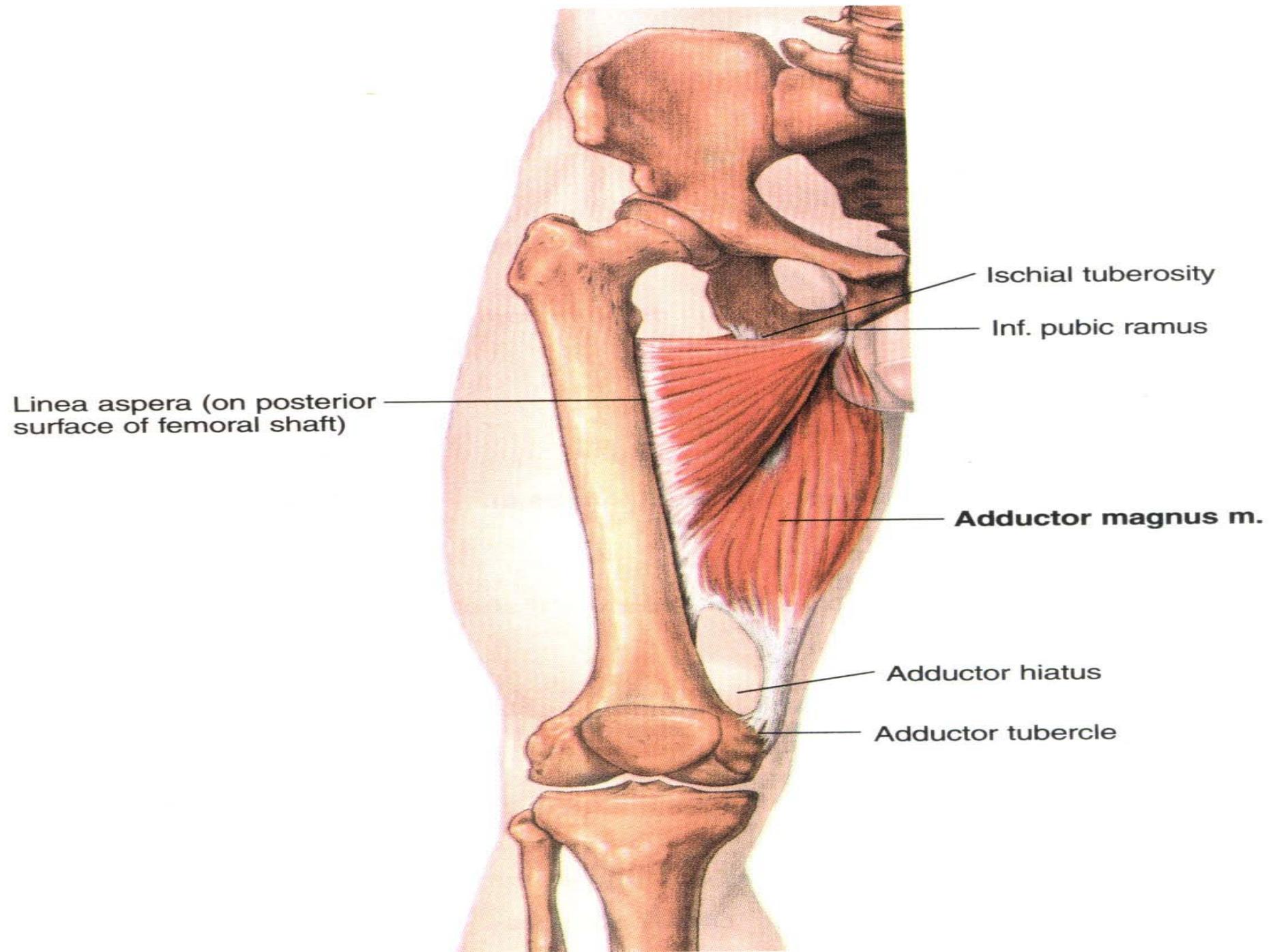
1. **Pubic part:** Posterior surface of femoral shaft
2. **Ischial part:** Adductor tubercle of the femur.

## ➤ Nerve Supply:

1. **Pubic part:** Obturator nerve.
2. **Ischial part:** Sciatic nerve.

## ➤ Action:

1. **Pubic part:** Adduction of the thigh.
2. **Ischial part:** Extension of the thigh.



# **Obturator Externus**

➤ **Origin:**

1. Outer surface of obturator membrane.
2. Pubic and ischial rami.

➤ **Insertion:**

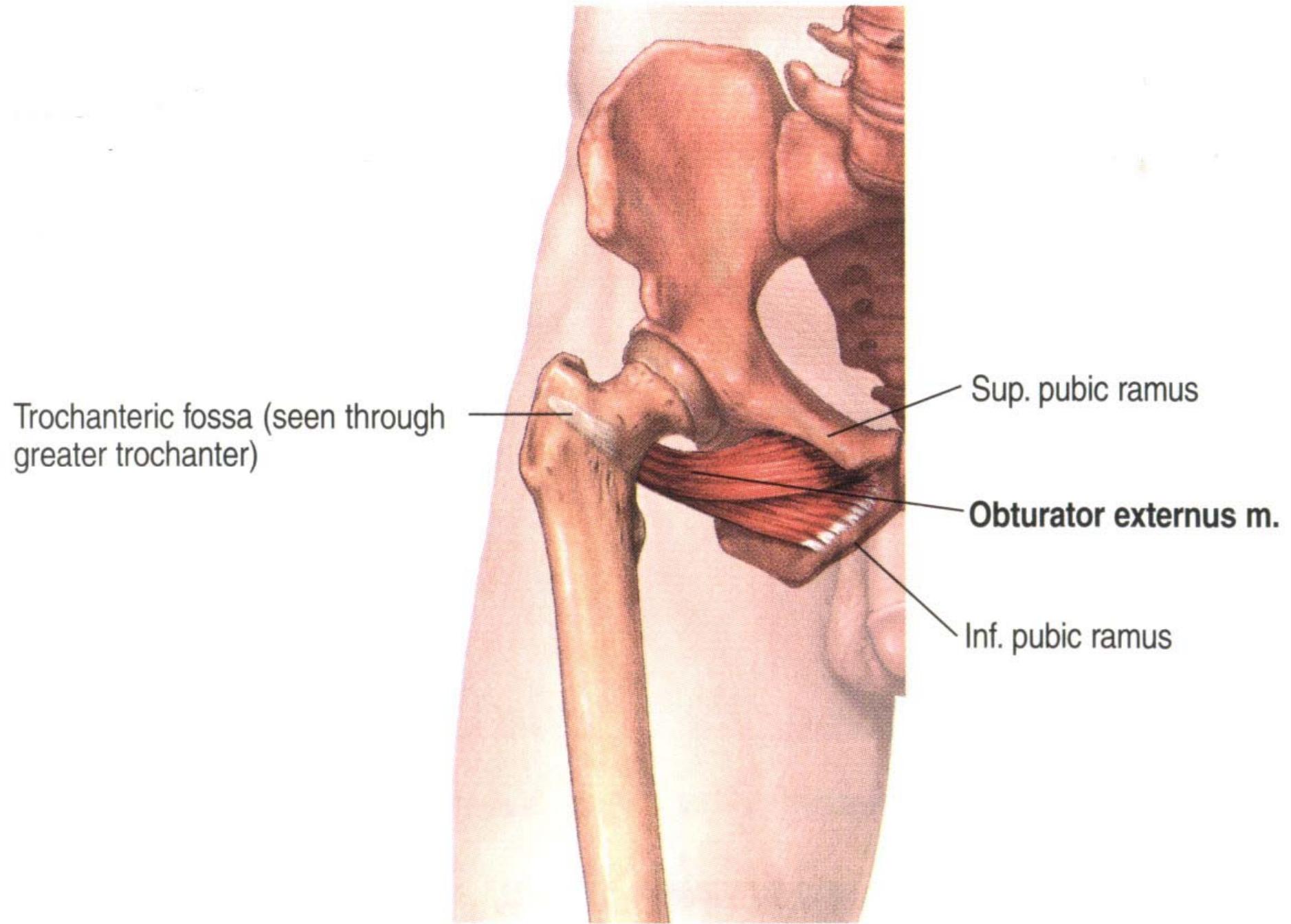
Medial surface of the greater trochanter.

➤ **Nerve Supply:**

Obturator nerve.

➤ **Action:**

Lateral rotation of the thigh.



## Muscles of the Posterior Compartment of the Thigh

### **Hamstring Muscles:.**

- 1.Biceps femoris.**
- 2.Semitendinosus.**
- 3.Semimembranosus.**
- 4.Ischial head of Adductor magnus.**

**Table 13-20** Muscles of the Posterior Fascial Compartment of the Thigh

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Biceps femoris	Long head: ischial tuberosity  Short head: linea aspera, lateral supracondylar ridge of shaft of femur	Head of fibula	Long head: tibial portion of sciatic nerve  Short head: common peroneal portion of sciatic nerve	L5; <b>S1, 2</b>	Flexes and laterally rotates leg at knee joint; long head also extends thigh at hip joint
Semi-tendinosus	Ischial tuberosity	Upper part of medial surface of shaft of tibia	Tibial portion of sciatic nerve	<b>L5; S1, 2</b>	Flexes and medially rotates leg at knee joint; extends thigh at hip joint
Semimembranosus	Ischial tuberosity	Medial condyle of tibia	Tibial portion of sciatic nerve	<b>L5; S1, 2</b>	Flexes and medially rotates leg at knee joint; extends thigh at hip joint
Adductor magnus (hamstring portion)	Ischial tuberosity	Adductor tubercle of femur	Tibial portion of sciatic nerve	<b>L2, 3, 4</b>	Extends thigh at hip joint

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 636.

# Biceps Femoris

## ➤ Origin:

1. **Long head:** Ischial tuberosity.
2. **Short head:** linea aspera and lateral supra-condylar ridge of femur.

## ➤ Insertion:

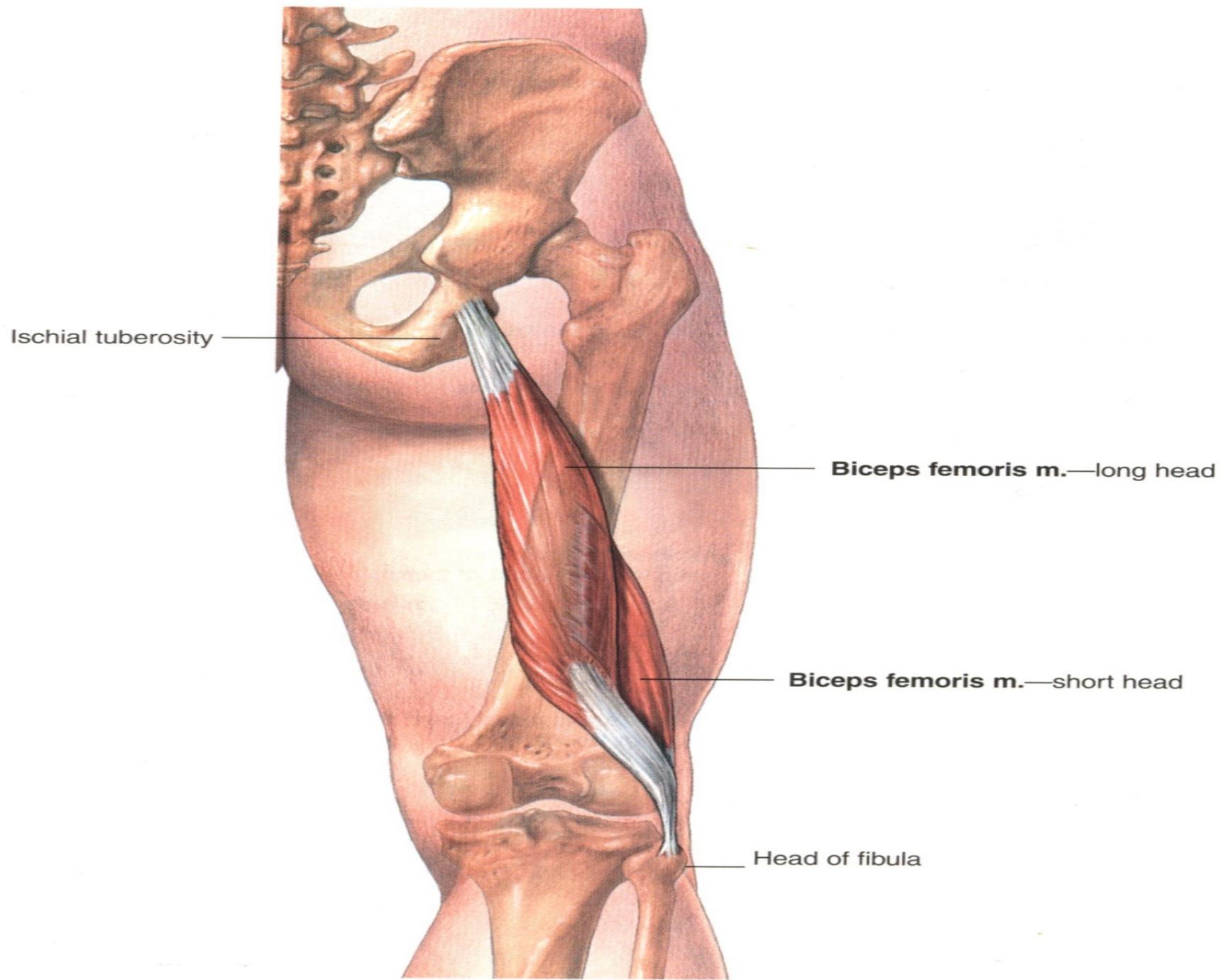
The head of the fibula.

## ➤ Nerve Supply:

Sciatic nerve.

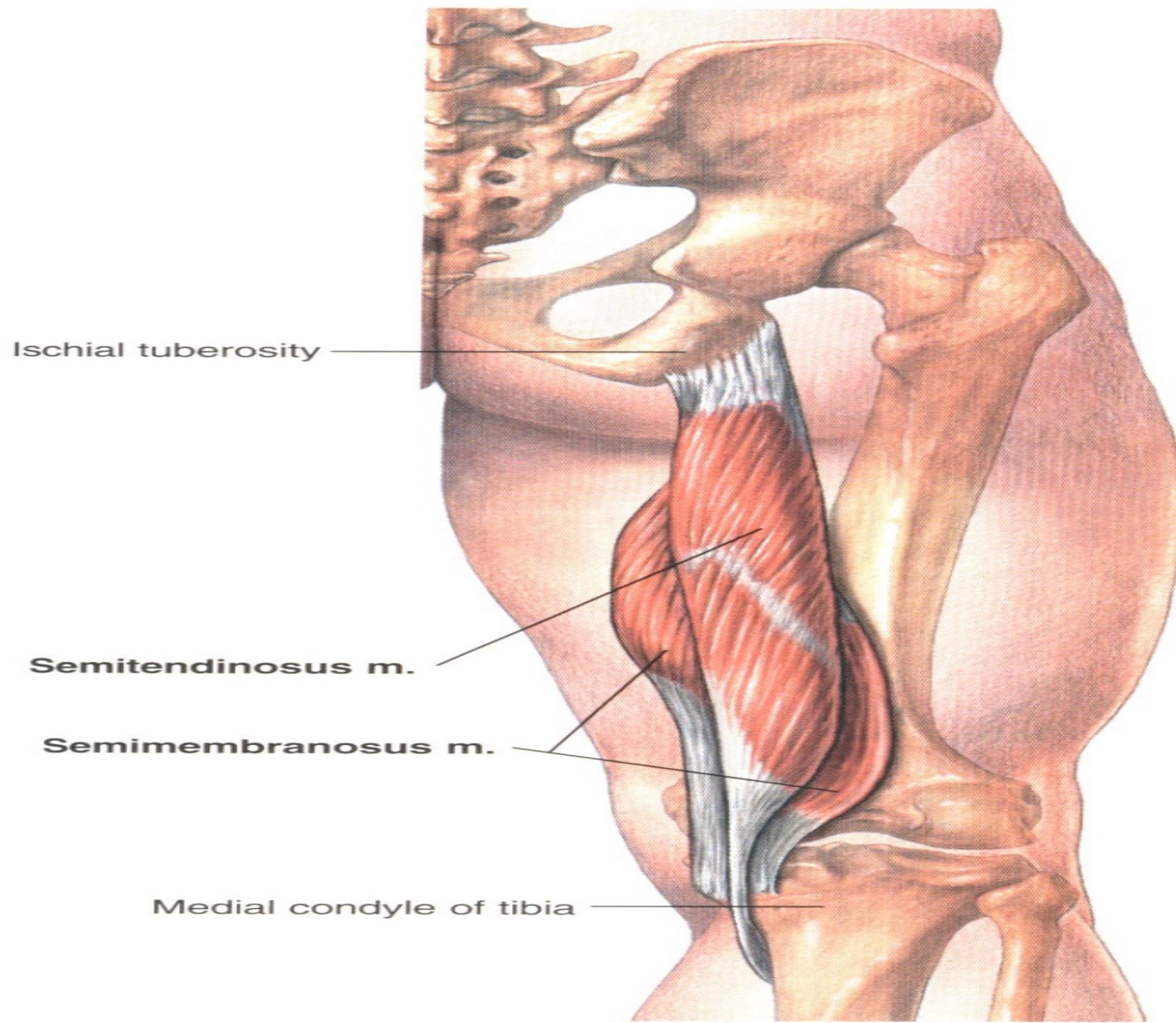
## ➤ Action:

1. Flexion and lateral rotation of the leg.
2. Long head extends the thigh.



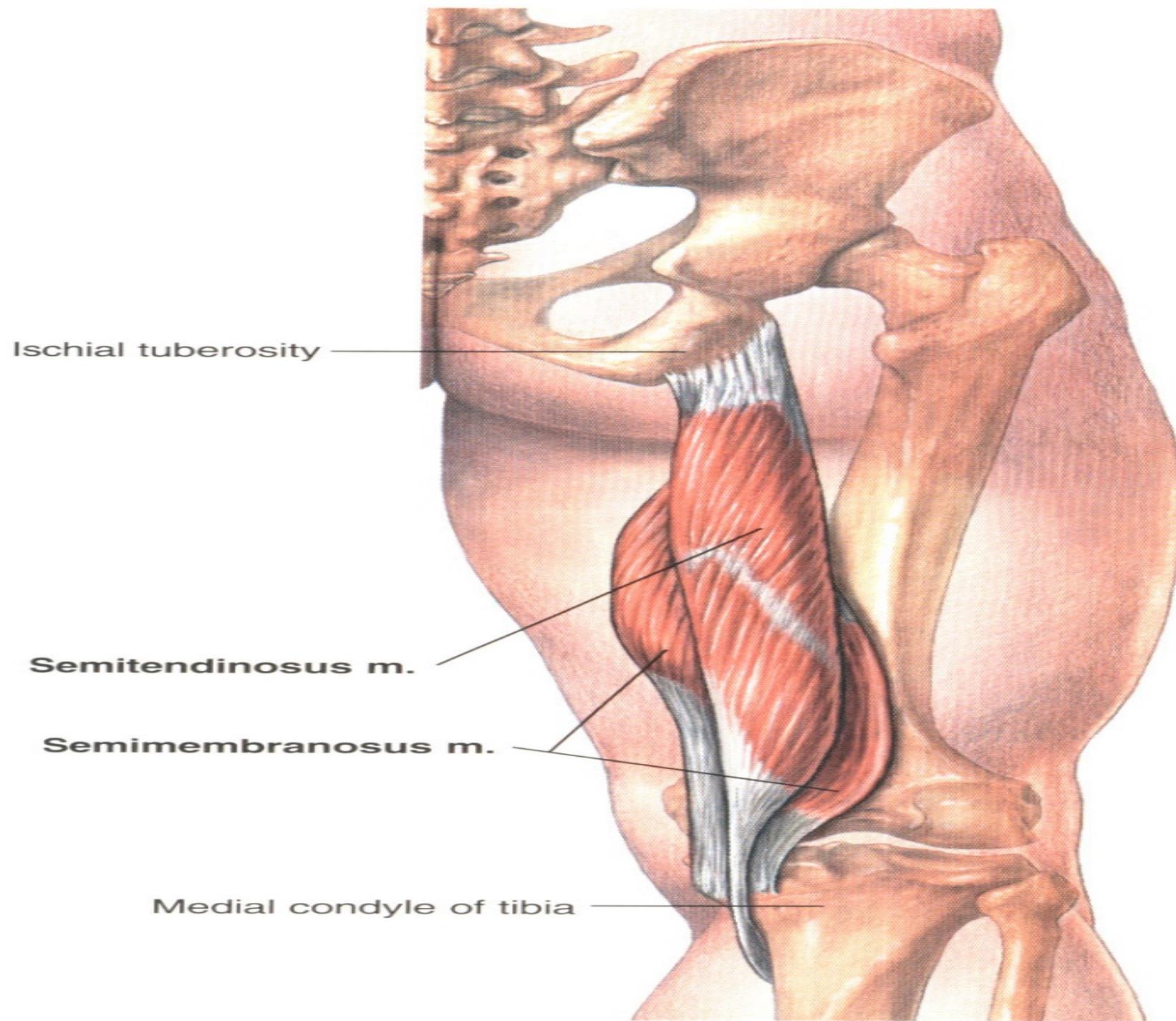
# Semitendinosus

- **Origin:**  
The ischial tuberosity.
- **Insertion:**  
Upper part of the medial surface of the shaft of the tibia.
- **Nerve Supply:**  
Sciatic nerve.
- **Action:**
  1. Flexion and medial rotation of the leg.
  2. Extension of the thigh.



# Semimembranosus

- Origin:  
The ischial tuberosity.
- Insertion:  
Posteromedial surface of the lateral condyle of the tibia and (oblique popliteal ligament).
- Nerve Supply:  
Sciatic nerve.
- Action:
  1. Flexion and medial rotation of the leg.
  2. Extension of the thigh.



# Abductor Magnus

## ➤ Origin:

1. **Pubic part:** from Inferior pubic ramus.
2. **Ischial part:** from Ischial ramus and ischial tuberosity.

## ➤ Insertion:

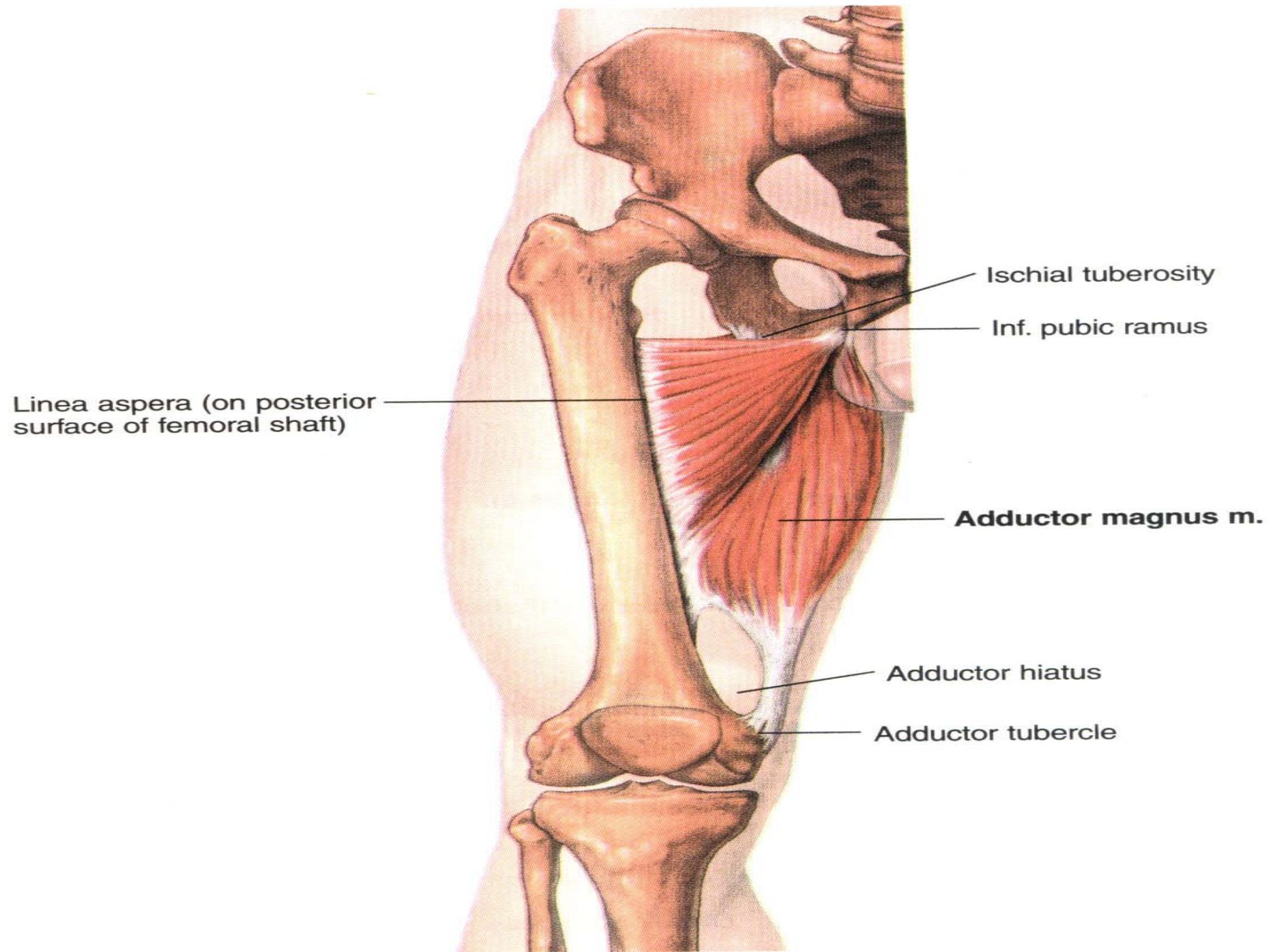
1. **Pubic part:** Posterior surface of femoral shaft
2. **Ischial part:** Adductor tubercle of the femur.

## ➤ Nerve Supply:

1. **Pubic part:** Obturator nerve.
2. **Ischial part:** Sciatic nerve.

## ➤ Action:

1. **Pubic part:** Adduction of the thigh.
2. **Ischial part:** Extension of the thigh.



**Muscles of the Anterior  
Compartment of the Leg**

**Muscles:.**

- 1.Tibialis anterior.**
- 2.Extensor digitorum  
longus.**
- 3.Peroneus tertius.**
- 4.Extensor hallucis longus.**

**Table 13-21** Muscles of the Anterior Fascial Compartment of the Leg

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Tibialis anterior	Lateral surface of shaft of tibia and interosseous membrane	Medial cuneiform and base of first metatarsal bone	Deep peroneal nerve	<b>L4, 5</b>	Extends <sup>b</sup> foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; holds up medial longitudinal arch of foot
Extensor digitorum-longus	Anterior surface of shaft of fibula	Extensor expansion of lateral four toes	Deep peroneal nerve	<b>L5; S1</b>	Extends toes; extends foot at ankle joint
Peroneus tertius	Anterior surface of shaft of fibula	Base of fifth metatarsal bone	Deep peroneal nerve	<b>L5; S1</b>	Extends foot at ankle joint; everts foot at subtalar and transverse tarsal joints
Extensor hallucis longus	Anterior surface of shaft of fibula	Base of distal phalanx of great toe	Deep peroneal nerve	<b>L5; S1</b>	Extends big toe; extends foot at ankle joint; inverts foot at subtalar and transverse tarsal joints
Extensor digitorum brevis	Calcaneum	By four tendons into the proximal phalanx of big toe and long extensor tendons to second, third, and fourth toes	Deep peroneal nerve	<b>S1, 2</b>	Extends toes

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

<sup>b</sup> Extension, or dorsiflexion, of the ankle is the movement of the foot away from the ground.  
From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 660.

# Tibialis Anterior

➤ **Origin:**

Upper half of lateral surface of tibia and interosseous membrane.

➤ **Insertion:**

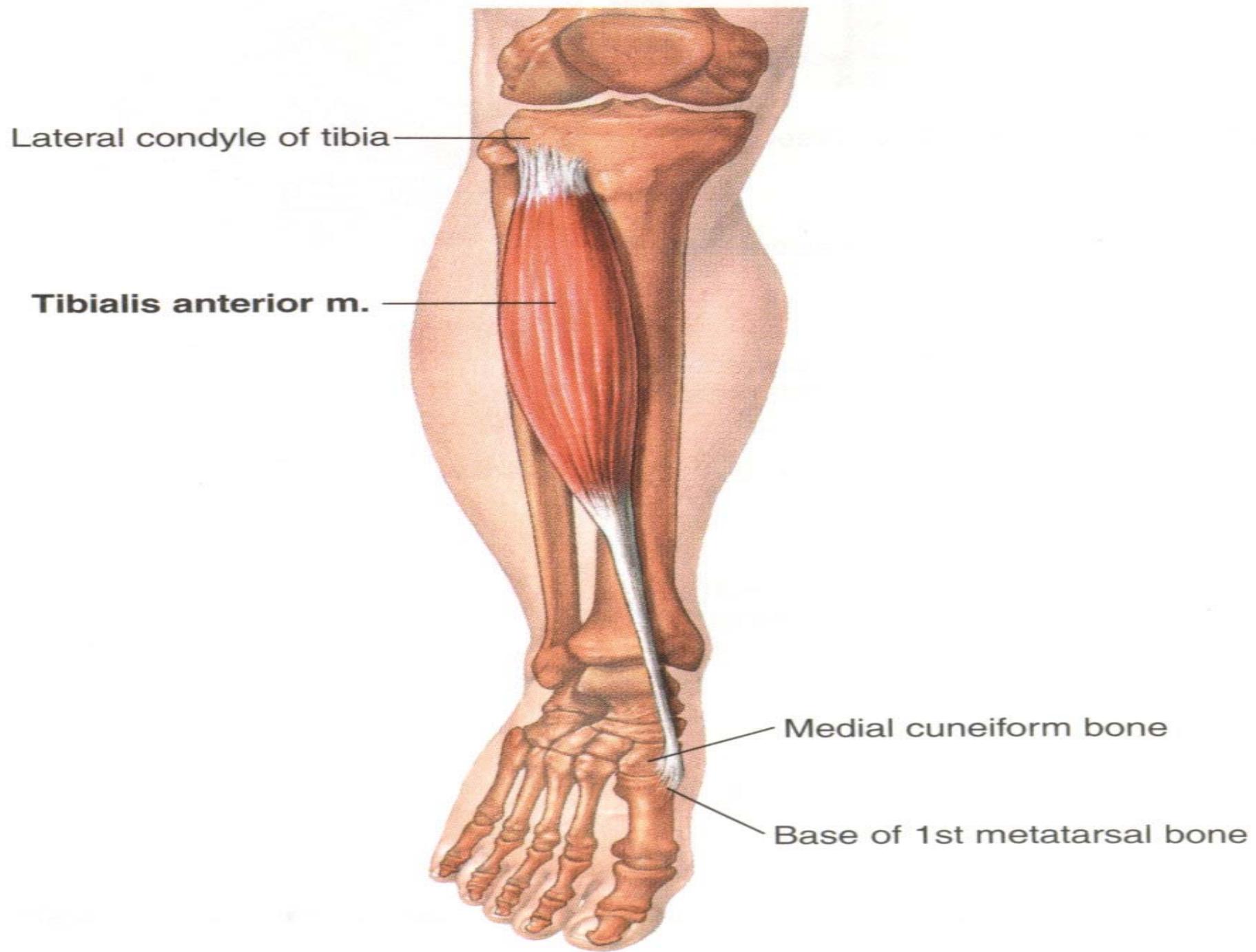
Medial cuneiform and base of 1<sup>st</sup> metatarsal.

➤ **Nerve Supply:**

Deep peroneal nerve.

➤ **Action:**

1. Dorsiflexion and inversion of the foot.
2. Maintenance of the medial longitudinal arch of the foot.



# **Extensor Digitorum Longus**

➤ **Origin:**

Upper 2/3 of anterior surface of fibula and interosseous membrane.

➤ **Insertion:**

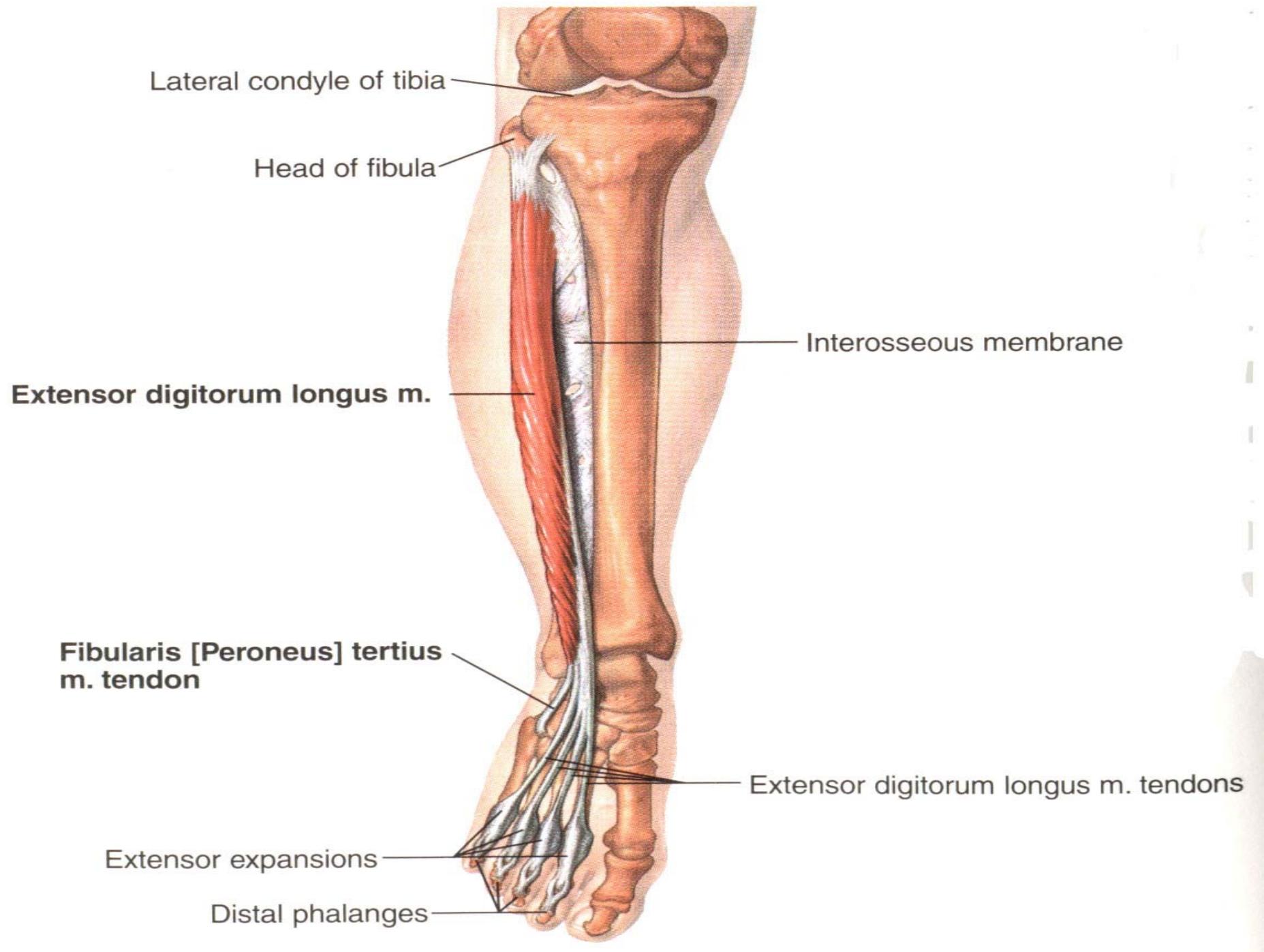
Extensor expansions of the lateral 4 toes.

➤ **Nerve Supply:**

Deep peroneal nerve.

➤ **Action:**

1. Extension of the lateral 4 toes.
2. Dorsiflexion of the foot.



# Peroneus Tertius

➤ **Origin:**

Lower 1/3 of anterior surface of fibula and interosseous membrane.

➤ **Insertion:**

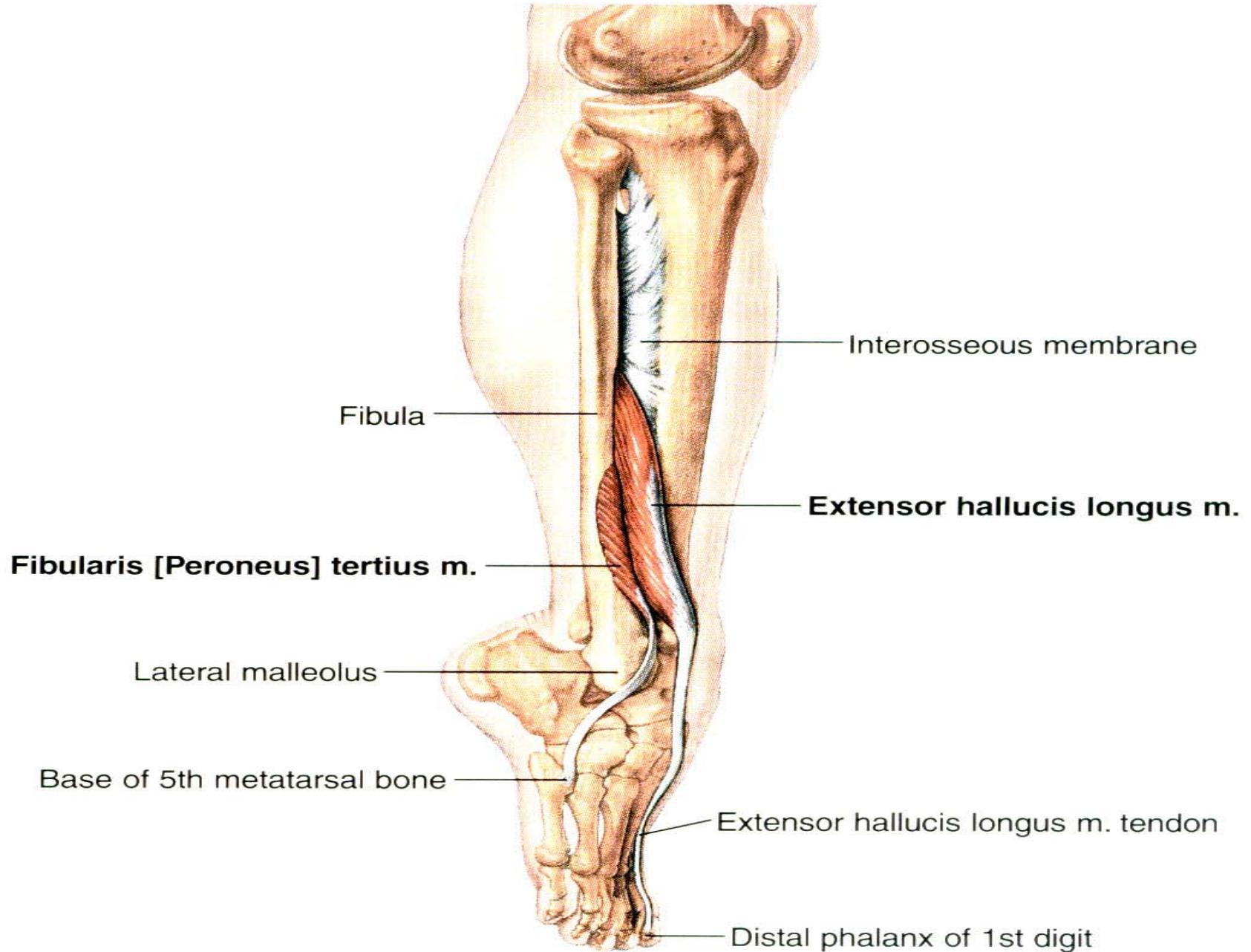
Medial side of the dorsal aspect of the base of 5<sup>th</sup> metatarsal bone.

➤ **Nerve Supply:**

Deep peroneal nerve.

➤ **Action:**

1. Dorsiflexion of the foot (ankle joint).
2. Eversion of the foot (sub-talar joints).



# **Extensor Hallucis Longus**

➤ **Origin:**

Middle half of anterior surface of fibula  
and interosseous membrane.

➤ **Insertion:**

Base of the distal phalanx of the big toe.

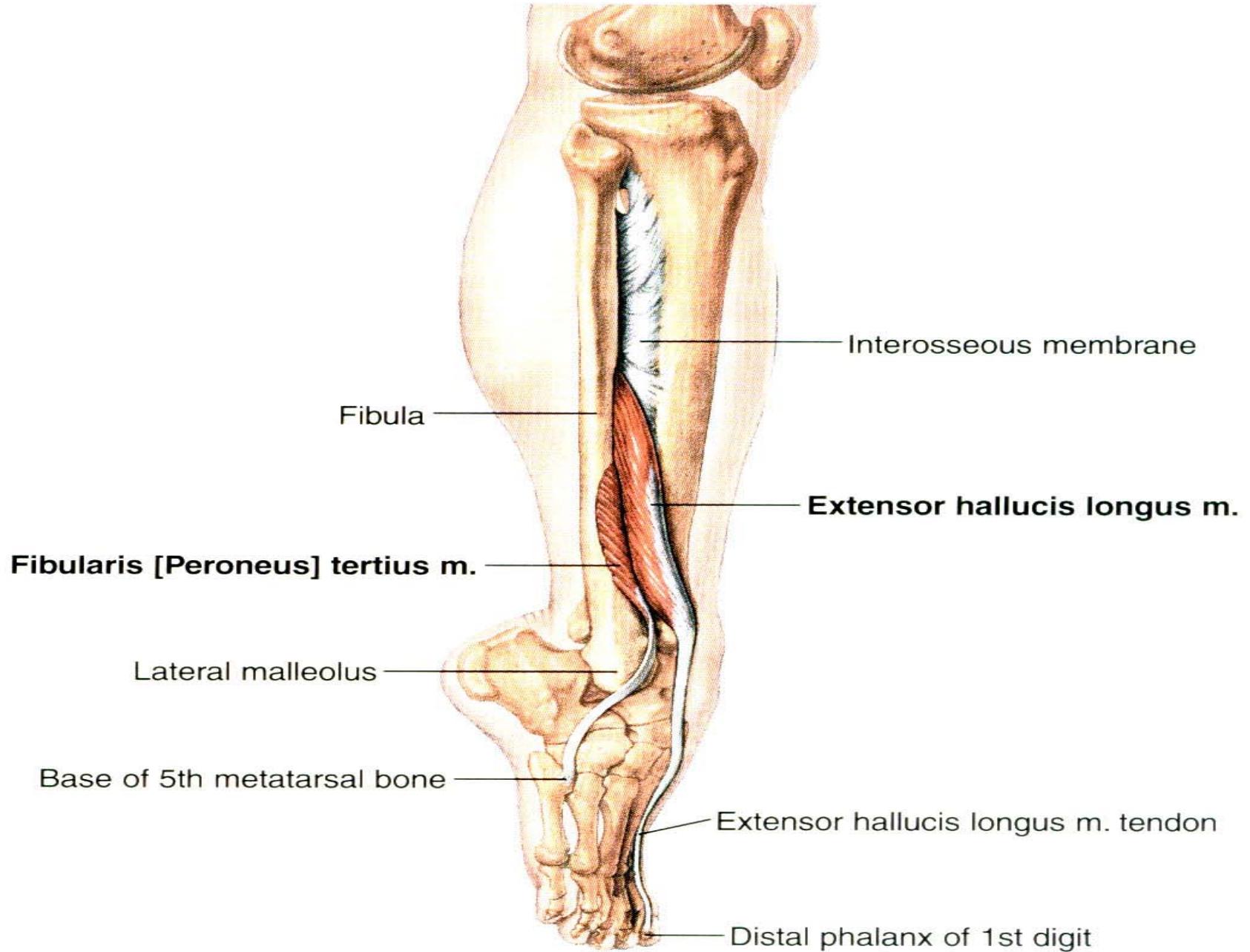
➤ **Nerve Supply:**

Deep peroneal nerve.

➤ **Action:**

1. Extension of the big toe.

2. Dorsiflexion and inversion of the foot.



# **Muscles of the Lateral Compartment of the Leg**

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## **Muscles of the Lateral Compartment of the Leg**

# **Muscles**

- 1. Peroneus longus.**
- 2. Peroneus brevis.**

**Table 13-22** Muscles of the Lateral Fascial Compartment of the Leg

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Peroneus longus	Lateral surface of shaft of fibula	Base of first metatarsal and the medial cuneiform	Superficial peroneal nerve	<b>L5; S1, 2</b>	Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joints; supports lateral longitudinal and transverse arches of foot
Peroneus brevis	Lateral surface of shaft of fibula	Base of fifth metatarsal bone	Superficial peroneal nerve	<b>L5; S1, 2</b>	Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joint; supports lateral longitudinal arch of foot

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 661.

# Peroneus Longus

➤ Origin:

Upper 2/3 of lateral surface of fibula.

➤ Insertion:

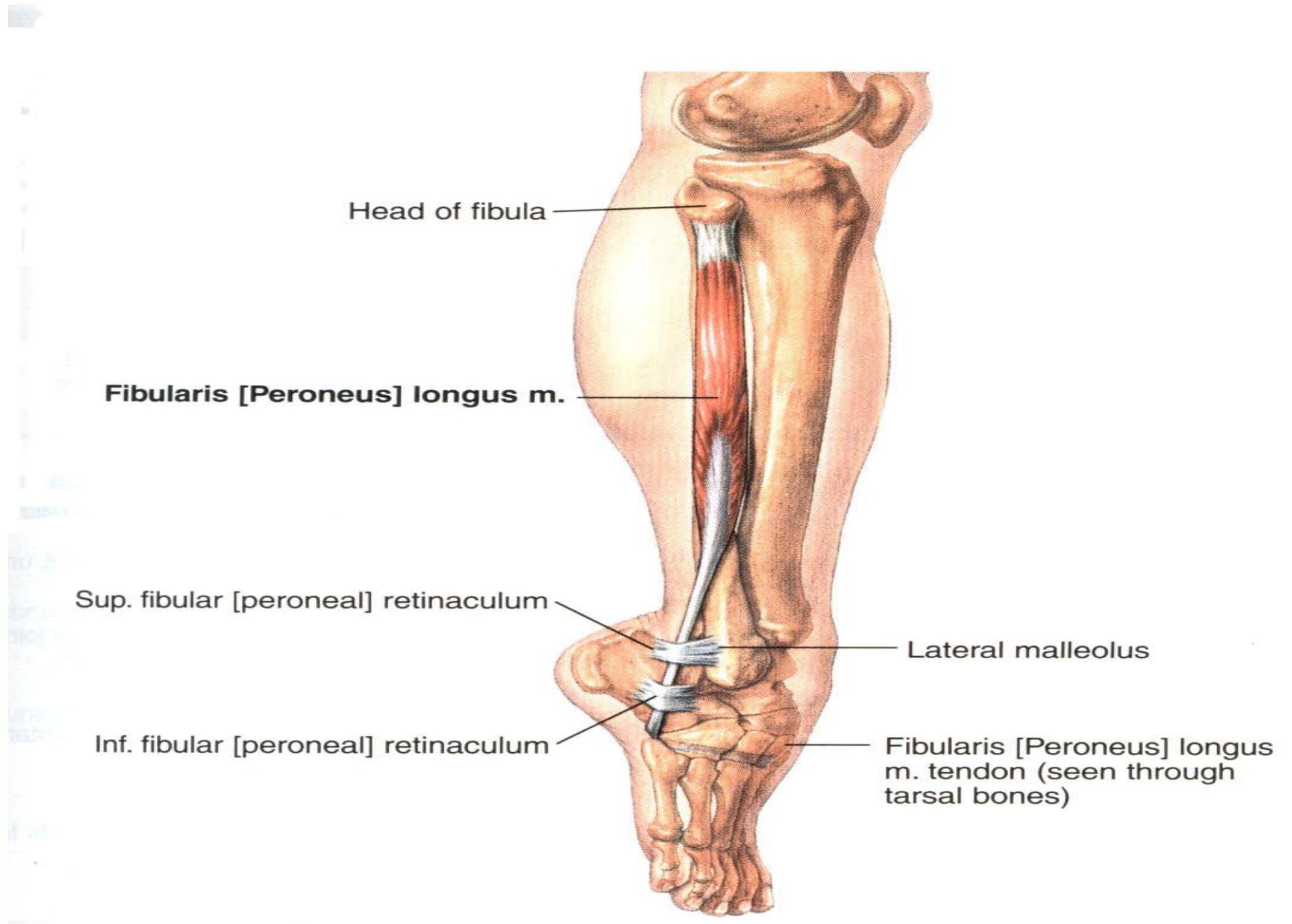
Medial cuneiform and base of the 1<sup>st</sup> metatarsal bone.

➤ Nerve Supply:

Superficial peroneal nerve.

➤ Action:

1. Plantar flexion of the foot (ankle joint).
2. Eversion of the foot (sub-talar joints).
3. Maintenance of the lateral longitudinal and transverse arches of the foot.



# **Peroneus Brevis**

## ➤ **Origin:**

Lower 2/3 of lateral surface of fibula.

## ➤ **Insertion:**

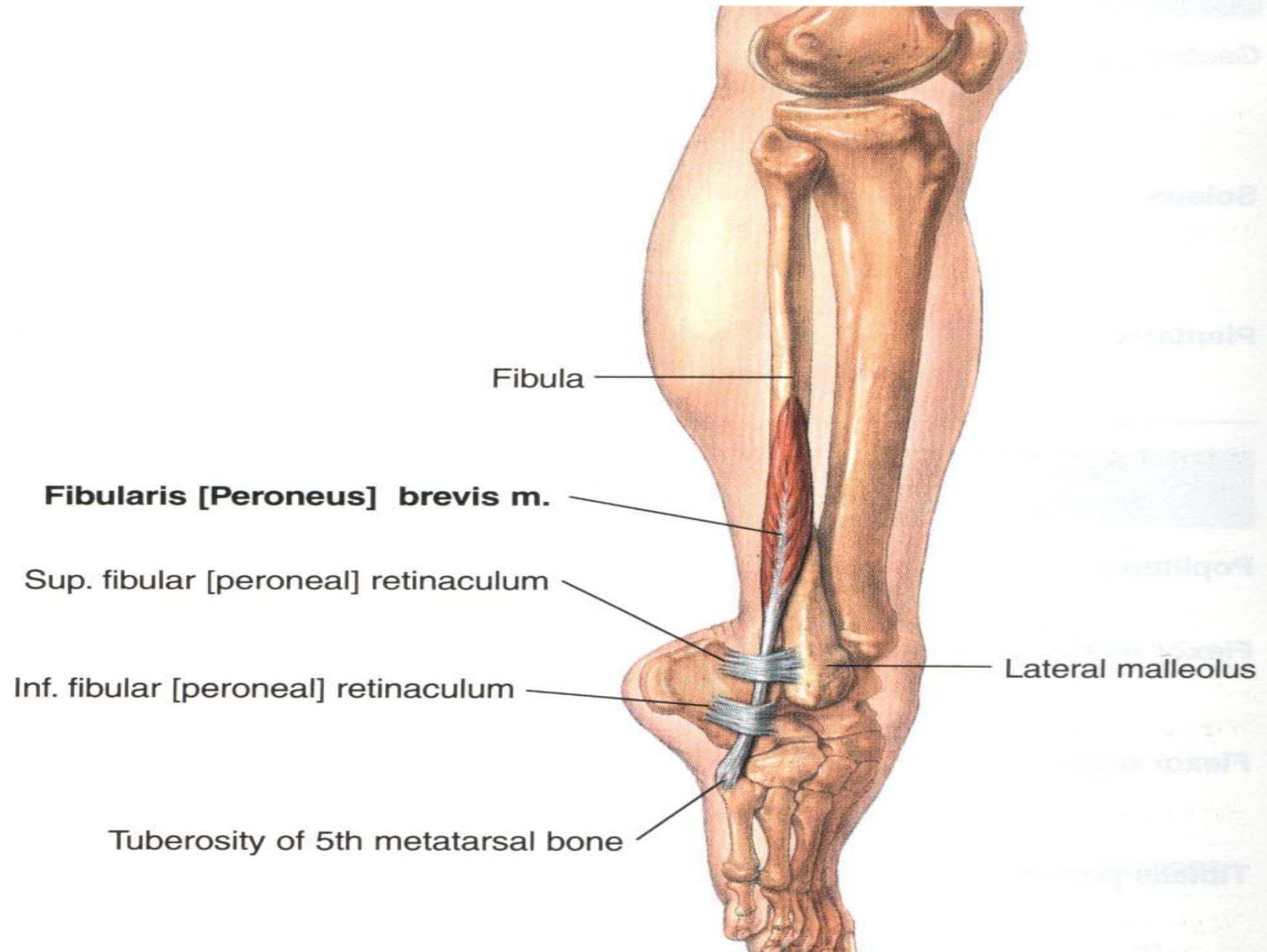
Base of the 5<sup>th</sup> metatarsal bone.

## ➤ **Nerve Supply:**

Superficial peroneal nerve.

## ➤ **Action:**

1. Plantar flexion of the foot (ankle joint).
2. Eversion of the foot (sub-talar joints).
3. Maintenance of the lateral longitudinal arch of the foot.



# **Muscles of the Posterior Compartment of the Leg**

# Muscles of the Posterior Compartment of the Leg

**Table 13-23**

**Muscles of the Posterior Fascial Compartment of the Leg**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
<b>Superficial Group</b>					
Gastrocnemius	Lateral head from lateral condyle of femur and medial head from above medial condyle	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	<b>S1, 2</b>	Plantar flexes foot at ankle joint; flexes knee joint
Plantaris	Lateral supra-condylar ridge of femur	Posterior surface of calcaneum	Tibial nerve	<b>S1, 2</b>	Plantar flexes foot at ankle joint; flexes knee joint
Soleus	Shafts of tibia and fibula	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	<b>S1, 2</b>	Together with gastrocnemius and plantaris is the powerful plantar flexor of the ankle joint; provides main propulsive force in walking and running
<b>Deep Group</b>					
Popliteus	Lateral surface of lateral condyle of femur	Posterior surface of shaft of tibia above soleal line	Tibial nerve	<b>L4, 5; S1</b>	Flexes leg at knee joint; unlocks knee joint by lateral rotation of femur on tibia and slackens ligaments of joint
Flexor digitorum longus	Posterior surface of shaft of tibia	Bases of distal phalanges of lateral four toes	Tibial nerve	<b>S2, 3</b>	Flexes distal phalanges of lateral four toes; plantar flexes foot at ankle joint; supports medial and lateral longitudinal arches of foot
Flexor hallucis longus	Posterior surface of shaft of fibula	Base of distal phalanx of big toe	Tibial nerve	<b>S2, 3</b>	Flexes distal phalanx of big toe; plantar flexes foot at ankle joint; supports medial longitudinal arch of foot
Tibialis posterior	Posterior surface of shafts of tibia and fibula and interosseous membrane	Tuberosity of navicular bone and other neighbouring bones	Tibial nerve	<b>L4, 5</b>	Plantar flexes foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; supports medial longitudinal arch of foot

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 665.

# **Superficial Muscles**

**1.Gastrocnemius.**

**2.Plataris.**

**3.Soleus.**

# Gastrocnemius

## ➤ Origin:

1. **Lateral head:** Lateral condyle of femur.
2. **Medial head:** Popliteal surface of femur above the medial condyle.

## ➤ Insertion:

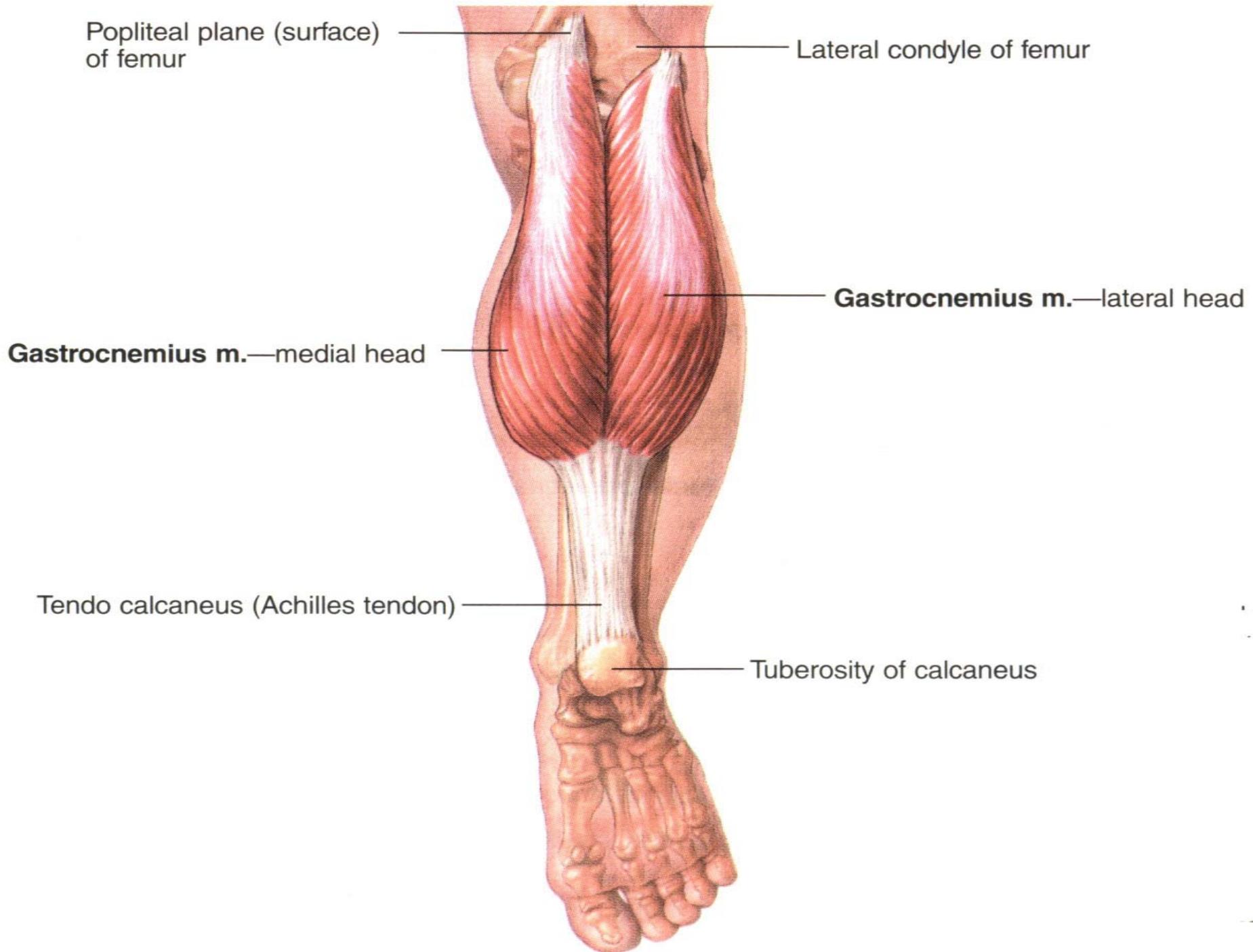
Through tendocalcaneus to the posterior surface of the calcaneum.

## ➤ Nerve Supply:

Tibial Nerve.

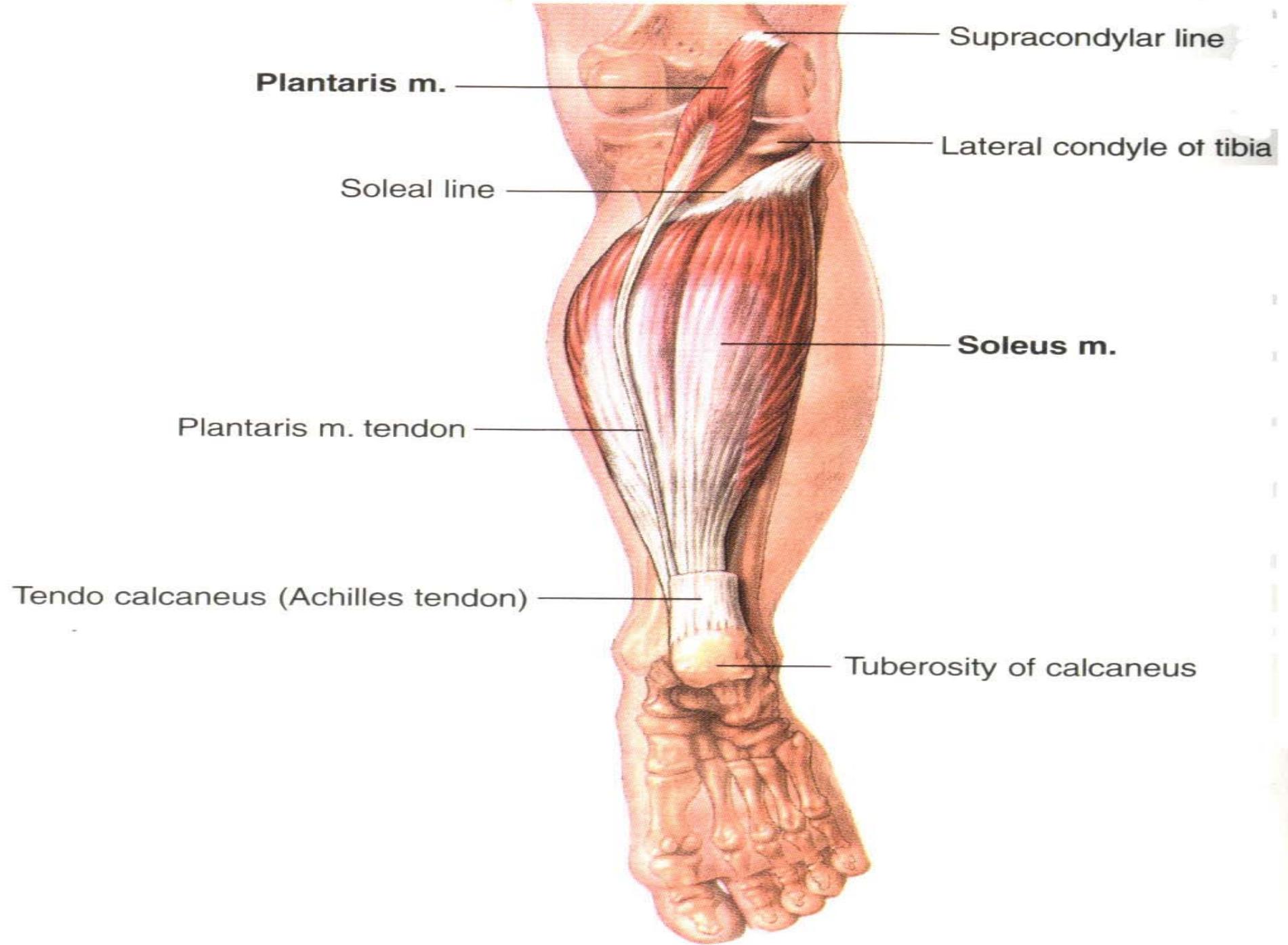
## ➤ Action:

1. Plantar flexion of the foot (ankle joint).
2. Flexion of the leg (knee joint).



# Plantaris

- Origin:  
Lateral supra-condylar ridge of femur.
- Insertion:  
Posterior surface of the calcaneum.
- Nerve Supply:  
Tibial nerve.
- Action:
  1. Plantar flexion of the foot (ankle joint).
  2. Flexion of the leg (knee joint).



# Soleus

➤ Origin:

1. Soleal line of tibia.
2. Upper  $\frac{1}{4}$  of posterior surface of fibula.
3. Fibrous arch between tibia and fibula.

➤ Insertion:

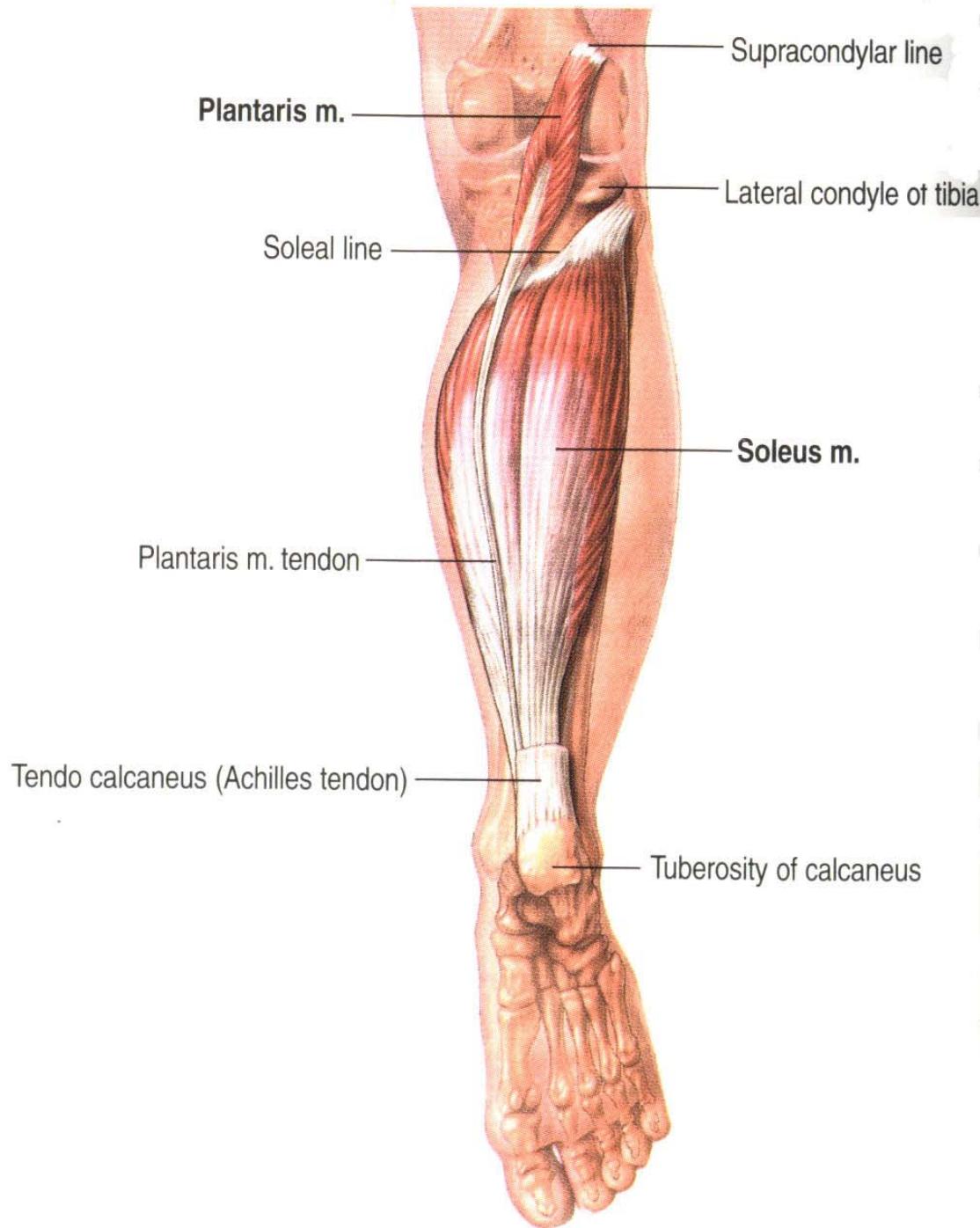
Through tendocalcaneus to the posterior surface of the calcaneum.

➤ Nerve Supply:

Tibial Nerve.

➤ Action:

Plantar flexion of the foot (ankle joint).



# **Deep Muscles**

**1. Popliteus.**

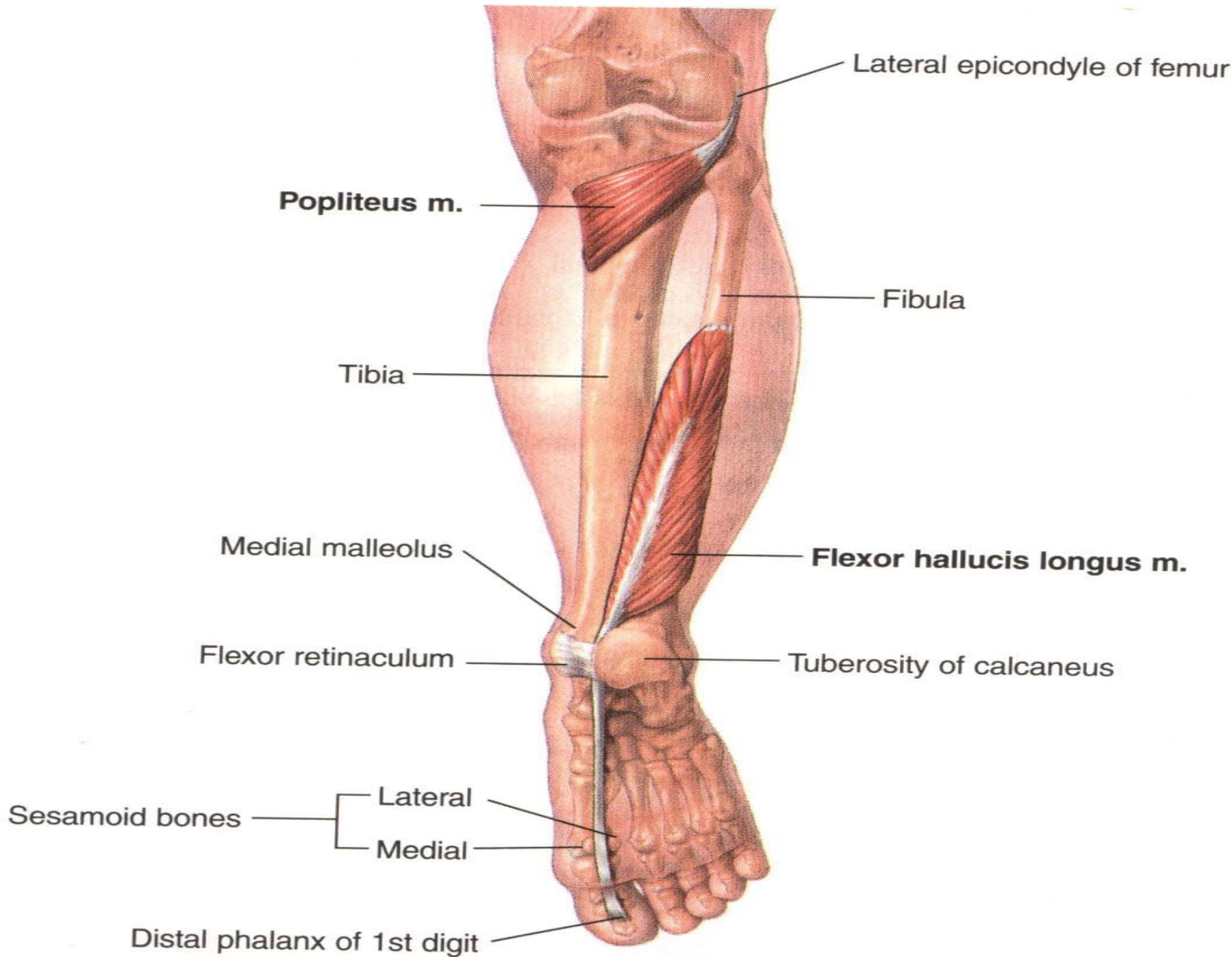
**2. Flexor digitorum  
longus.**

**3. Flexor hallucis longus.**

**4. Tibialis posterior.**

# Popliteus

- Origin:  
Lateral surface of lateral condyle of femur
- Insertion:  
Posterior surface of tibia above soleal line.
- Nerve Supply:  
Tibial Nerve.
- Action:  
Medial rotation of tibia on femur  
(unlocking of knee joint)



# **Flexor Digitorum Longus**

## ➤ **Origin:**

Medial part of the posterior surface of the tibia below the soleal line

## ➤ **Insertion:**

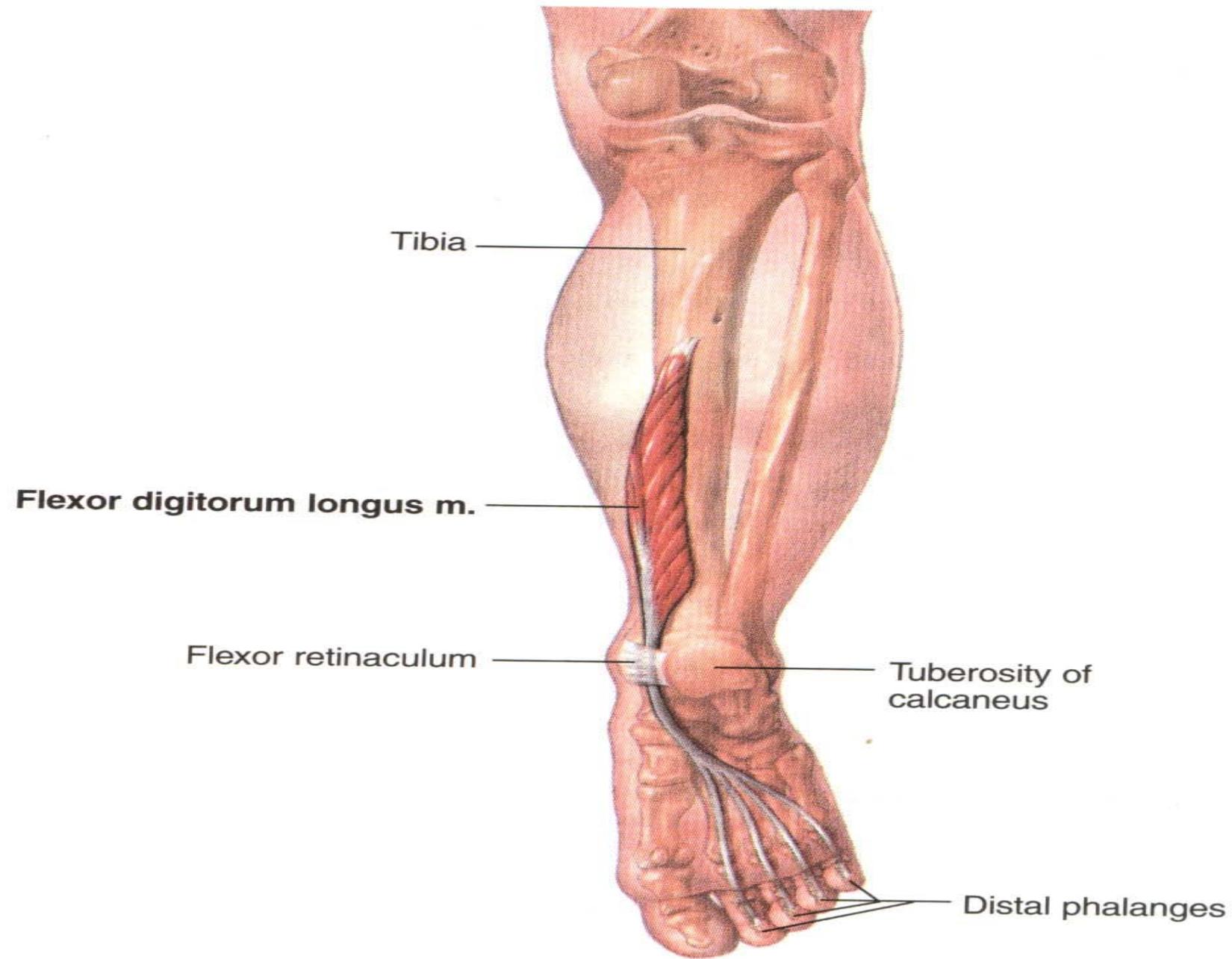
Bases of the distal phalanges of the lateral 4 toes.

## ➤ **Nerve Supply:**

Tibial Nerve.

## ➤ **Action:**

1. Flexion of the lateral 4 toes.
2. Plantar flexion of the foot.
3. Maintenance of the longitudinal arches.



# **Flexor Hallucis Longus**

## ➤ **Origin:**

Lower 2/3 of the posterior surface of the shaft of the fibula.

## ➤ **Insertion:**

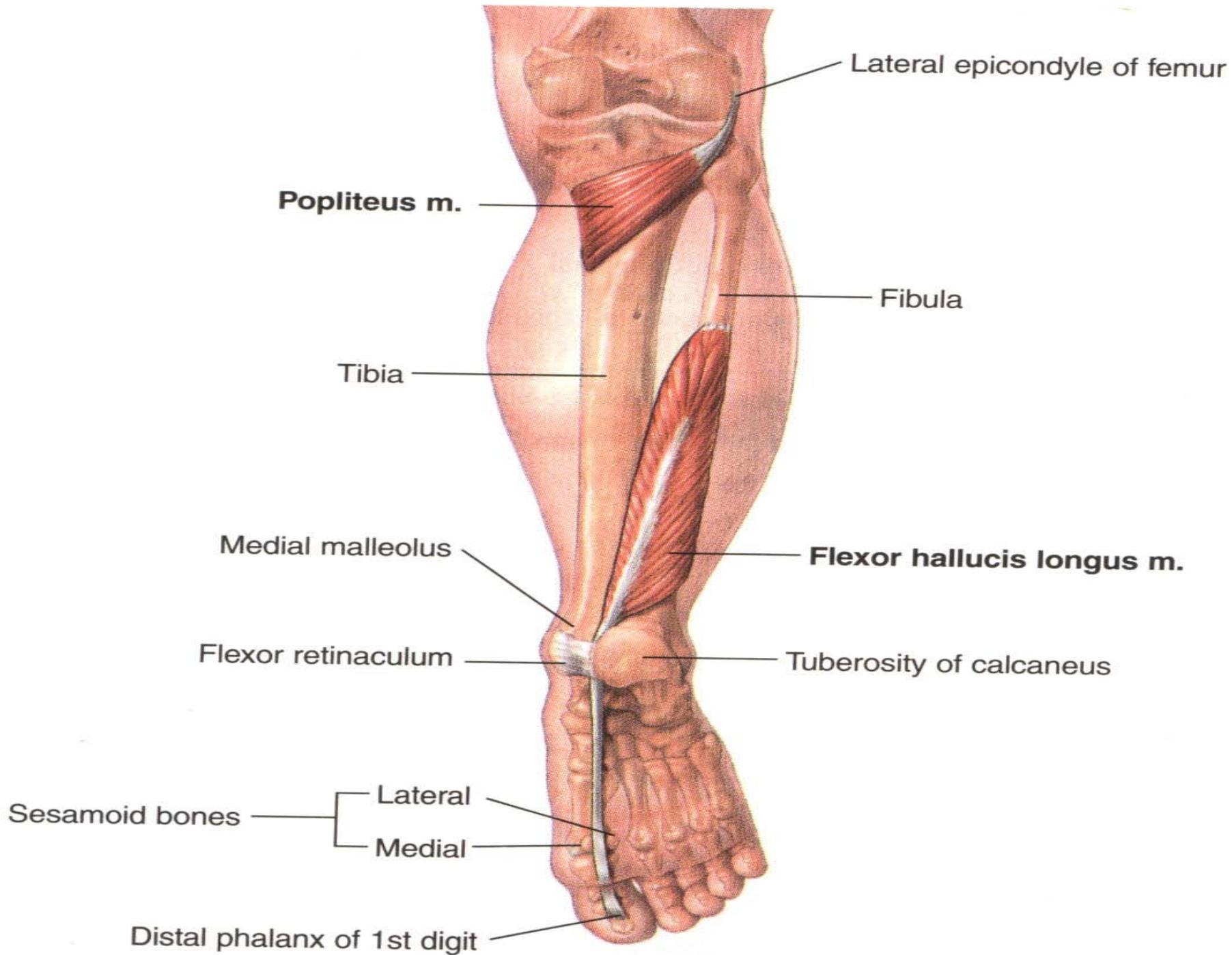
Base of the distal phalanx of the big toe.

## ➤ **Nerve Supply:**

Tibial Nerve.

## ➤ **Action:**

1. Flexion of the big toe.
2. Plantar flexion of the foot.
3. Maintenance of the longitudinal arches.



# Tibialis Posterior

## ➤ Origin:

Lateral part of the posterior surface of the tibia, interosseous membrane and posterior surface of fibula.

## ➤ Insertion:

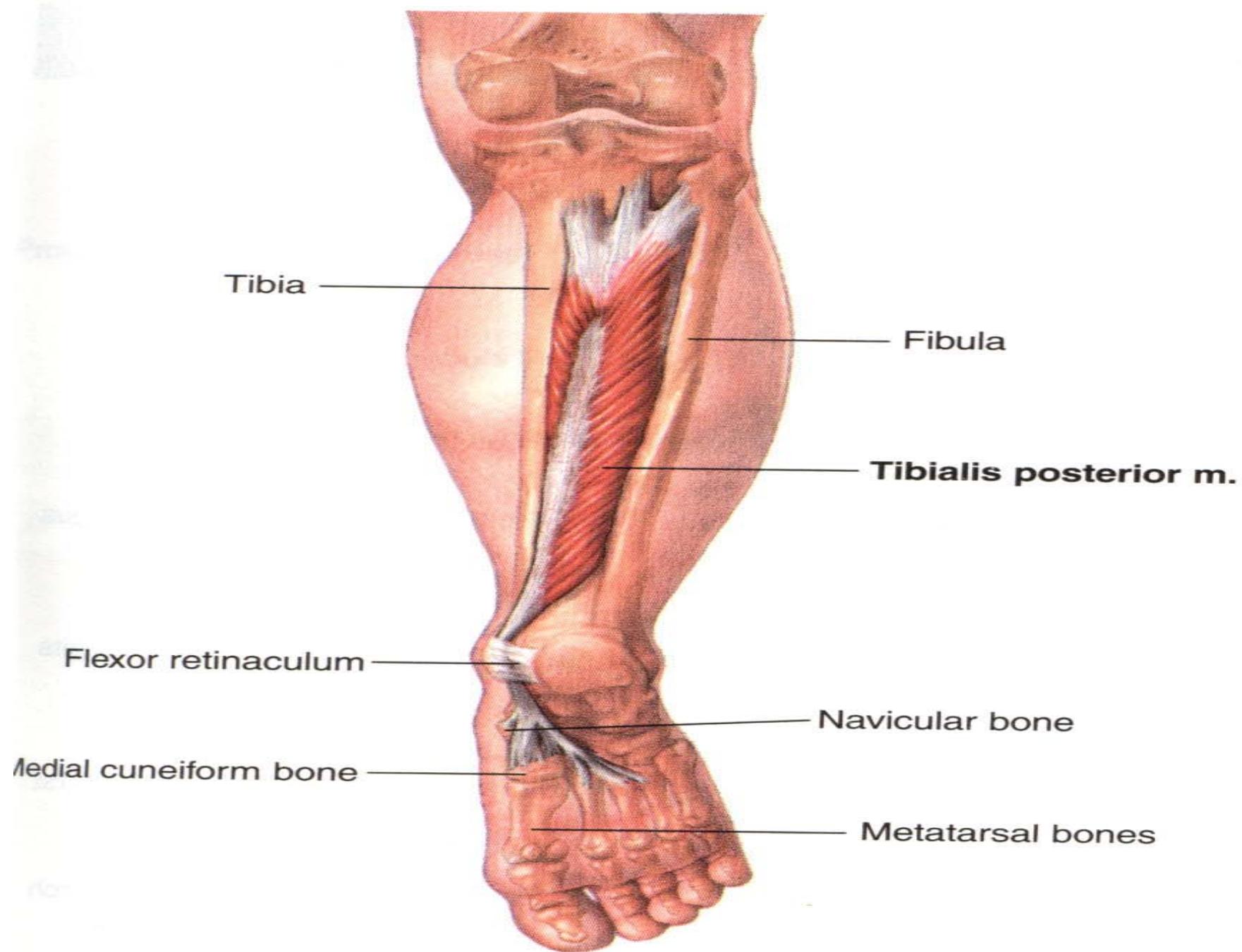
Mainly to the navicular bone.

## ➤ Nerve Supply:

Tibial Nerve.

## ➤ Action:

1. Plantar flexion and inversion of the foot.
2. Maintenance of medial longitudinal arch.



## **Muscle of the Dorsum of the Foot**

# **Muscles**

**1.Extensor digitorum  
brevis.**

# **Extensor Digitorum Brevis**

## ➤ **Origin:**

Upper surface of the calcaneum.

## ➤ **Insertion:**

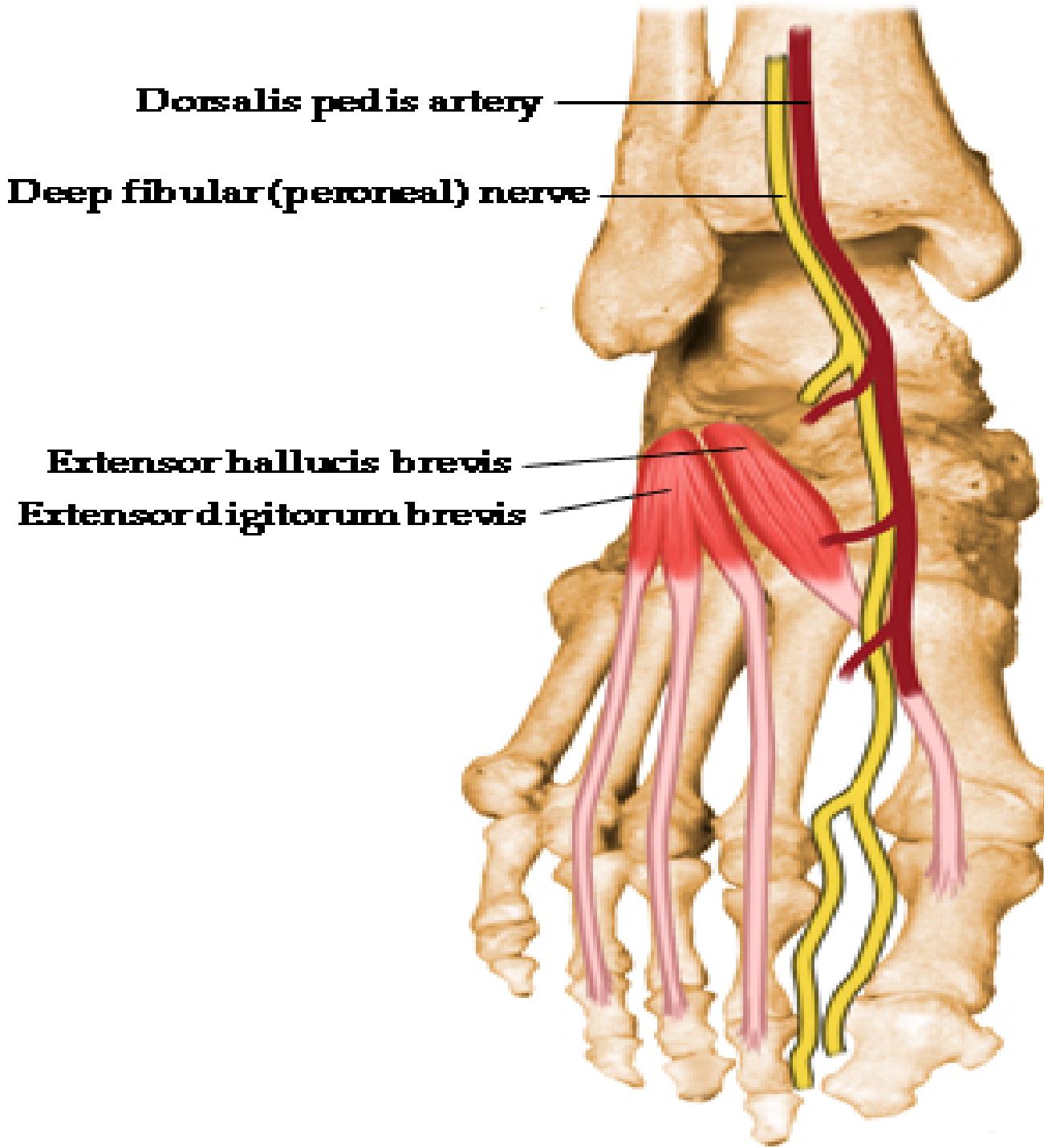
Base of proximal phalanx of the big toe  
and extensor expansions of the 2<sup>nd</sup>,  
3<sup>rd</sup> and 4<sup>th</sup> toes.

## ➤ **Nerve Supply:**

Deep peroneal nerve.

## ➤ **Action:**

Extension of the medial 4 toes.



# Muscles of the Sole of the Foot

**Table 13-24 Muscles of the Sole of the Foot**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
<b>First Layer</b>					
Abductor hallucis	Medial tuberosity of calcaneum and flexor retinaculum	Base of proximal phalanx of big toe	Medial plantar nerve	S2, 3	Flexes and abducts big toe; braces medial longitudinal arch
Flexor digitorum brevis	Medial tubercle of calcaneum	Four tendons to four lateral toes—inserted into borders of middle phalanx; tendons perforated by those of flexor digitorum longus	Medial plantar nerve	S2, 3	Flexes lateral four toes; braces medial and lateral longitudinal arches
Abductor digiti minimi	Medial and lateral tubercles of calcaneum	Base of proximal phalanx of fifth toe	Lateral plantar nerve	S2, 3	Flexes and abducts fifth toe; braces lateral longitudinal arch
<b>Second Layer</b>					
Quadratus plantae	Medial and lateral sides of calcaneum	Tendon of flexor digitorum longus	Lateral plantar nerve	S2, 3	Assists flexor digitorum longus in flexing lateral four toes
Lumbri-cals (4)	Tendons of flexor digitorum longus	Dorsal extensor expansion; bases of proximal phalanges of lateral four toes	First lumbrical: medial plantar nerve; remainder: lateral plantar nerve	S2, 3	Extends toes at interphalangeal joints
Flexor digitorum longus tendon	See Table 13-23				
Flexor hallucis longus tendon	See Table 13-23				
<b>Third Layer</b>					
Flexor hallucis brevis	Cuboid, lateral cuneiform, tibialis posterior insertion	Medial tendon into medial side of base of proximal phalanx of big toe; lateral tendon into lateral side of base of proximal phalanx of big toe	Medial plantar nerve	S2, 3	Flexes metatarsophalangeal joint of big toe; supports medial longitudinal arch

**Table 13-24 (continued)**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Adductor hallucis	Oblique head bases of second, third, and fourth metatarsal bones; transverse head from plantar ligaments	Lateral side of base of proximal phalanx of big toe	Deep branch lateral plantar nerve	S2, <b>3</b>	Flexes metatarsophalangeal joint of big toe; holds together metatarsal bones
Flexor digiti minimi brevis	Base of fifth metatarsal bone	Lateral side of base of proximal phalanx of little toe	Lateral plantar nerve	S2, <b>3</b>	Flexes metatarsophalangeal joint of little toe
<b>Fourth Layer</b>					
Interossei Dorsal (4)	Adjacent sides of metatarsal bones	Bases of proximal phalanges—first: medial side of second toe; remainder: lateral sides of second, third, and fourth toes—also dorsal extensor expansion	Lateral plantar nerve	S2, <b>3</b>	Abduction of toes; flexes metatarsophalangeal joints and extends interphalangeal joints
Plantar (3)	Inferior surfaces of third, fourth, and fifth metatarsal bones	Medial side of bases of proximal phalanges of lateral three toes	Lateral plantar nerve	S2, <b>3</b>	Adduction of toes; flexes metatarsophalangeal joints and extends interphalangeal joints
Peroneus longus tendon Tibialis posterior tendon	See Table 13-22 See Table 13-23				

<sup>a</sup> The predominant nerve root supply is indicated by boldface type.

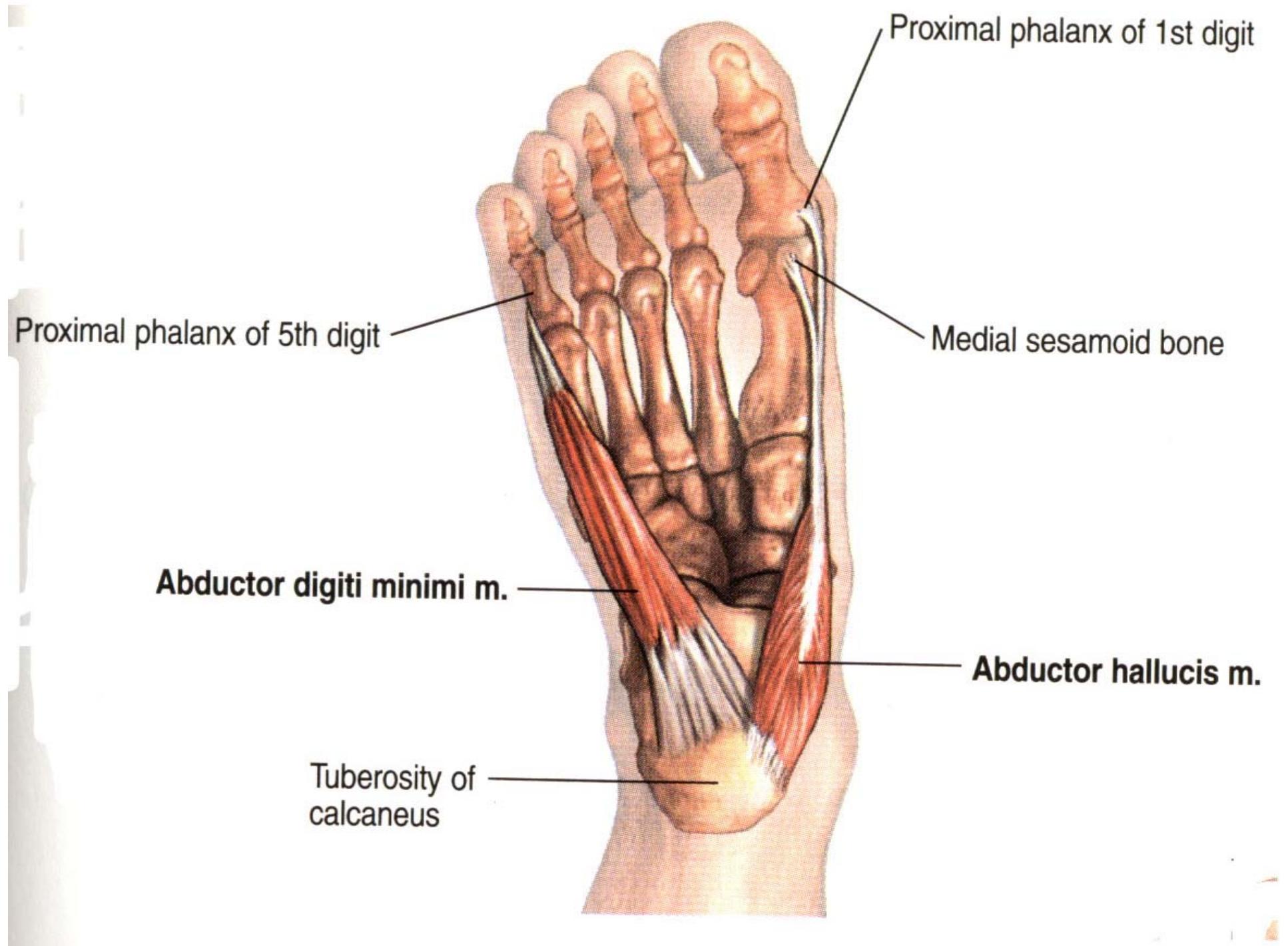
From Snell RS: Clinical Anatomy. 7th Ed. Philadelphia: Lippincott Williams & Wilkins, 2004, p. 669.

# **1<sup>st</sup> Layer Muscles**

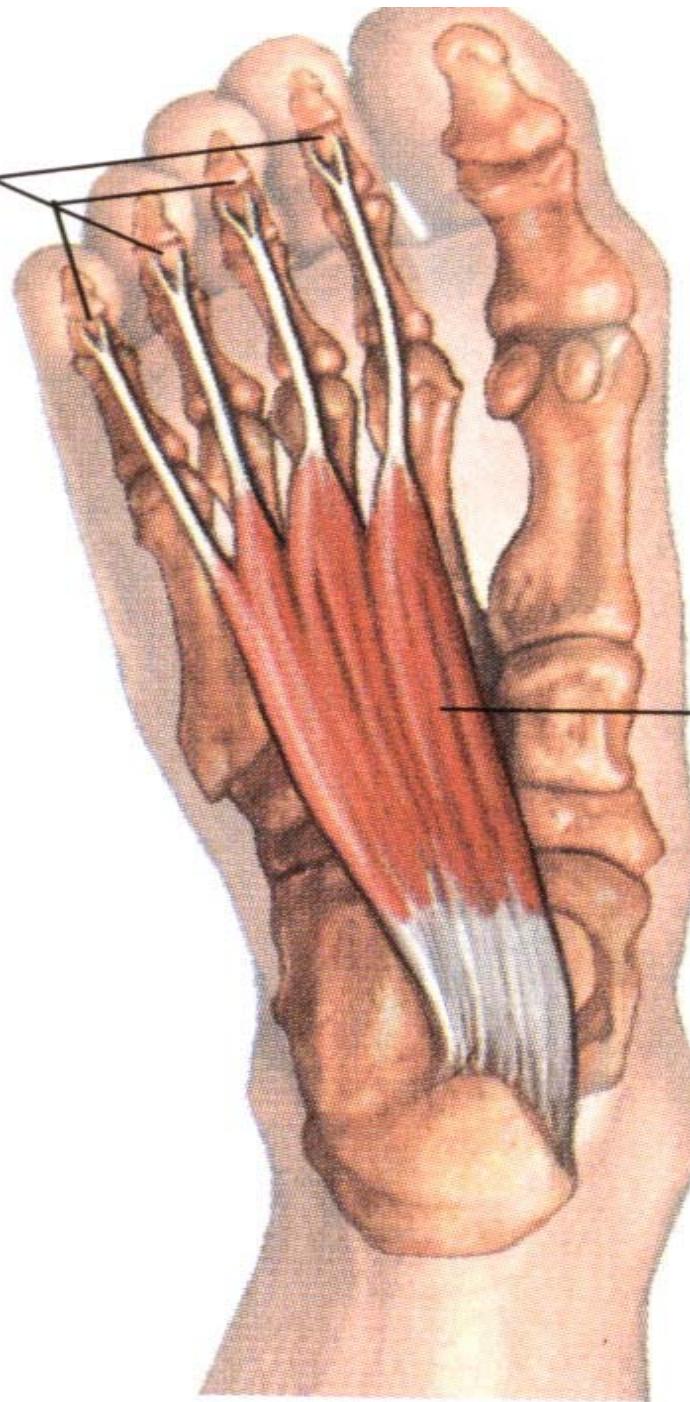
**1. Abductor hallucis.**

**2. Flexor digitorum  
brevis.**

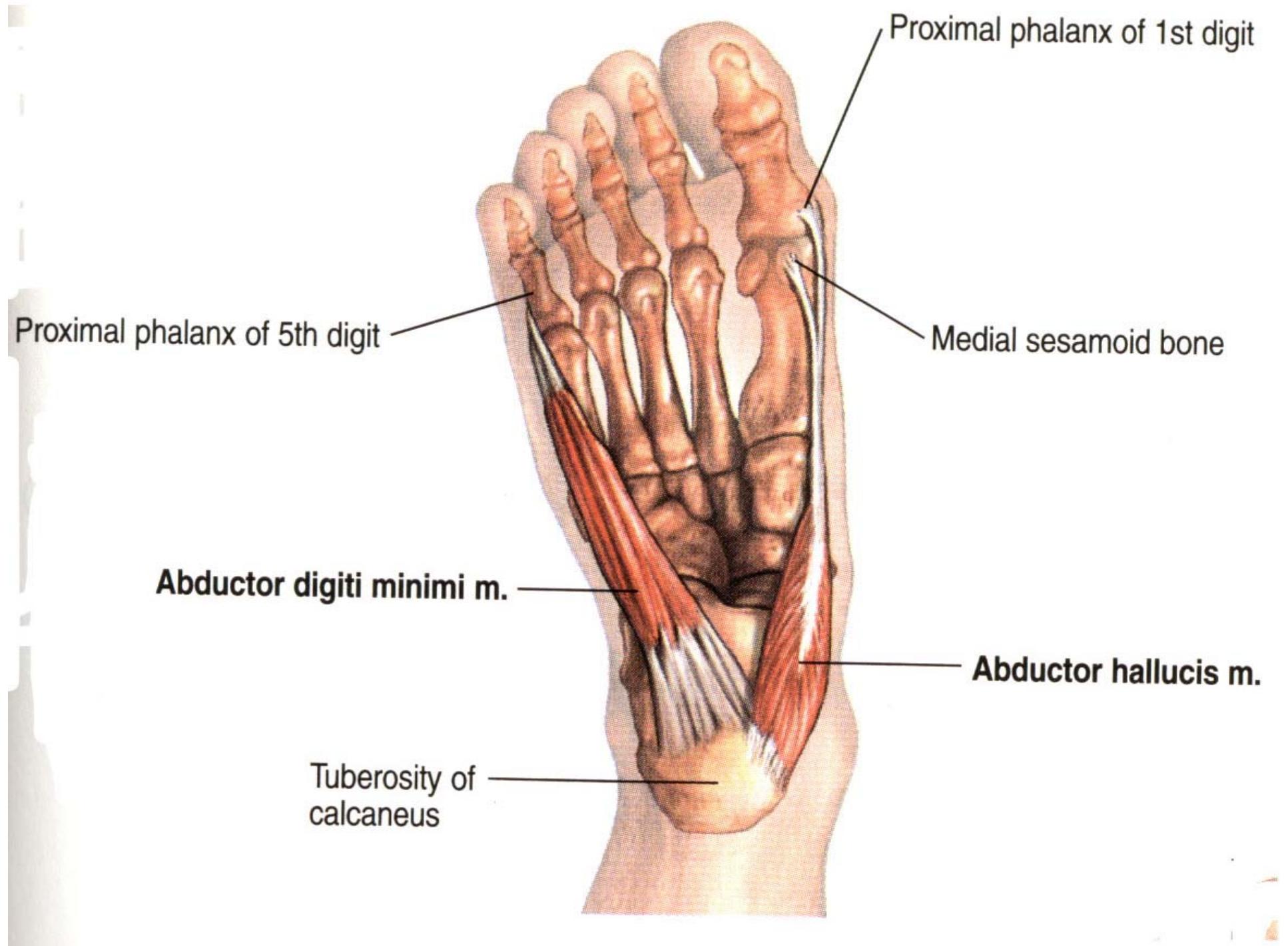
**3. Abductor digitii  
minimi.**



Middle phalanges

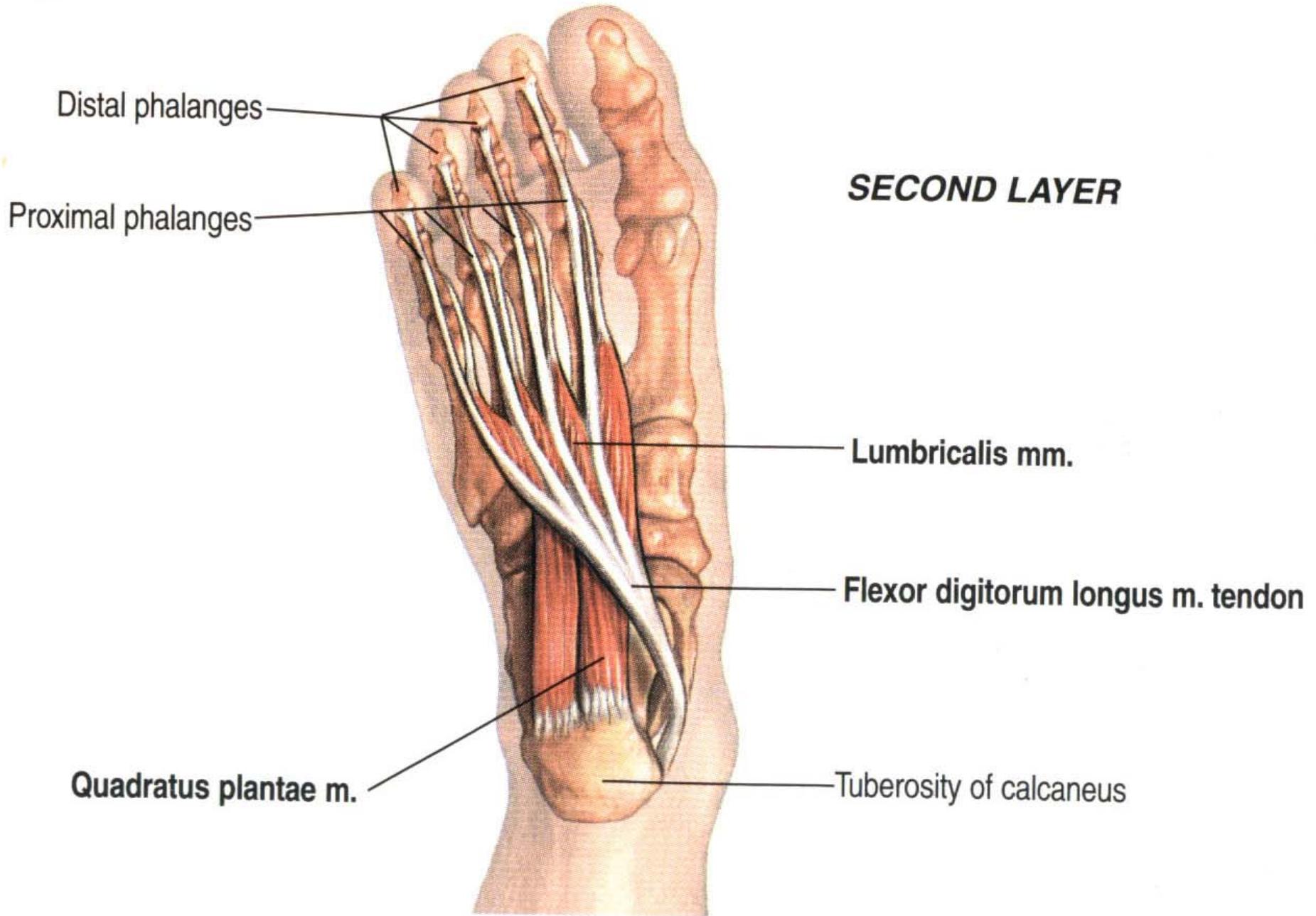


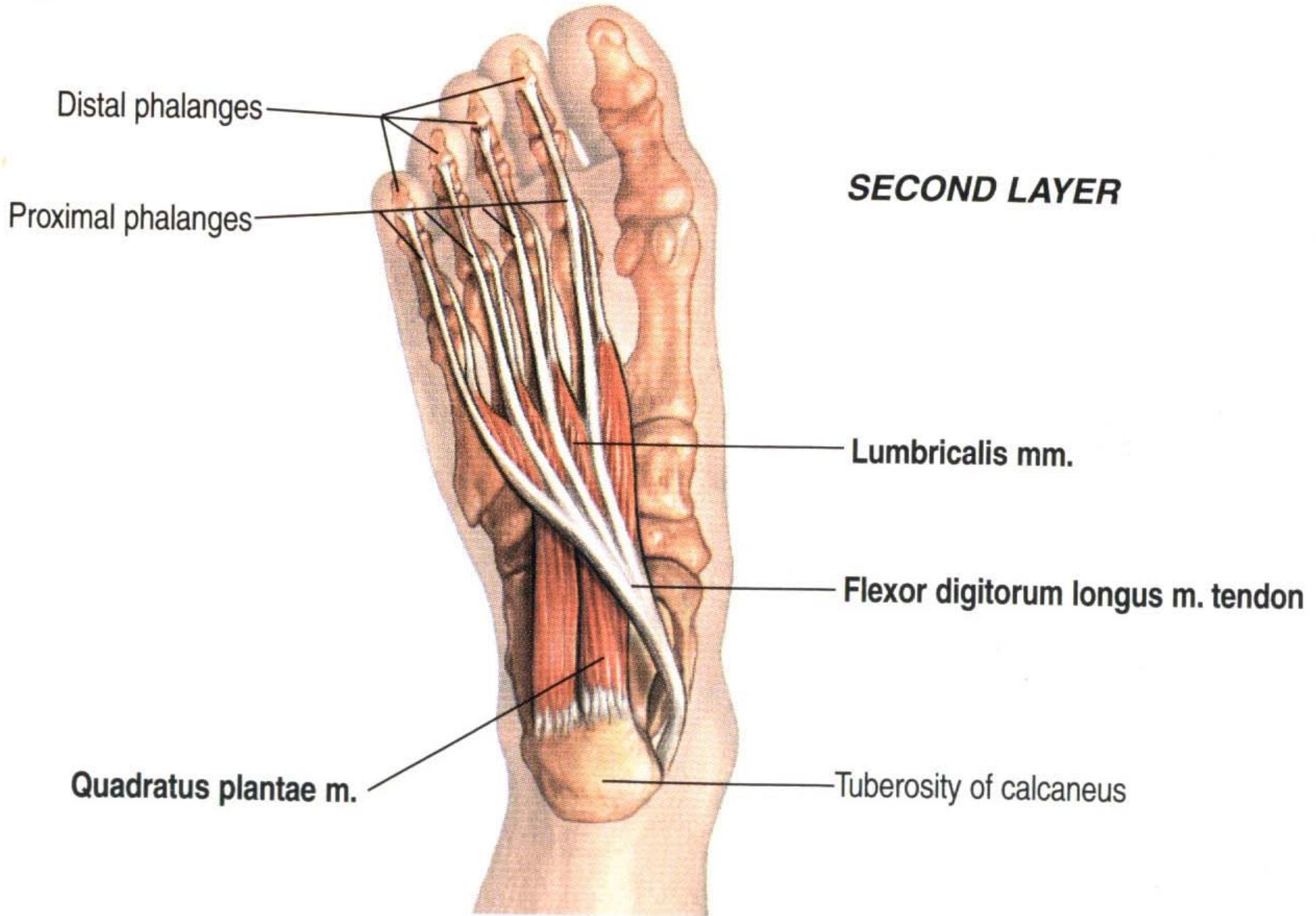
**Flexor digitorum  
brevis m.**

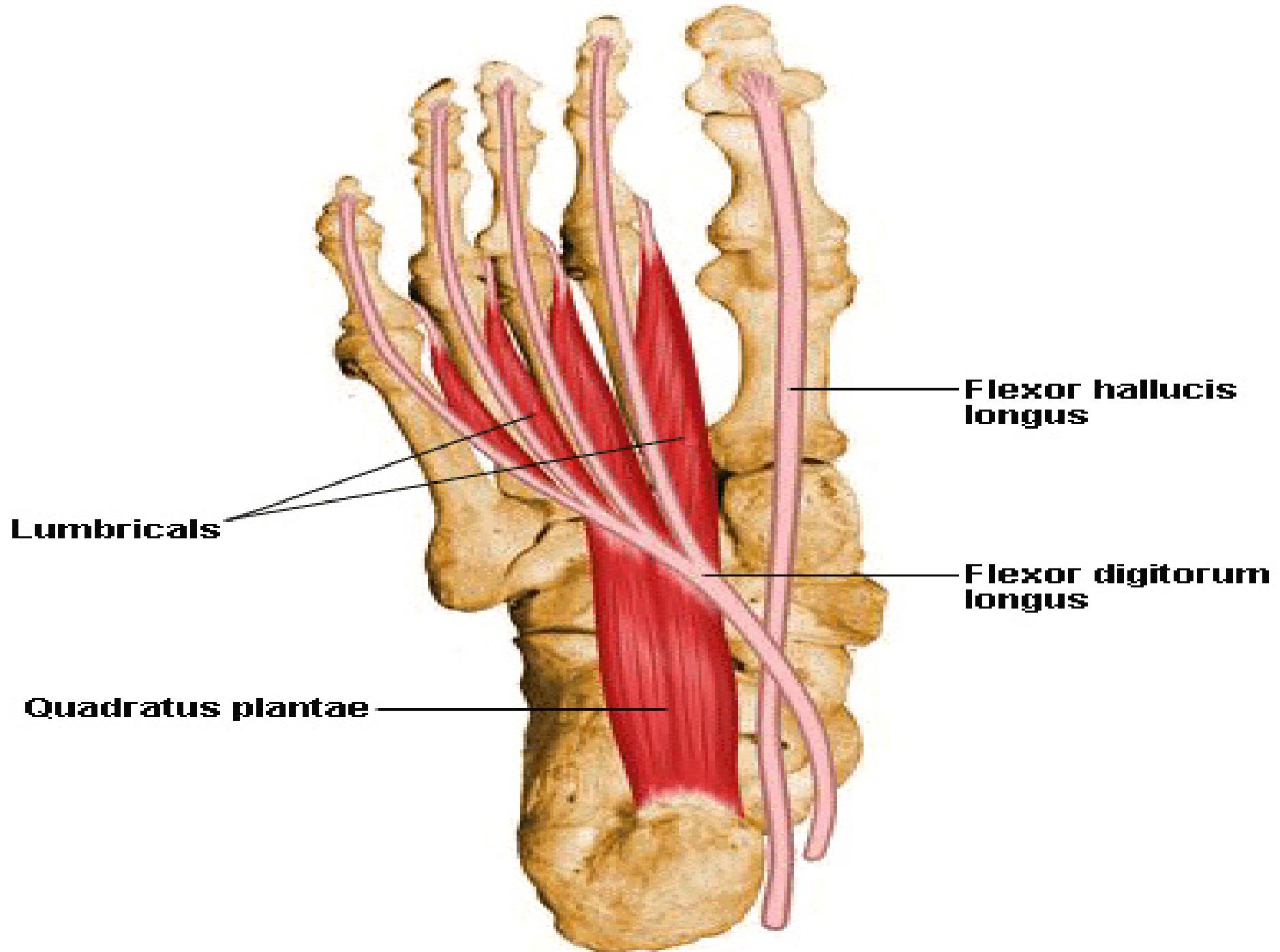


# **2<sup>nd</sup> Layer Muscles**

- 1. Quadratus plantae.**
- 2. Lumbricals.**
- 3. Tendon of flexor digitorum longus.**
- 4. Tendon of flexor hallucis longus.**

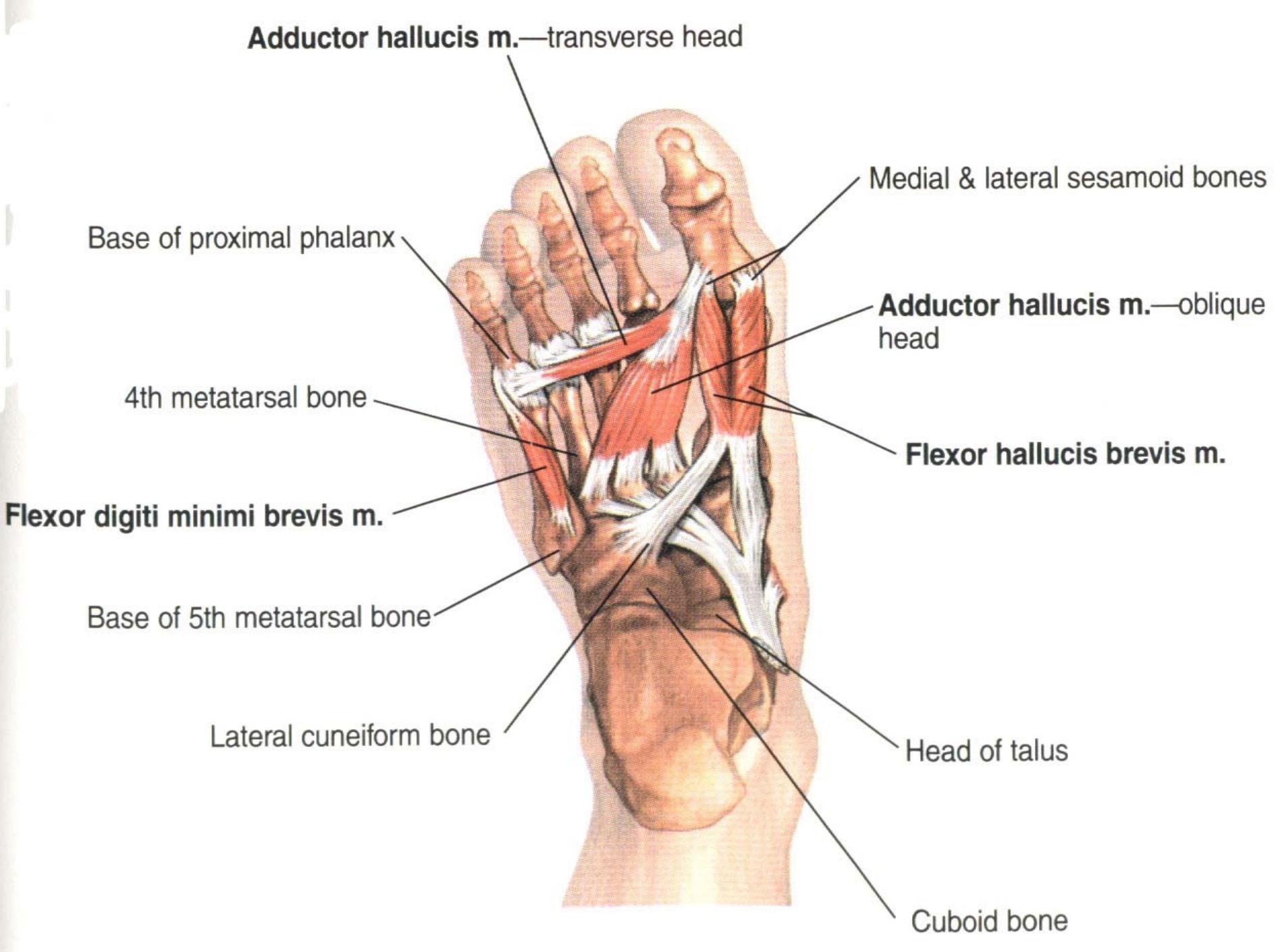




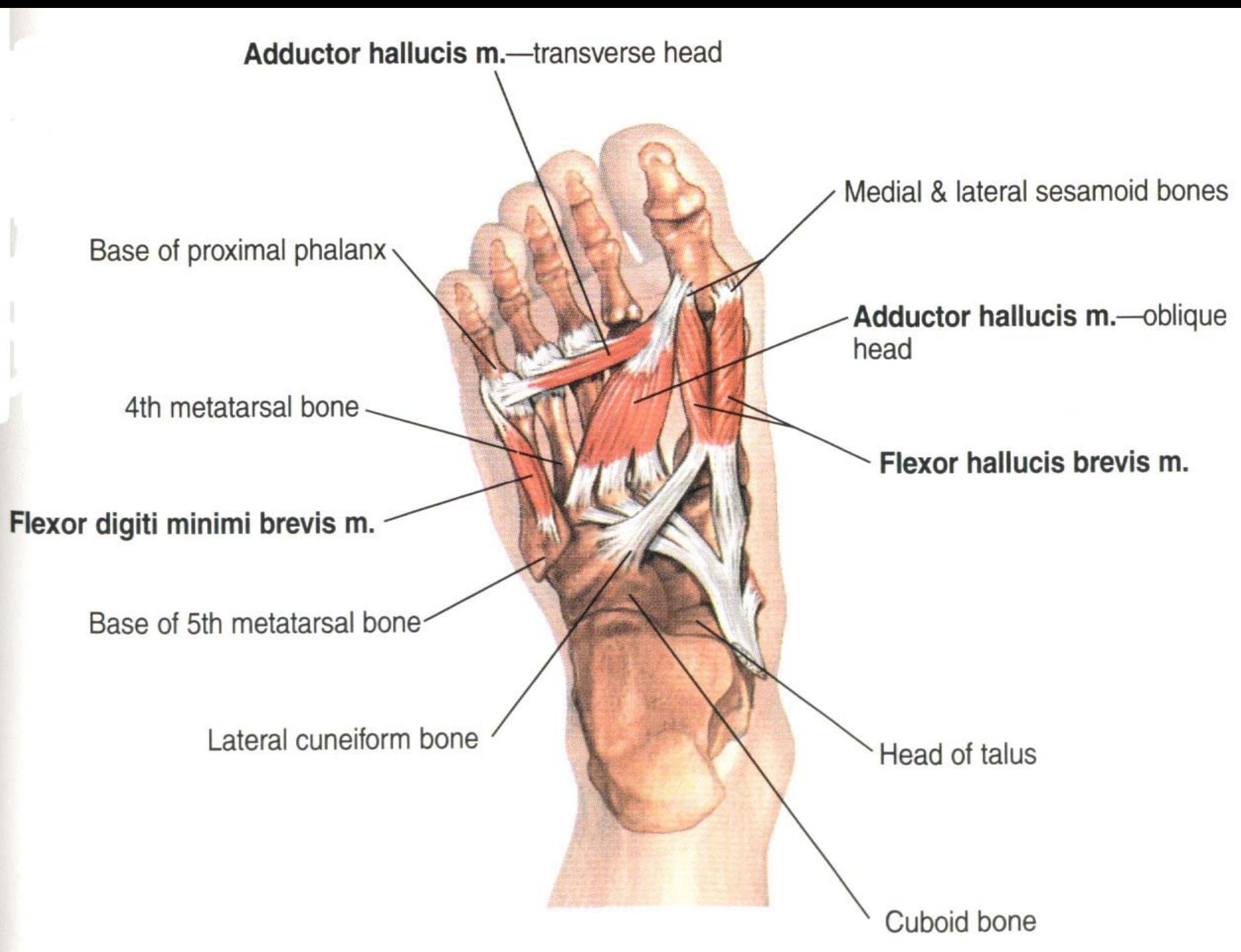


# **3<sup>rd</sup> Layer Muscles**

- 1.Flexor hallucis  
brevis.**
- 2.Adductor hallucis.**
- 3.Flexor digiti minimi  
brevis.**







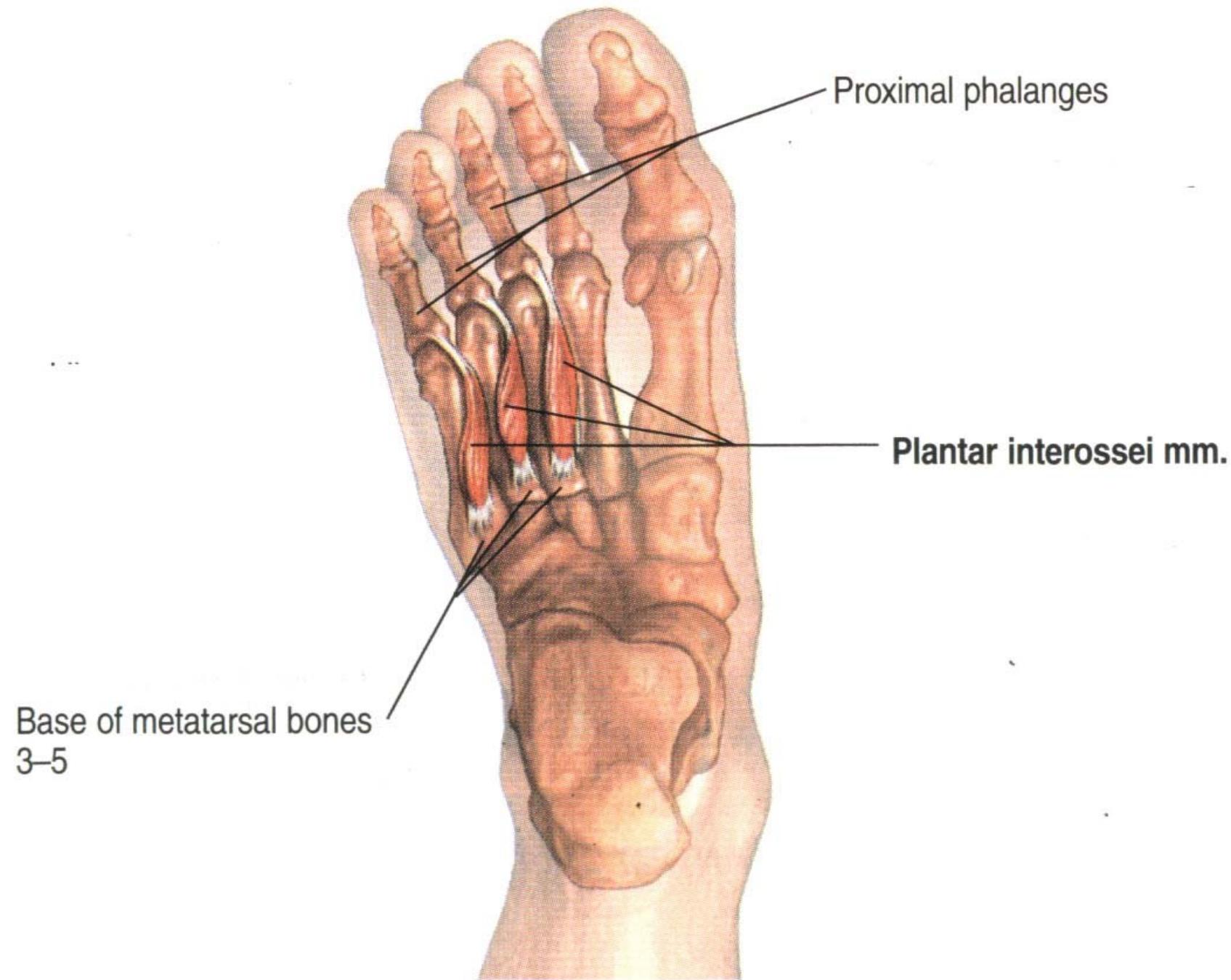
# **4<sup>th</sup> Layer Muscles**

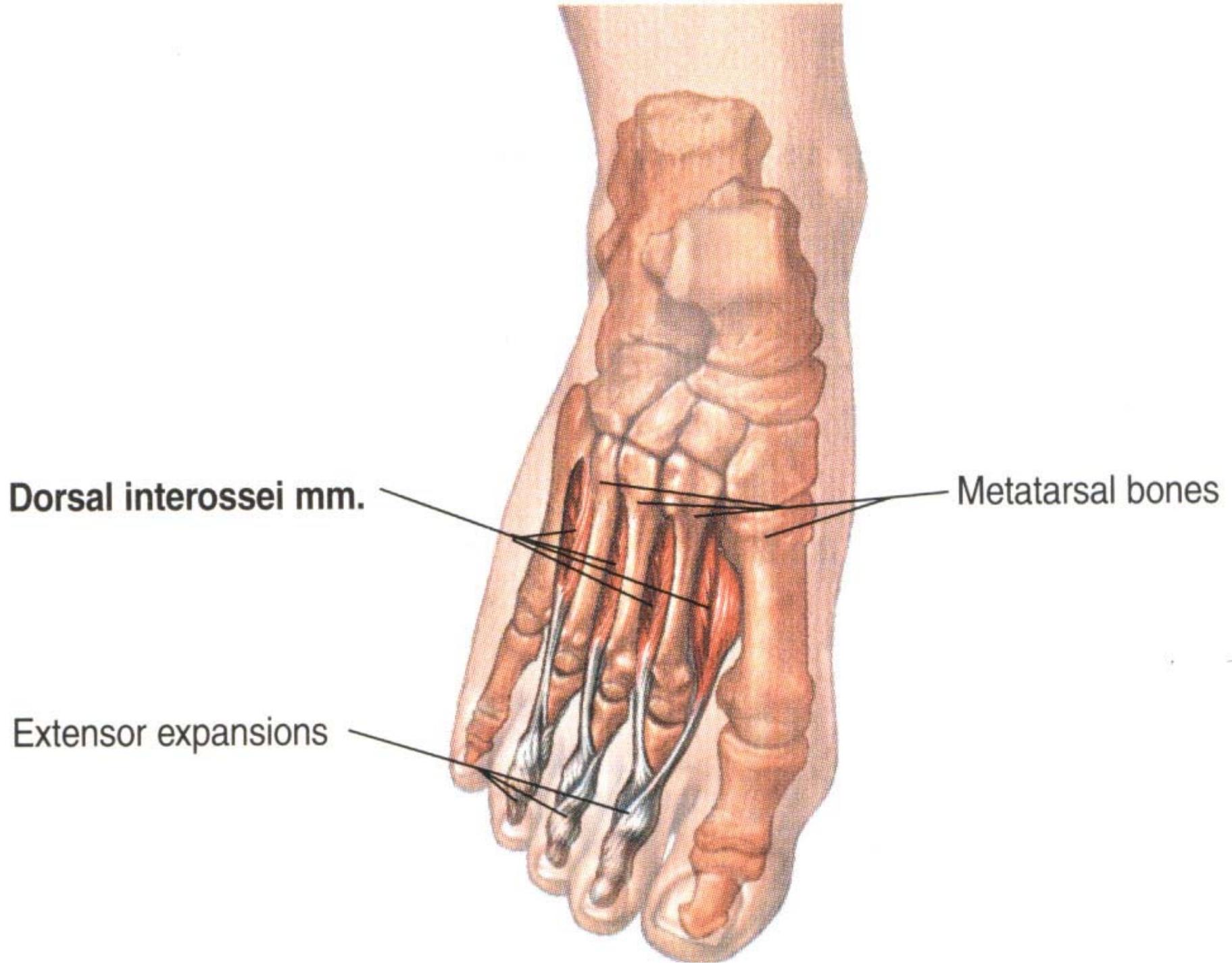
**1. Plantar interossei.**

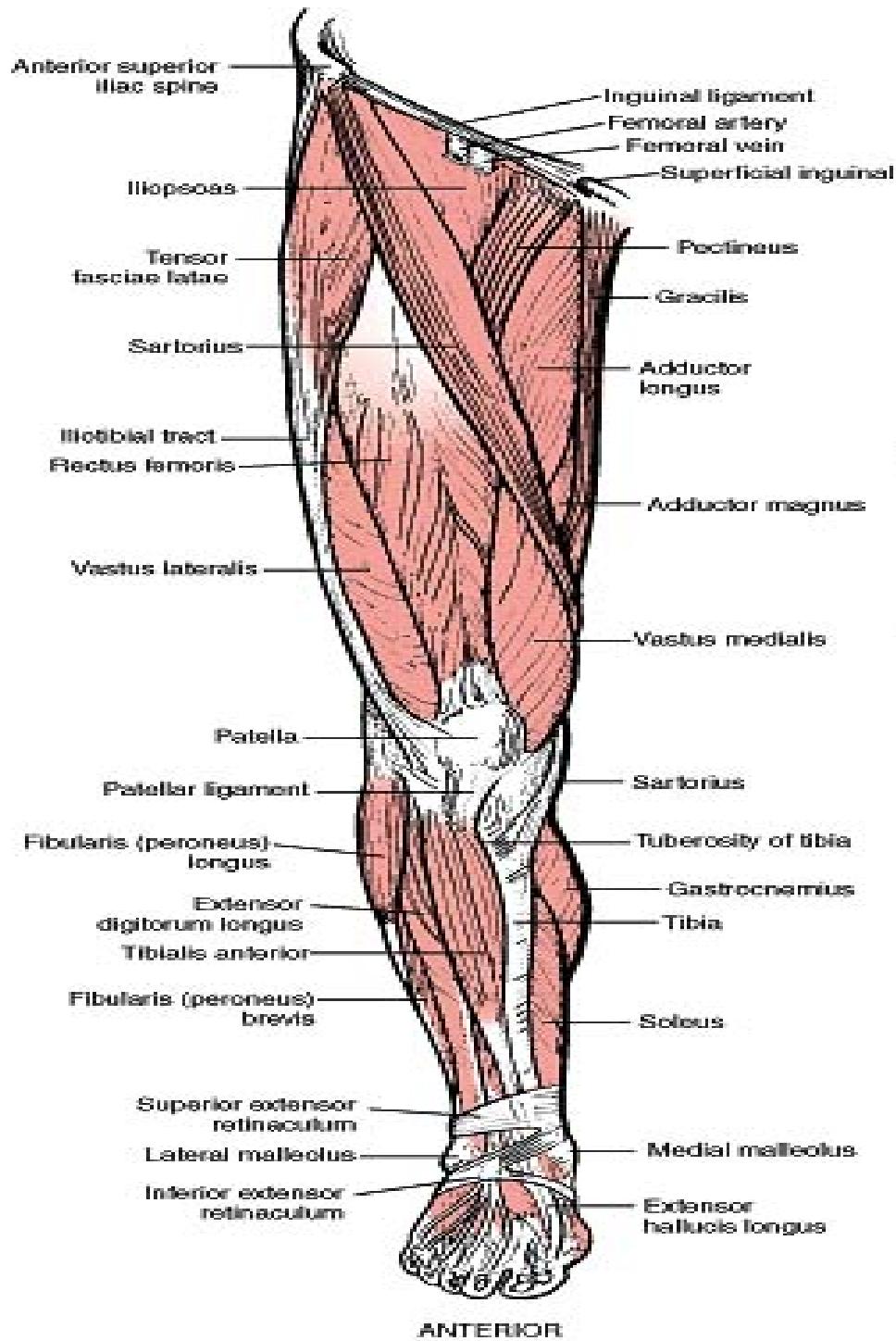
**2. Dorsal interossei.**

**3. Tendon of peroneus  
longus.**

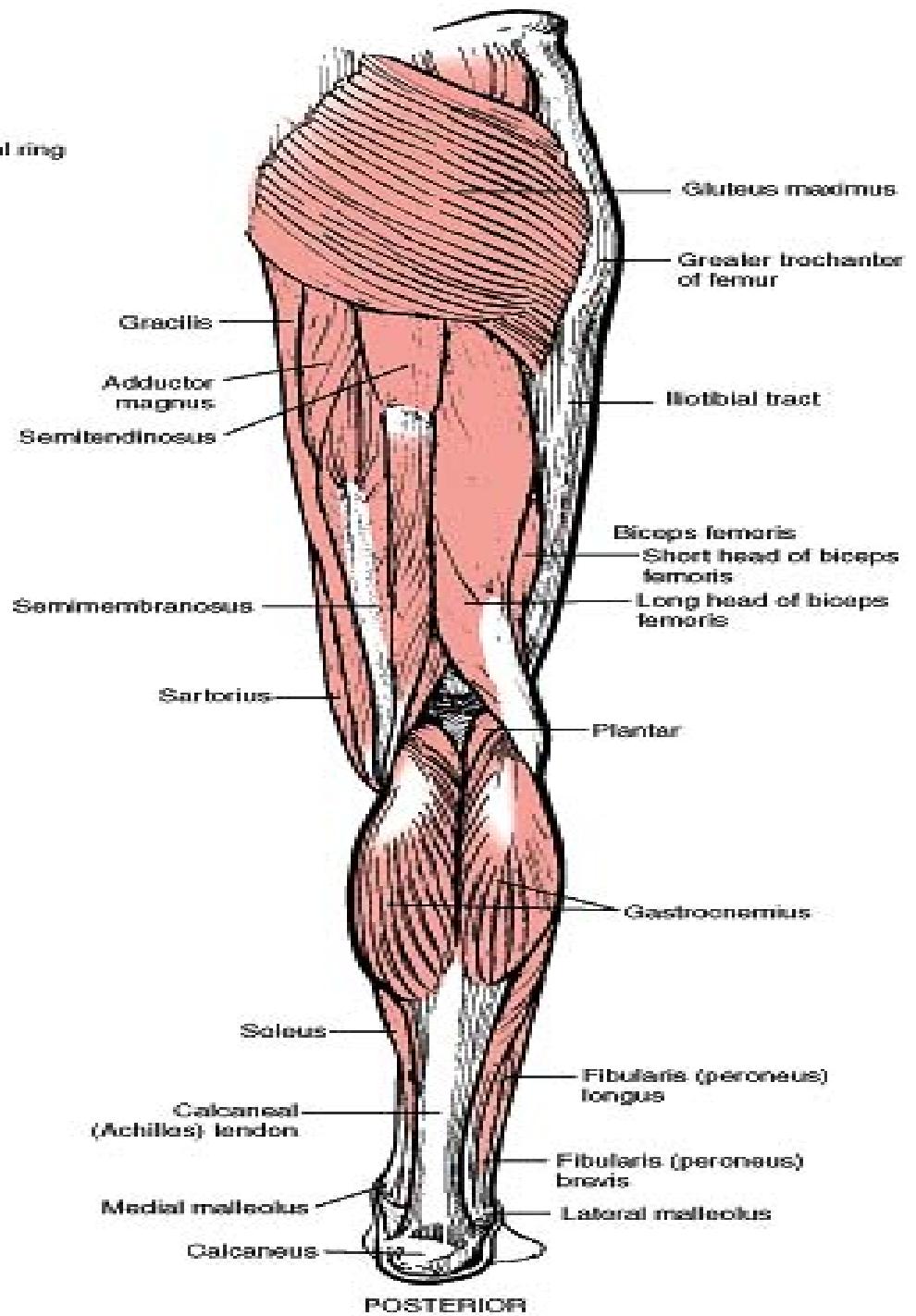
**4. Tendon of tibialis  
posterior.**







ANTERIOR



POSTERIOR