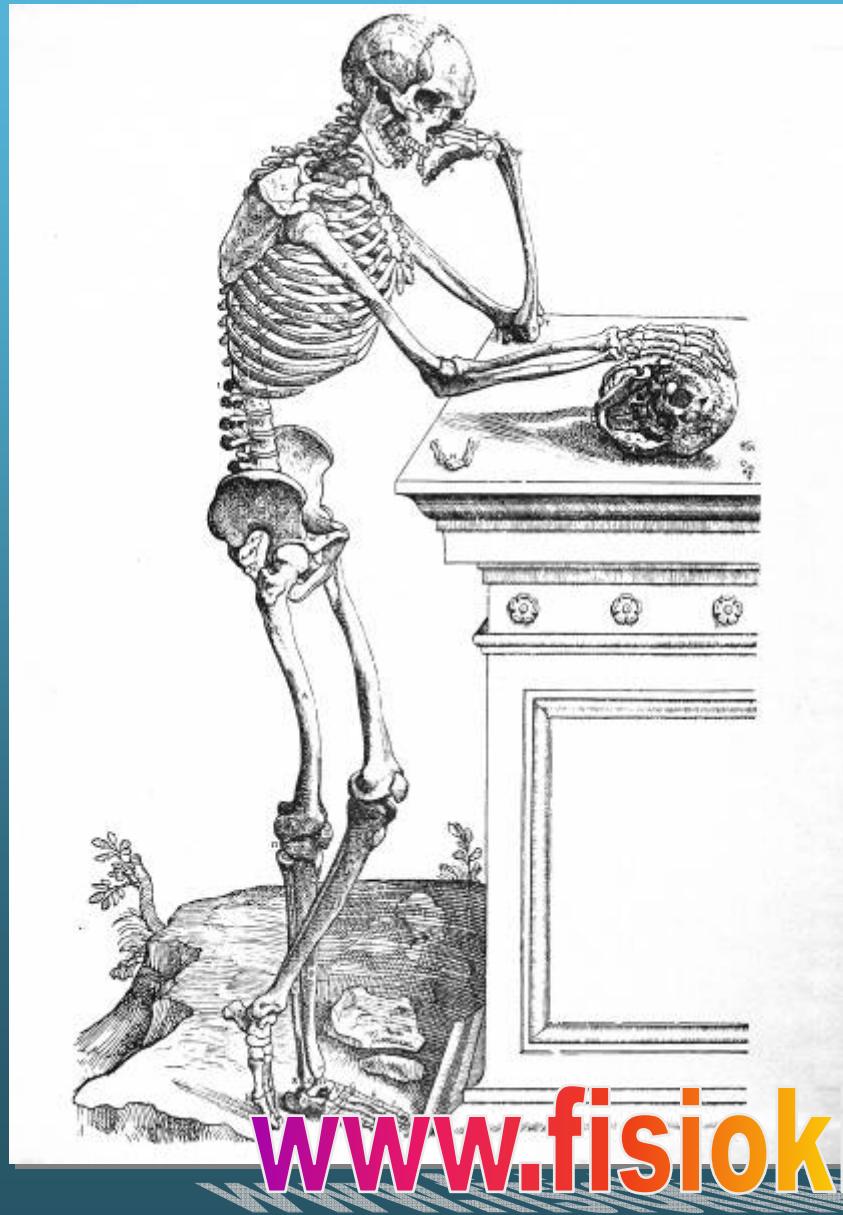


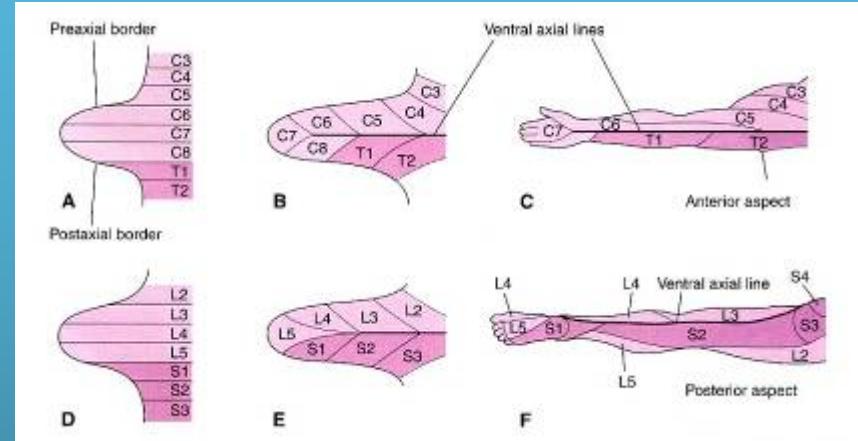
# Organization of the Lower Limb



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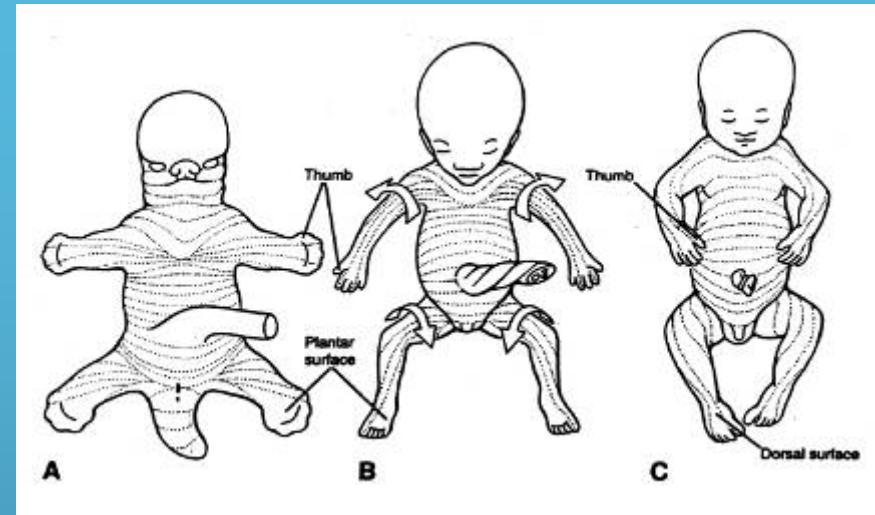
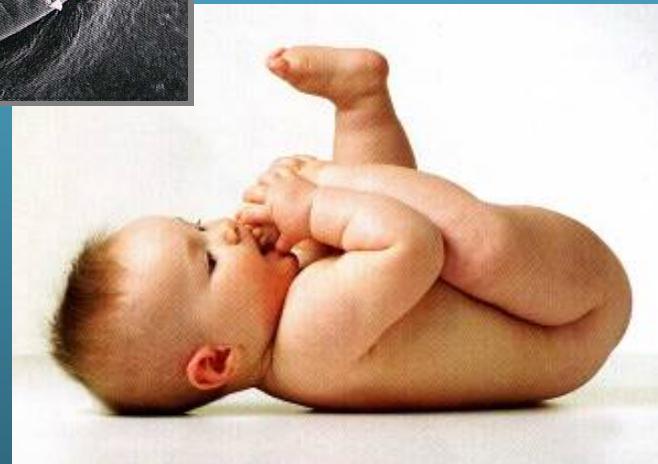
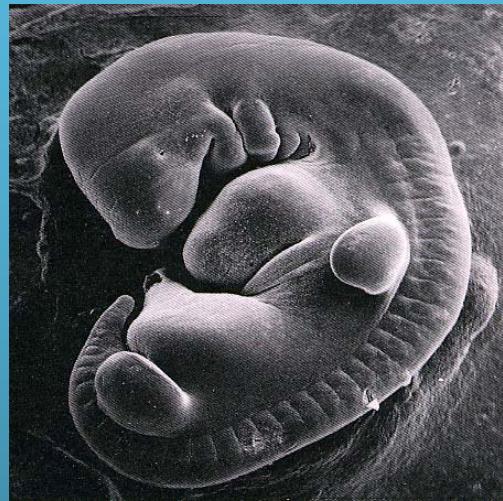


# Limb Development



- Lower limb develops in an aterolateral position at the level of the L2 to S3 trunk segments
- Great toe positioned cephalic direction with the soles of the feet in an ateriomedial direction
- Knee positioned in a posteriolateral position

# Limb Rotation

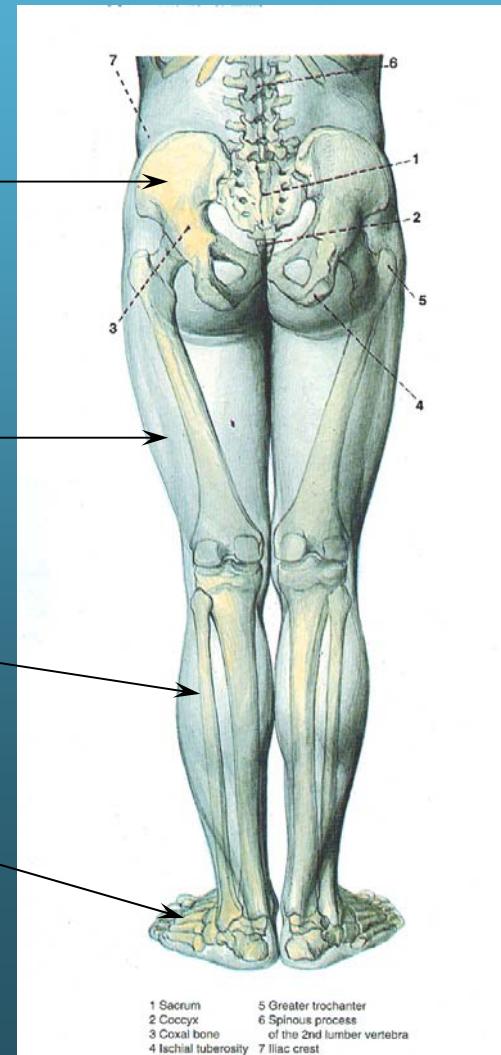


## Lower Limb Rotation

- Medial rotation
- Adduction
- Extension

# Segments of the Lower Limb

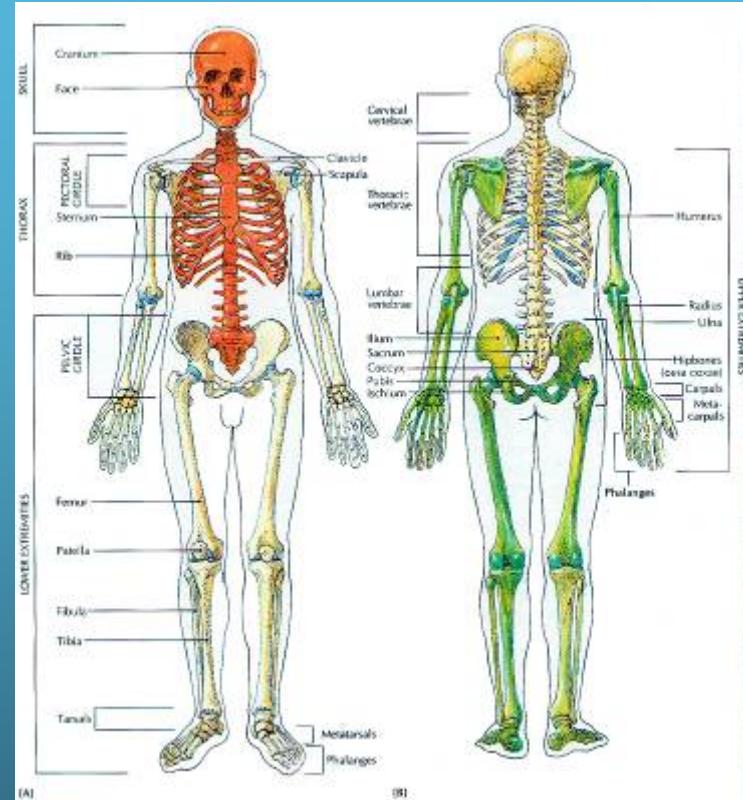
- Limb Girdle
  - pelvic girdle (gluteal)
- Free limb
  - thigh
  - leg
  - foot



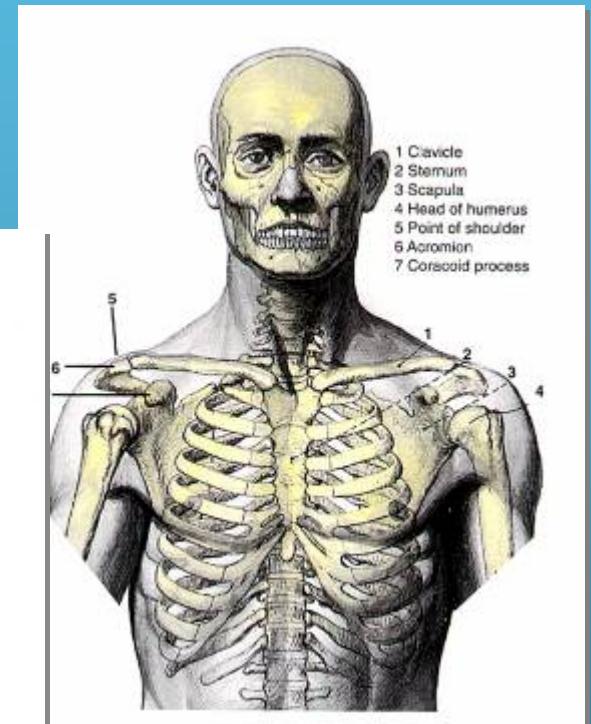
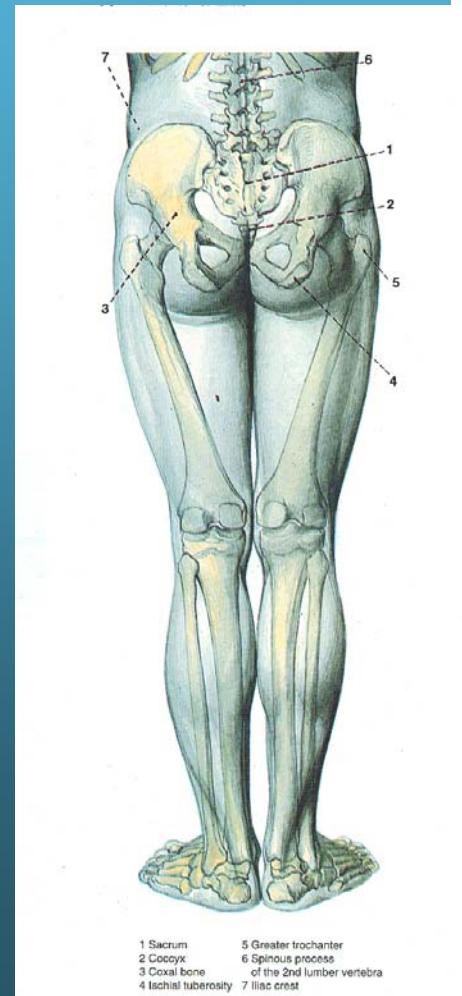
# Joints of the Lower Limb

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# Articulation with Axial Skeleton

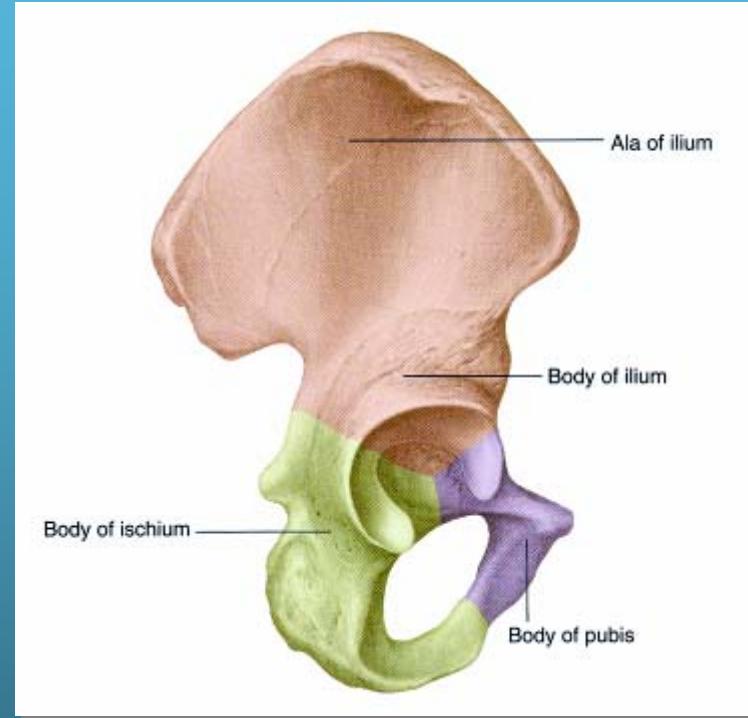


Sacroiliac jt.

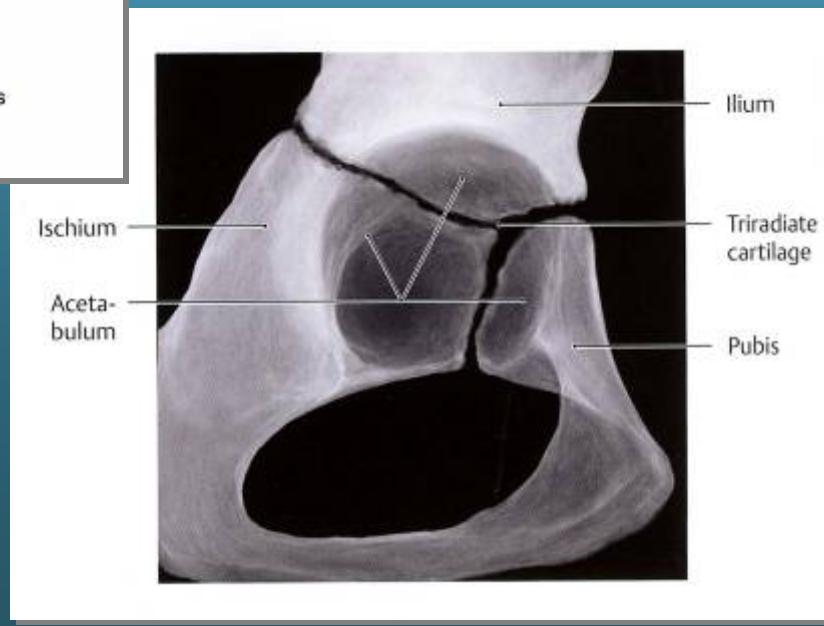


Sternoclavicular jt,

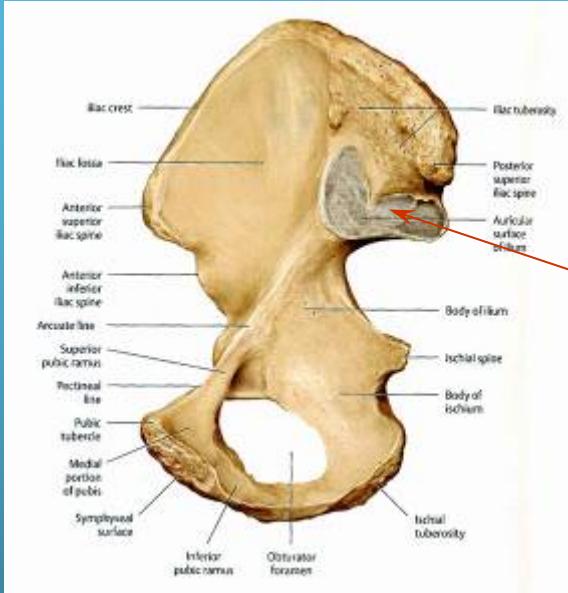
# Os Coxae



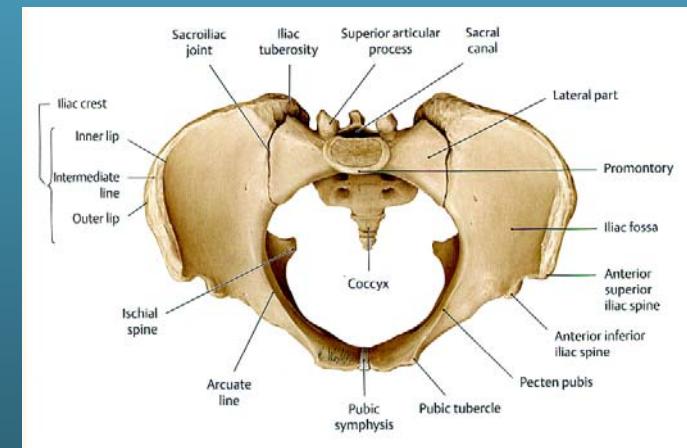
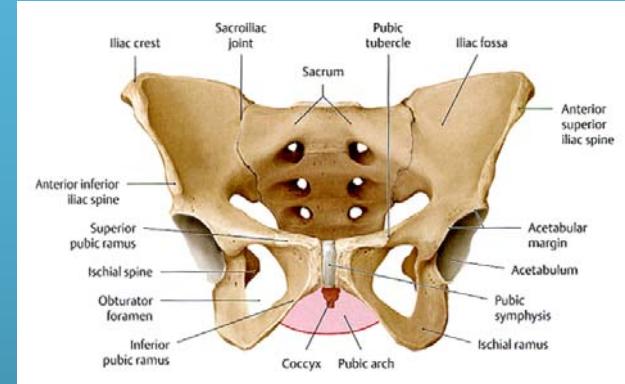
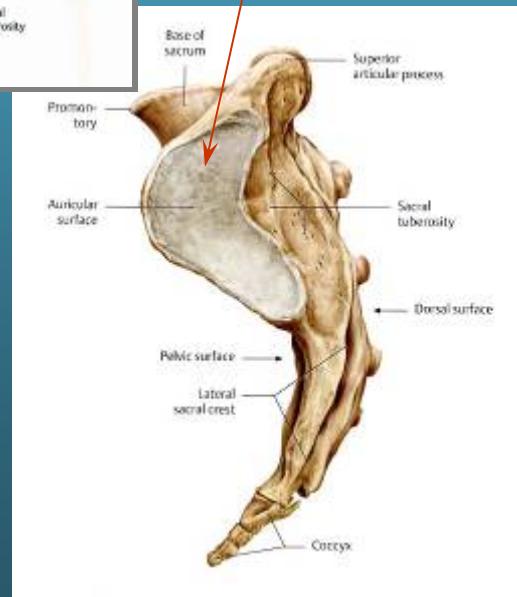
- Hemipelvis is composed of the ilium, ischium and pubis with articulation centered in acetabulum
- Fusion of the 3 bones is complete between 20 and 25 years of age



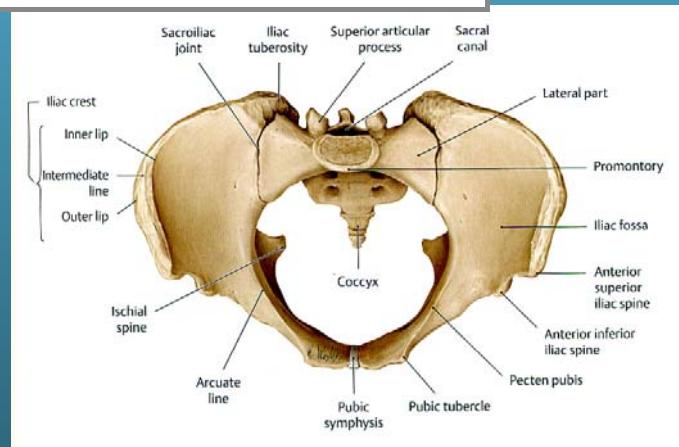
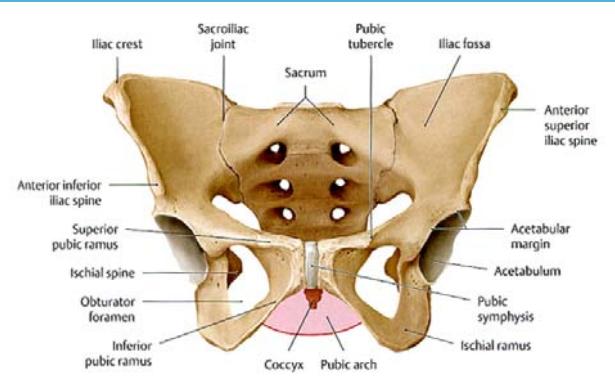
# Sacroiliac Joint



Auricular articular surfaces

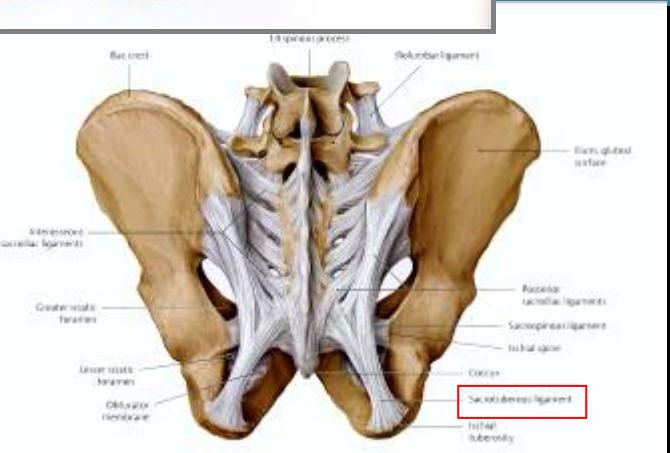
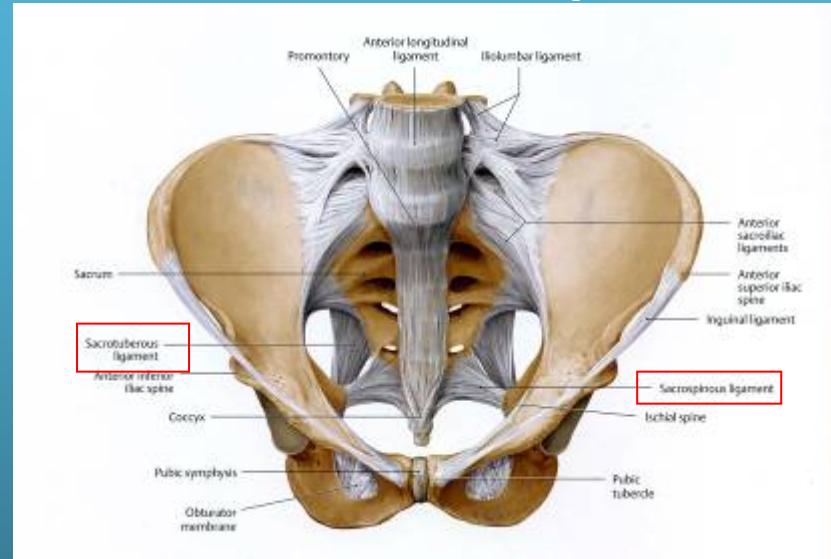


# Sacroiliac Joint



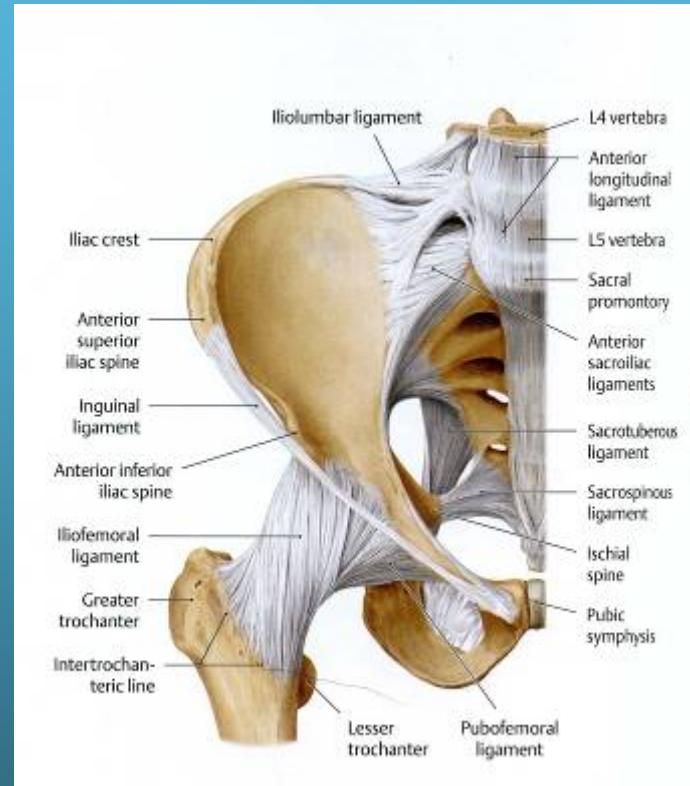
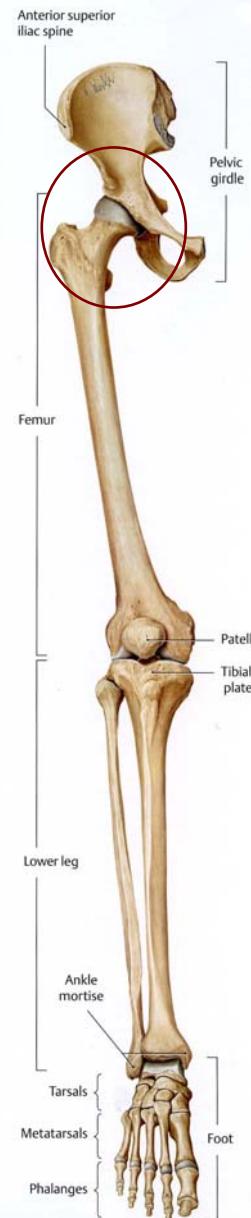
Sacroiliac joint

Anterior sacroiliac ligaments



Posterior sacroiliac ligaments

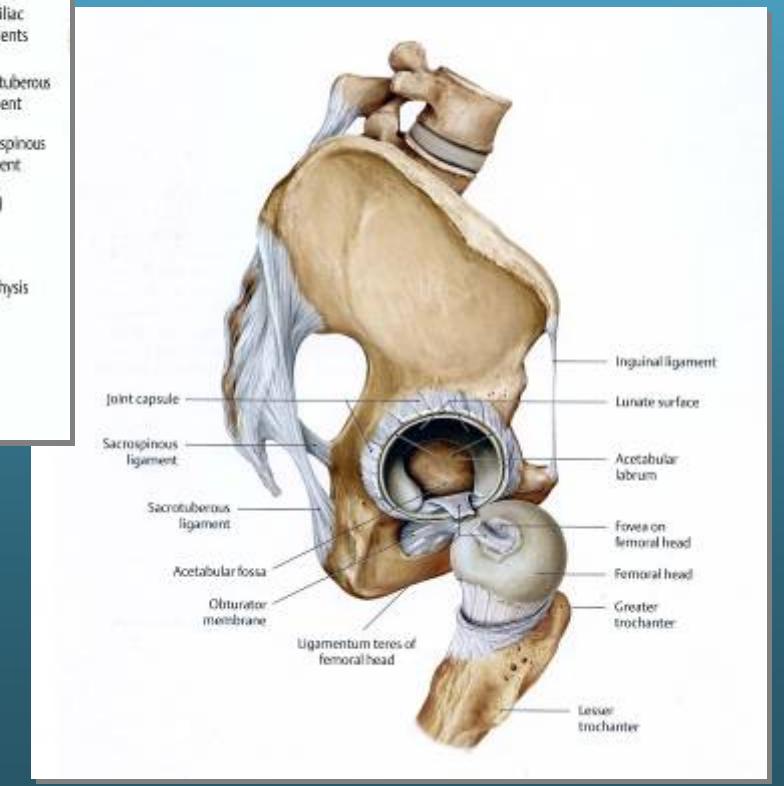
# Joints of the Free Limb



## Hip

Polyaxial ball and socket joint:

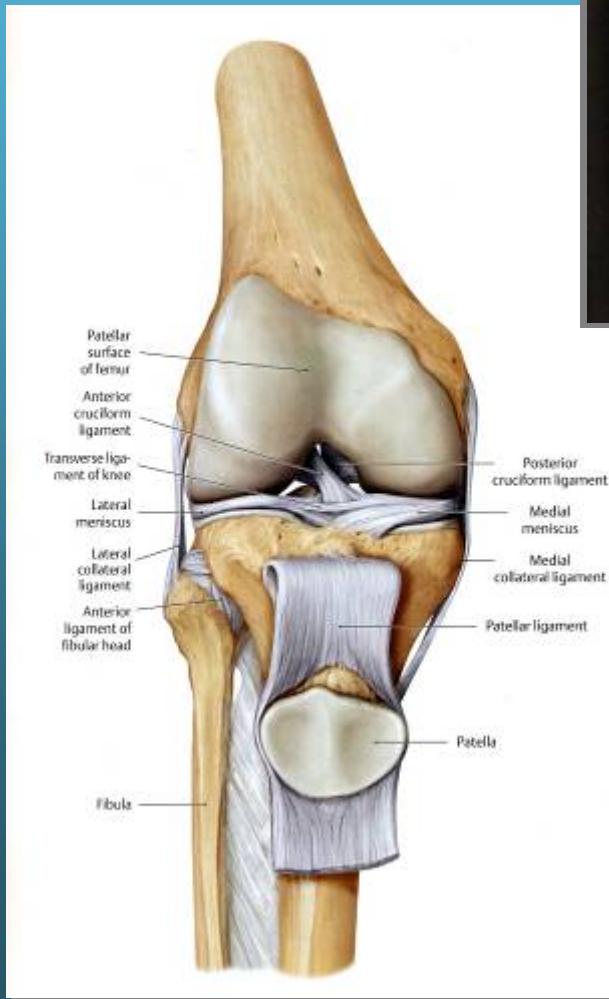
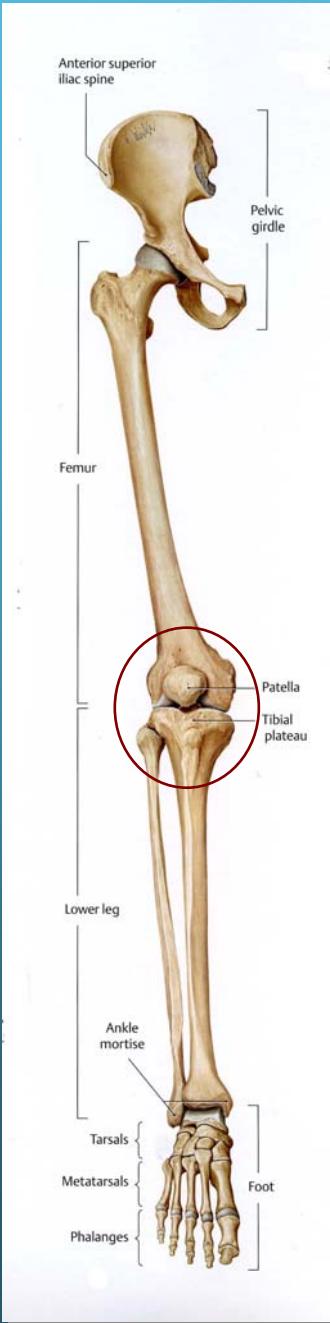
- Flexion/extension
- Adduction/abduction
- Medial/lateral rotation



# Joints of the Free Limb

## Knee

Modified hinge joint



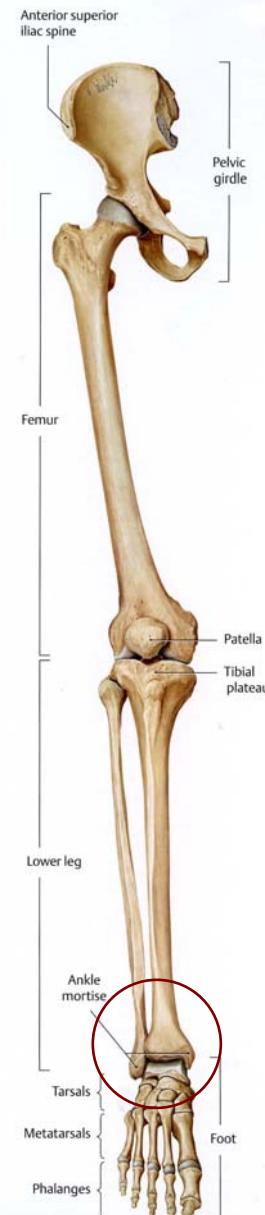
Femur

Tibia

Patella

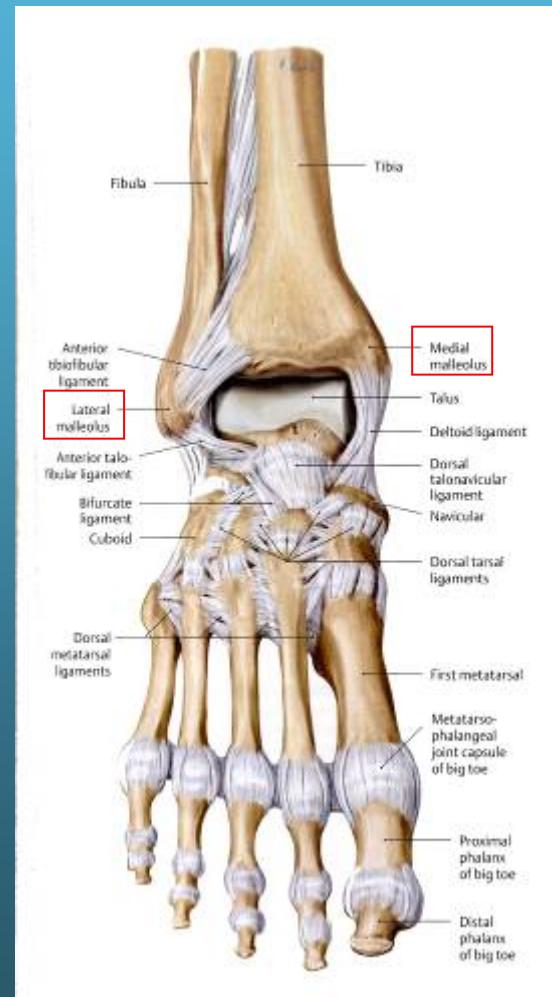
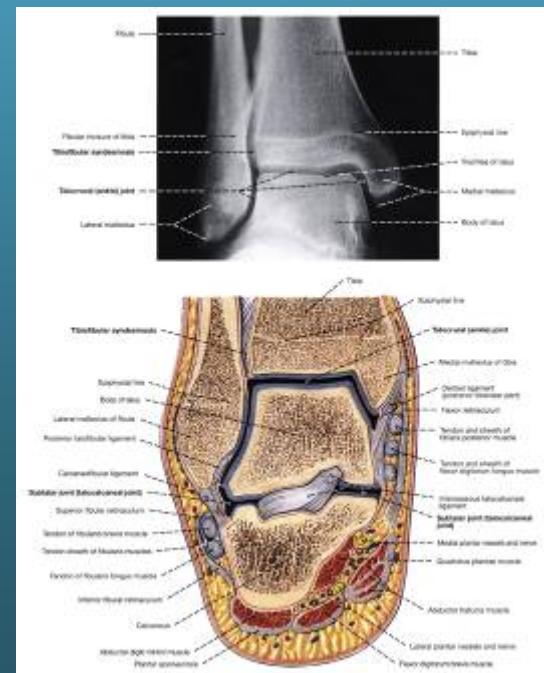
# Joints of the Free Limb

## Ankle (talocrural) joint



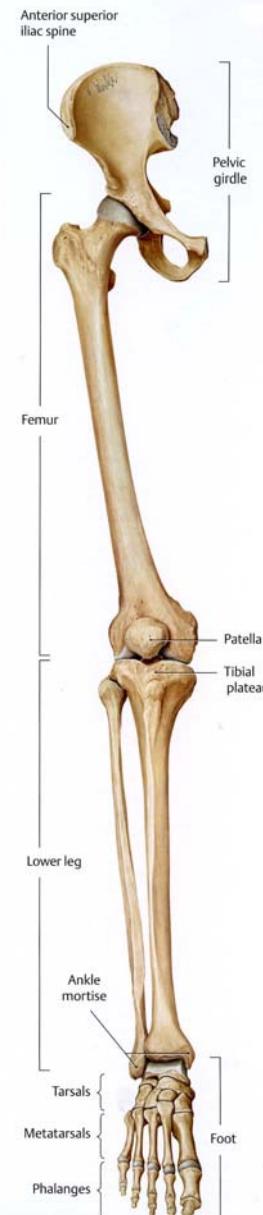
### Hinge joint

1 axis of movement:  
Dorsiflexion/plantarflexion

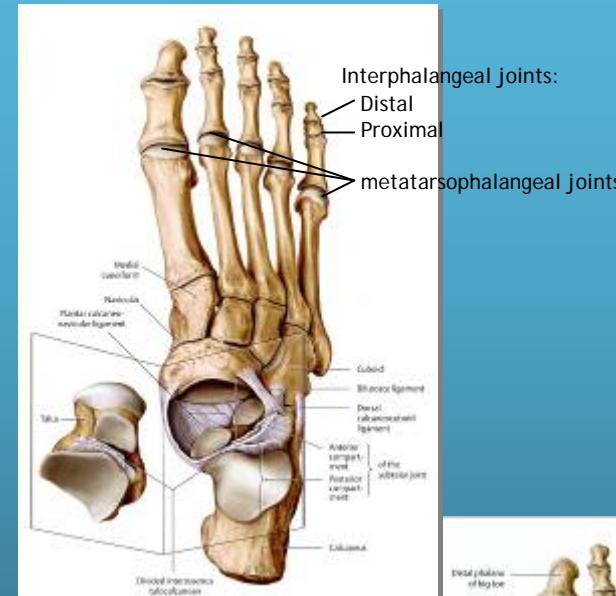


# Joints of the Free Limb

## Foot



Inversion/eversion occurs at subtalar (talocalcaneal) joint

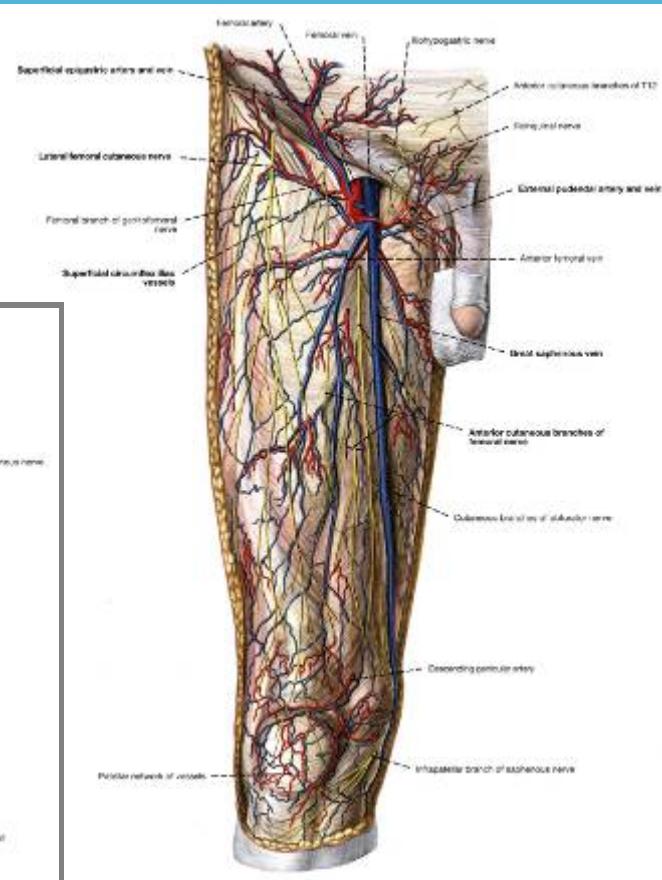
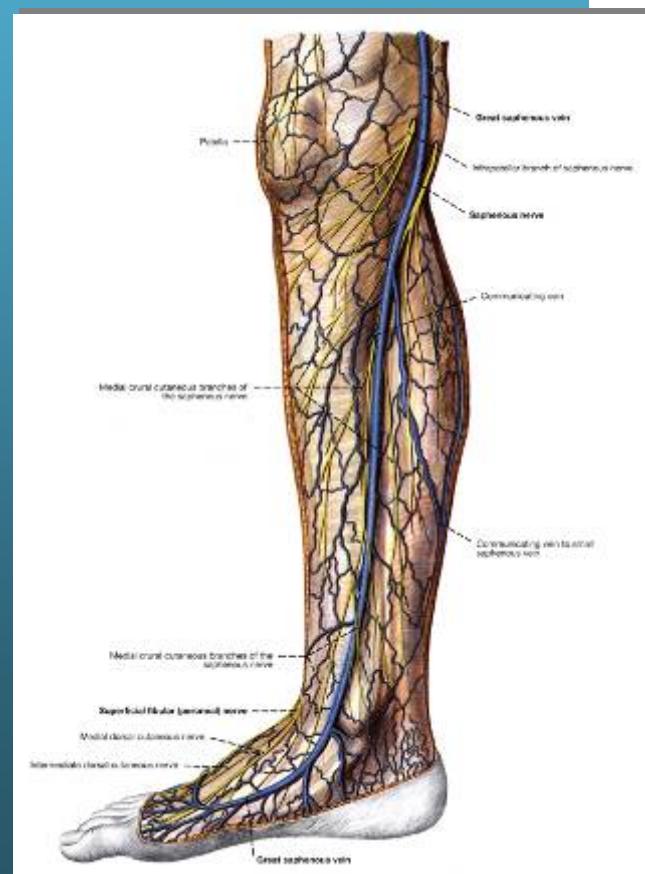


# Vasculation of the Lower Limb

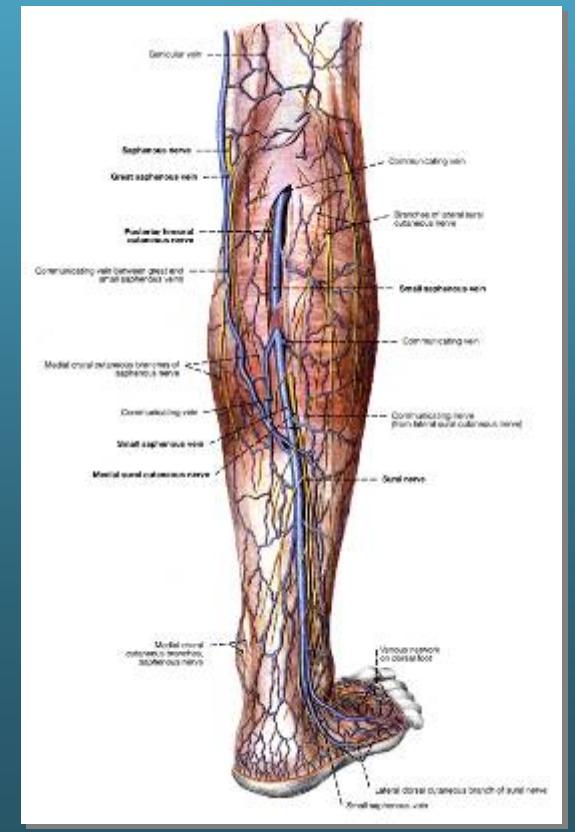
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# Superficial Veins

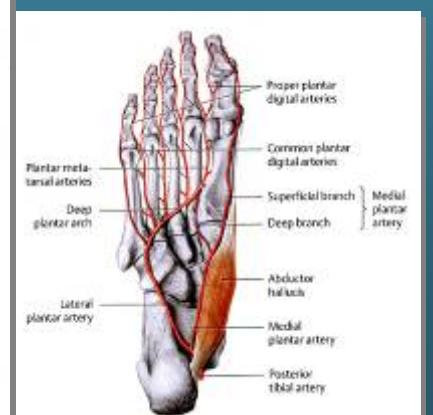
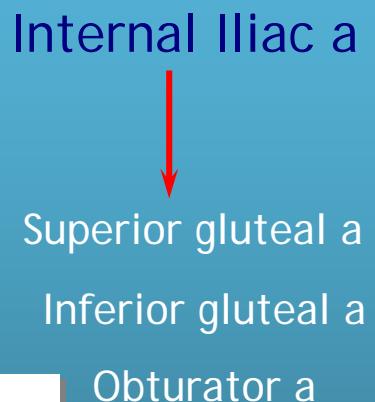
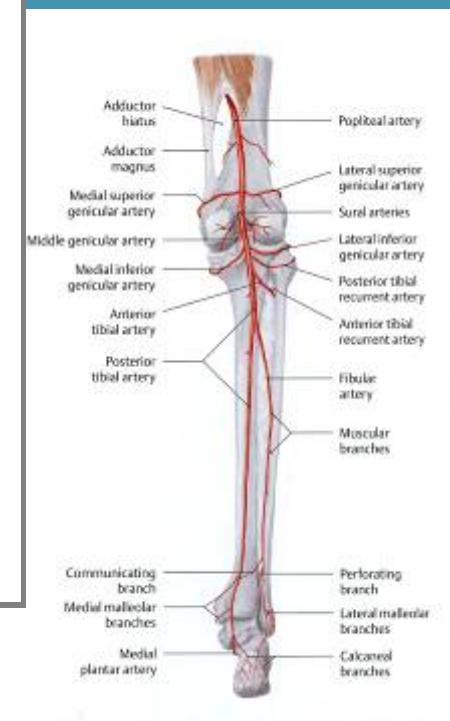
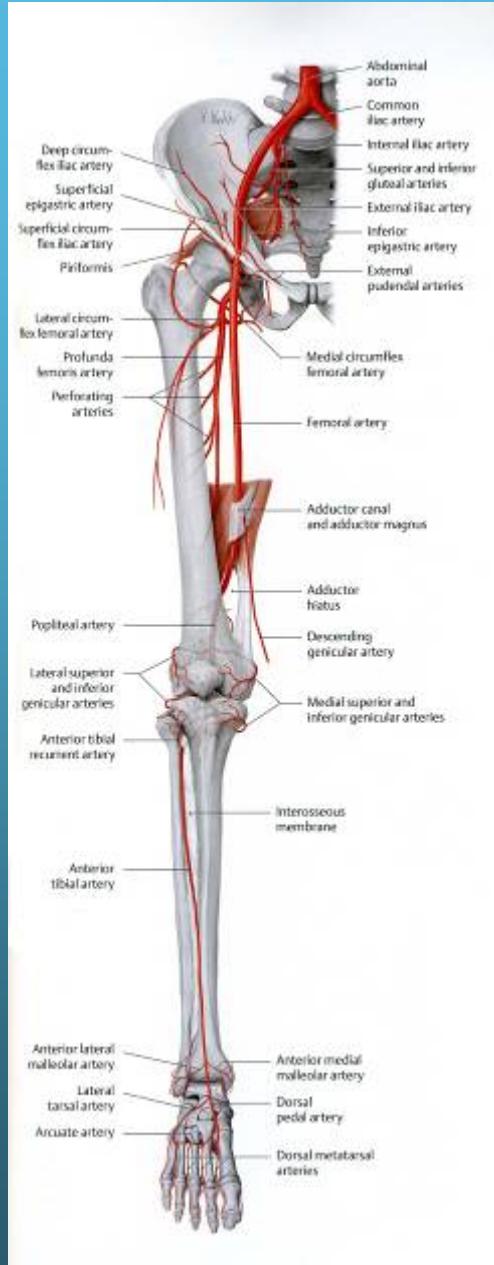
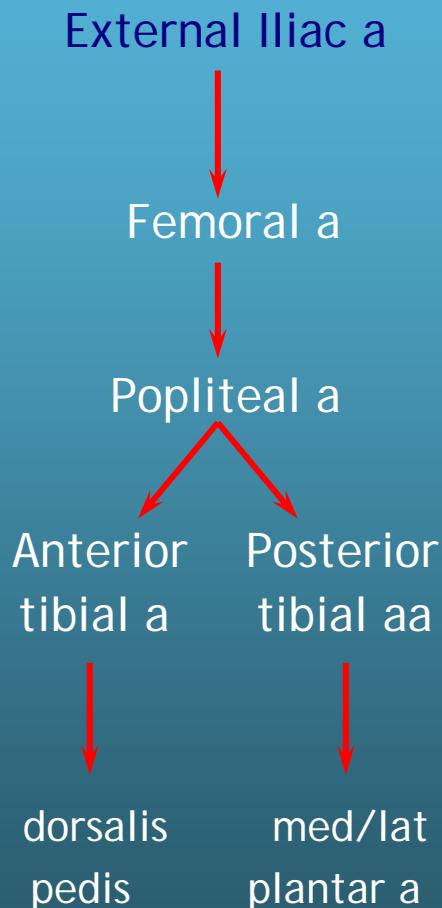
Great saphenous v.



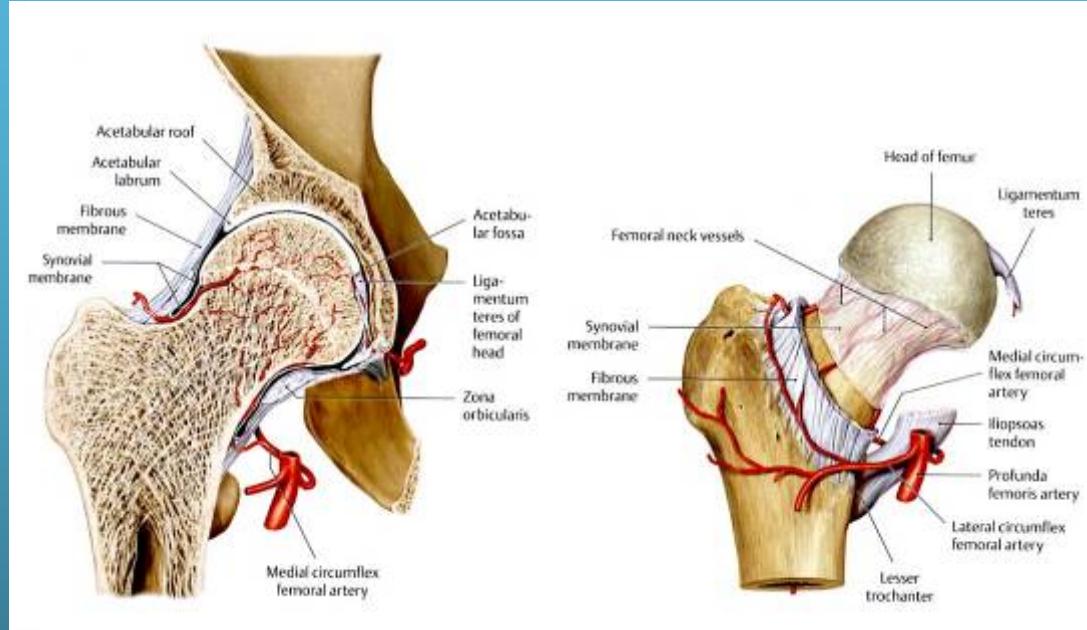
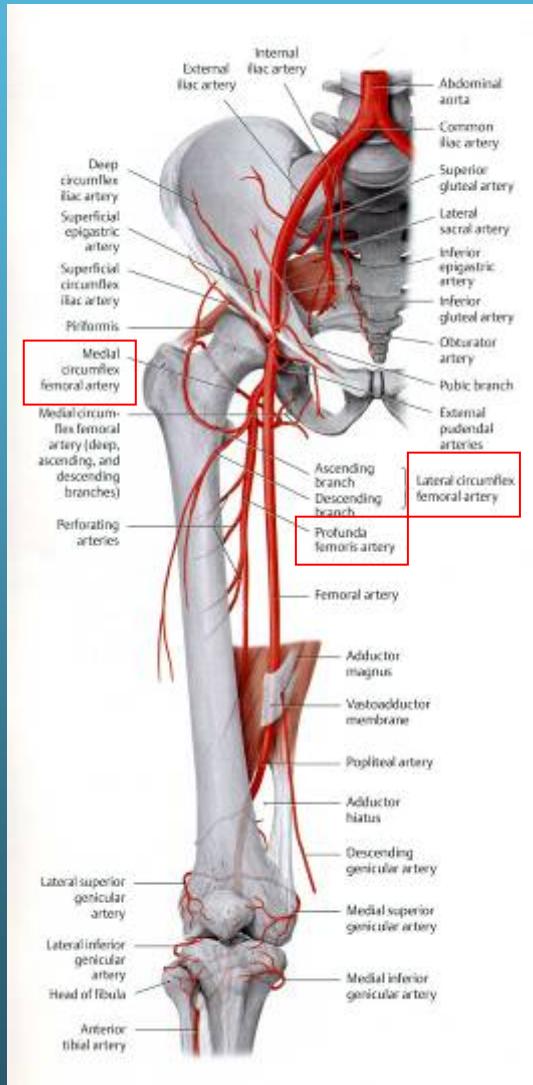
Small saphenous v.



# Arterial Blood Supply



# Deep Femoral Artery

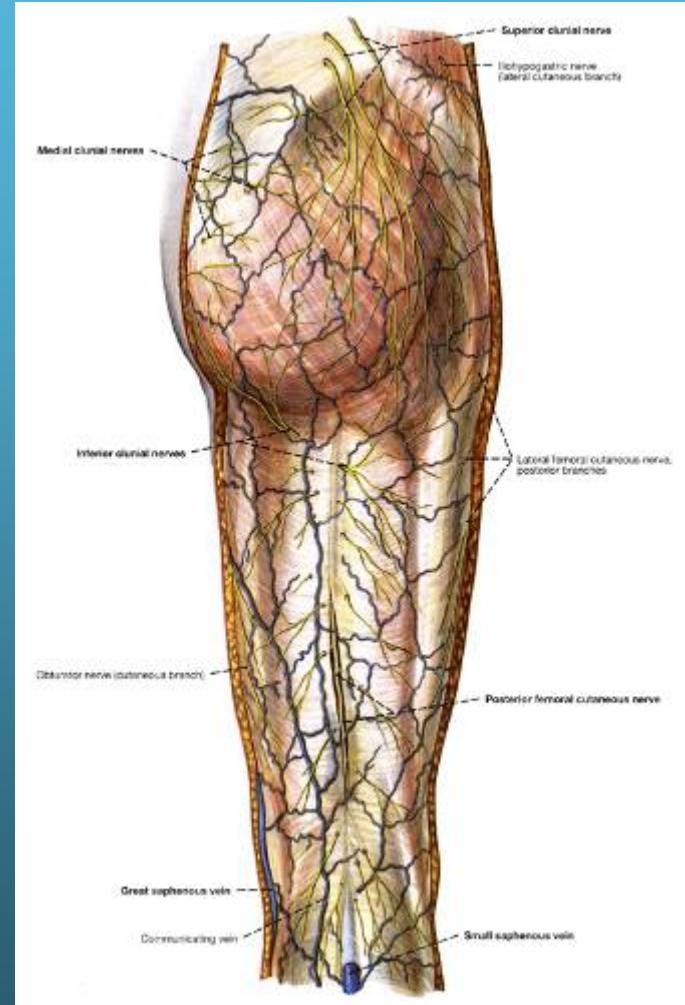


Medial & lateral femoral  
circumflex arteries

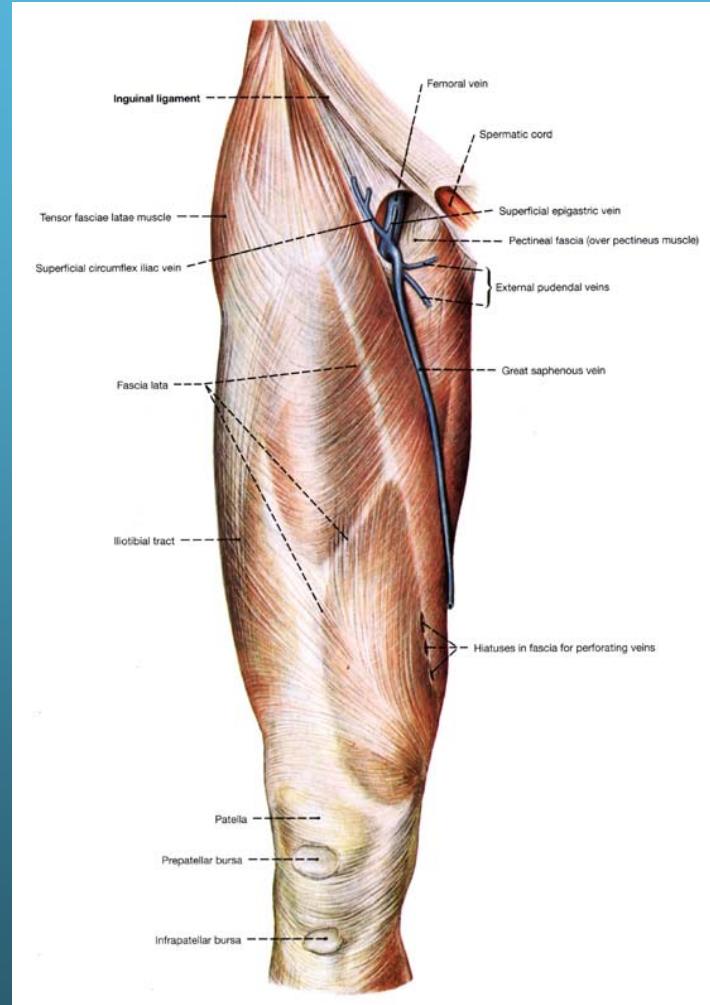
# Fascial Compartments

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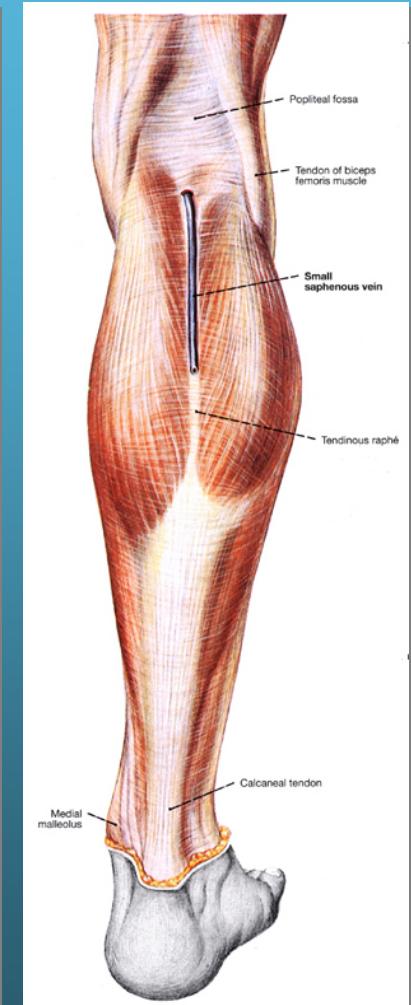
# Fascia of the Lower Limb



Gluteal Fascia

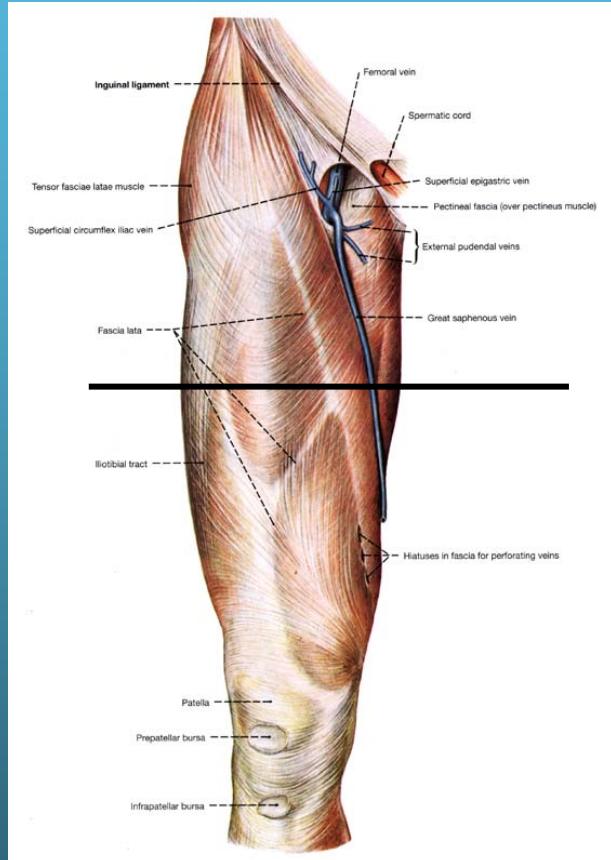


Fascia Lata

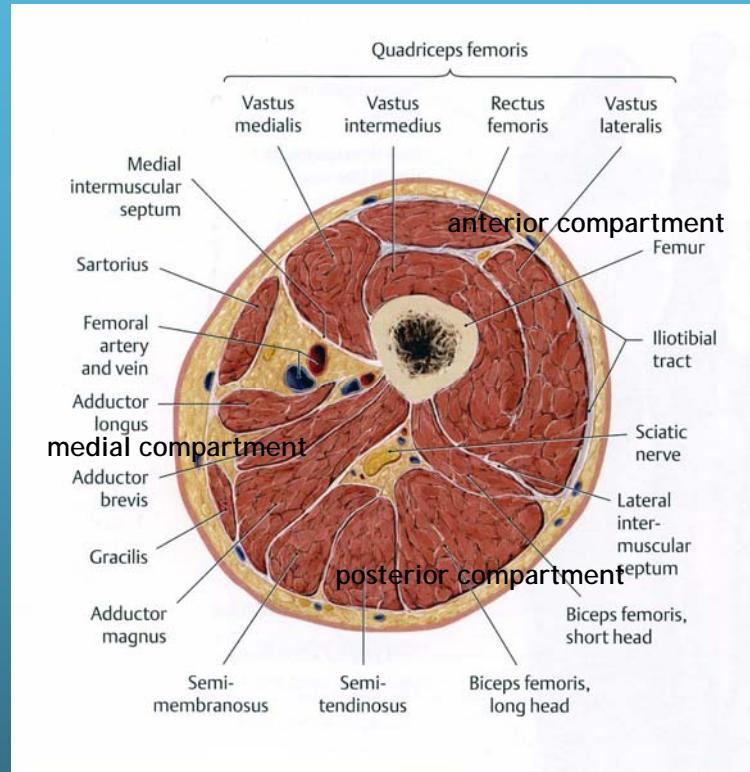


Crural Fascia

# Fascial Compartments of the Thigh

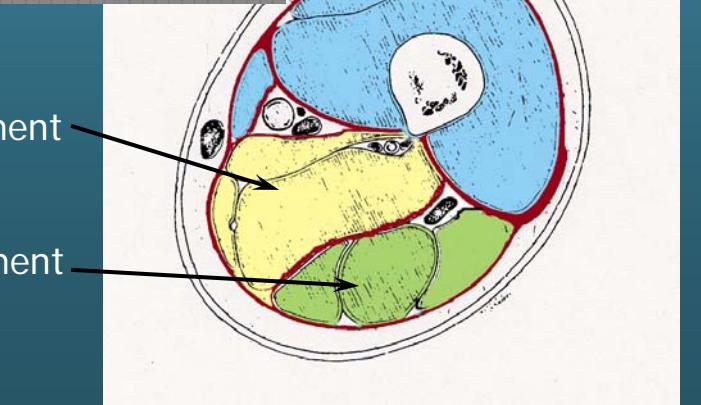


Fascia Lata



Fascial septa  
divide limb into  
compartments

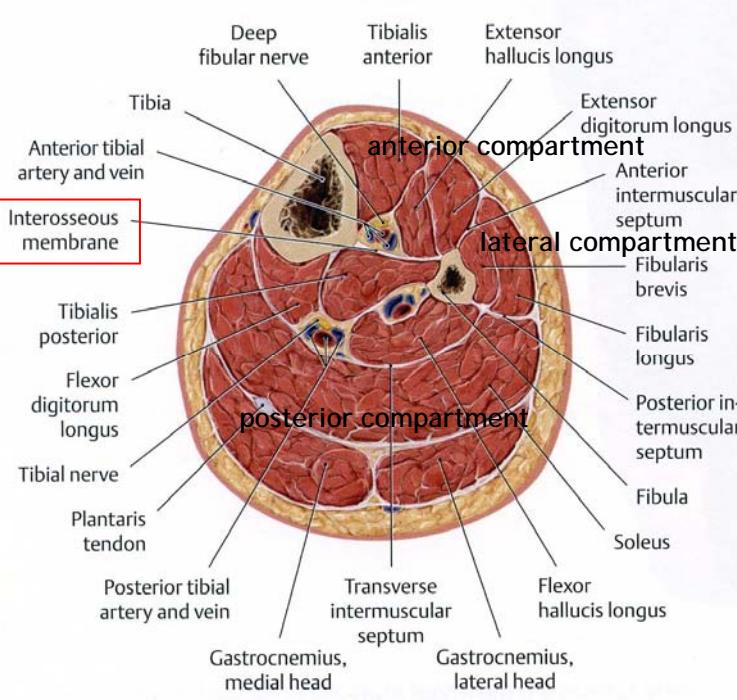
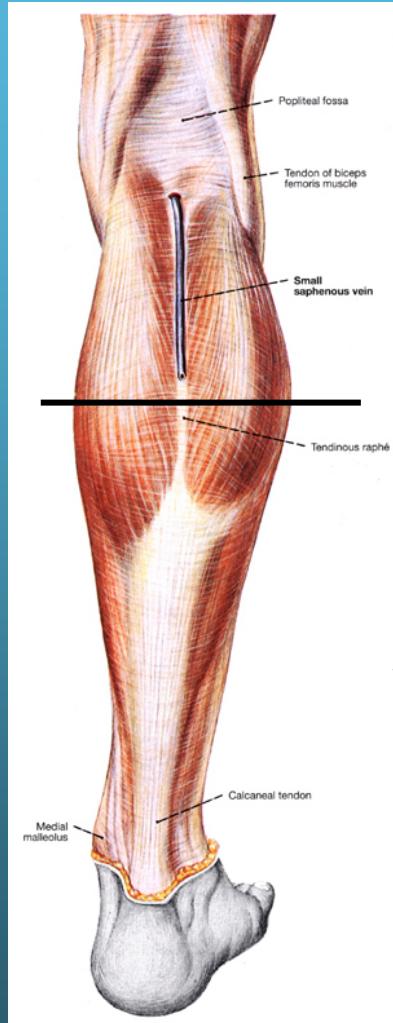
Anterior compartment



Medial (adductor) compartment

Posterior compartment

# Fascial Compartments of the Leg



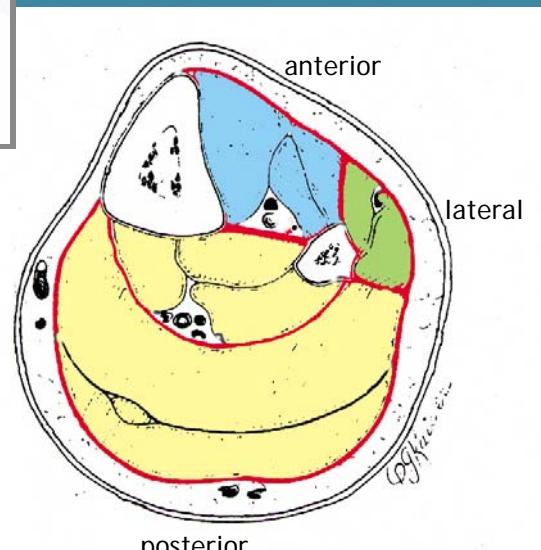
Crural Fascia

Superficial & deep  
posterior crural compartments

Anterior crural compartment

Lateral crural compartment

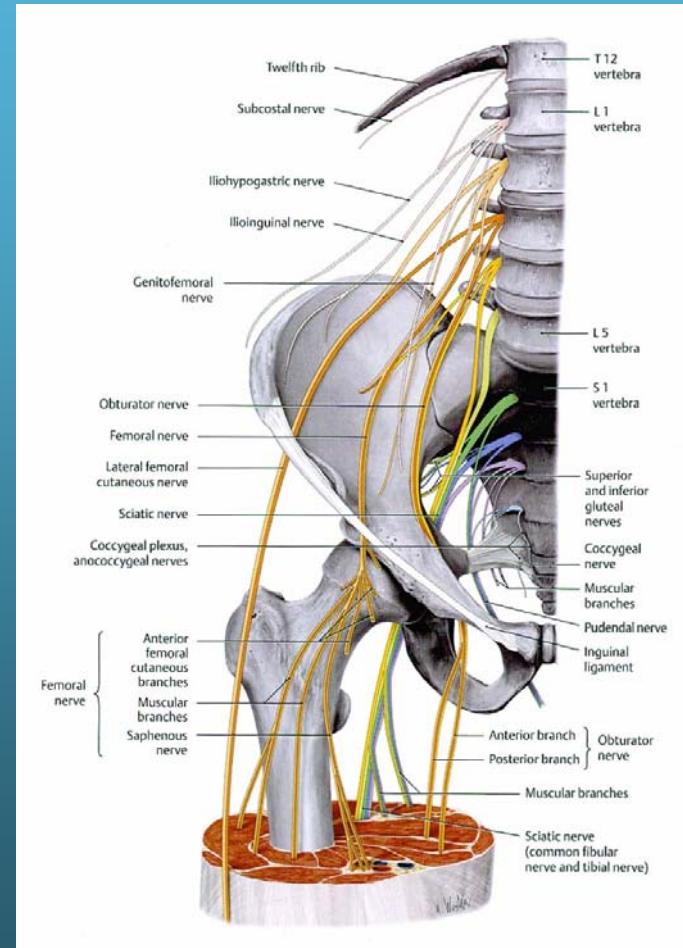
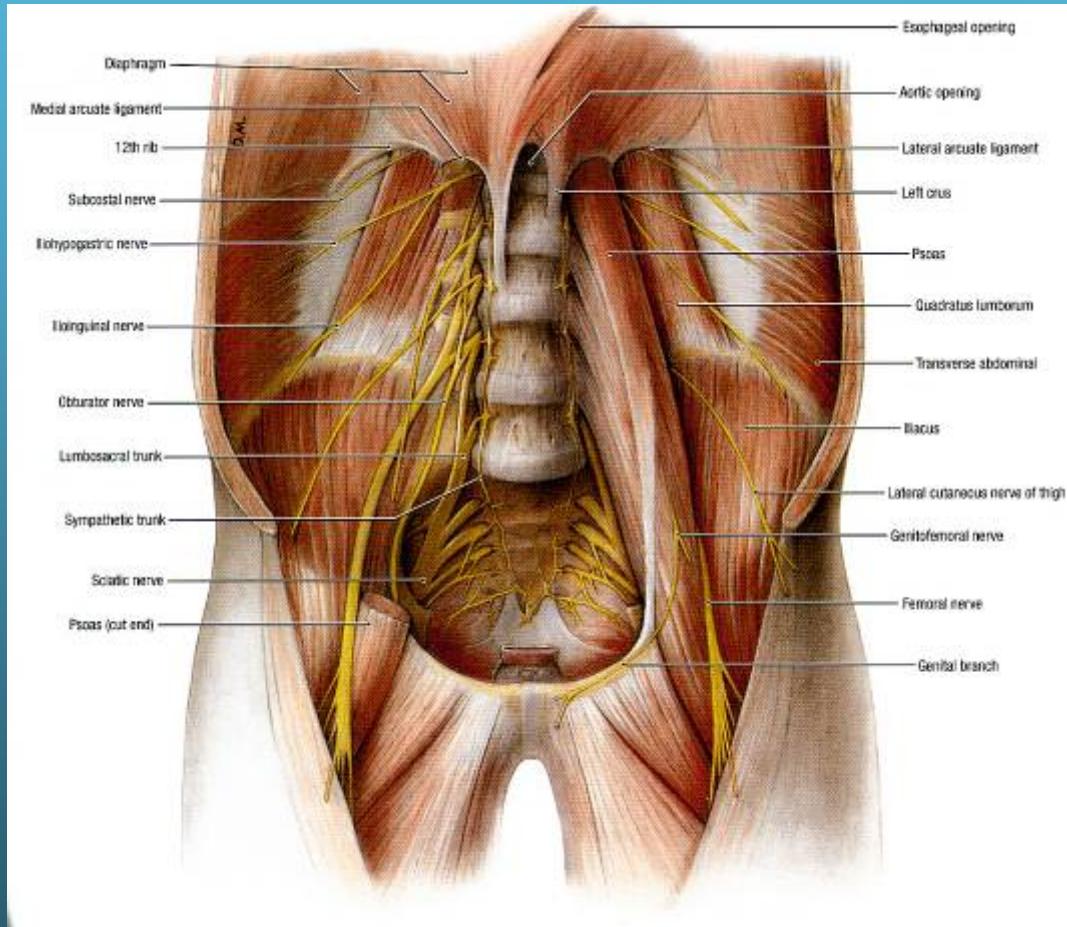
Posterior crural compartment



# Lumbosacral Plexus

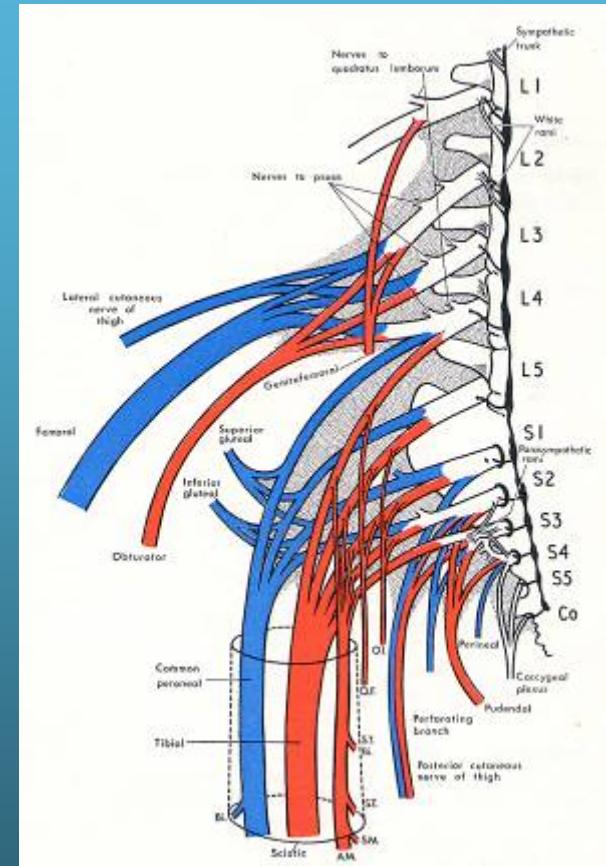
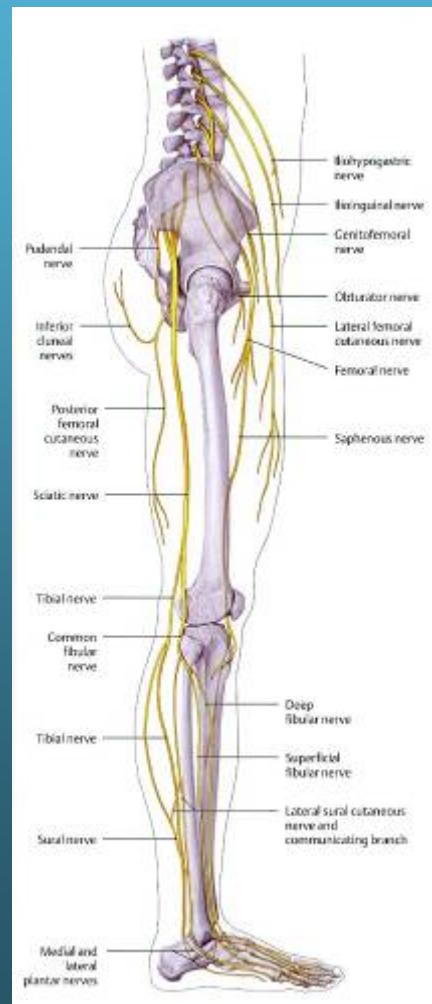
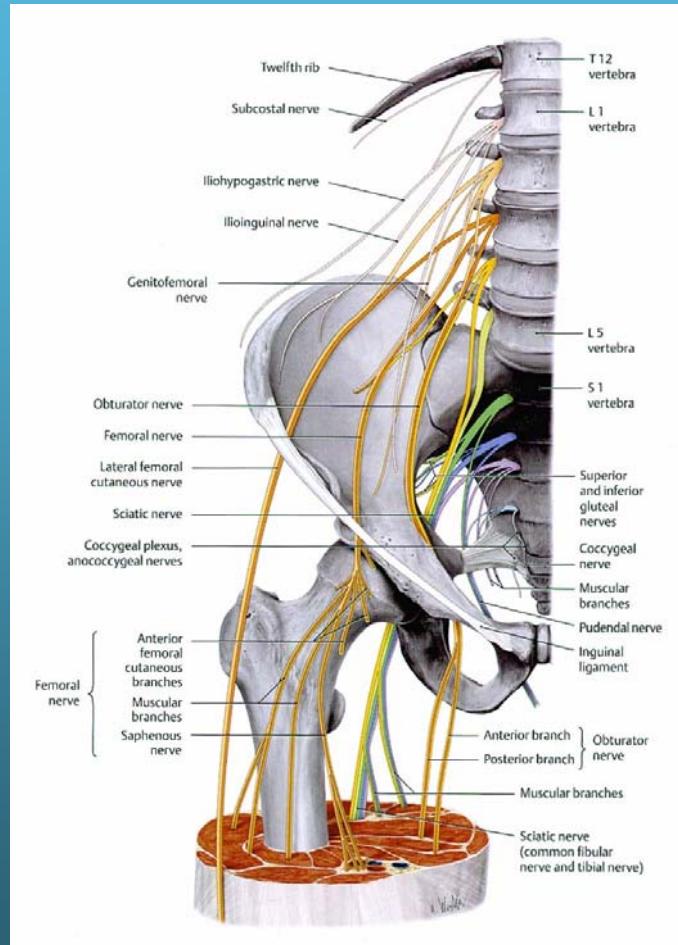
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# Innervation of the Lower Limb: Lumbosacral Plexus (L1 - S3)



# Lumbosacral Plexus

## L1 - S3



# Gluteal innervation:

## Superior gluteal n (L4,5, S1):

- gluteus medius m.
- gluteus minimus m.
- tensor fascia lata

## Inferior gluteal n (L5, S1,2):

- gluteus maximus m.

## N to obturator internus

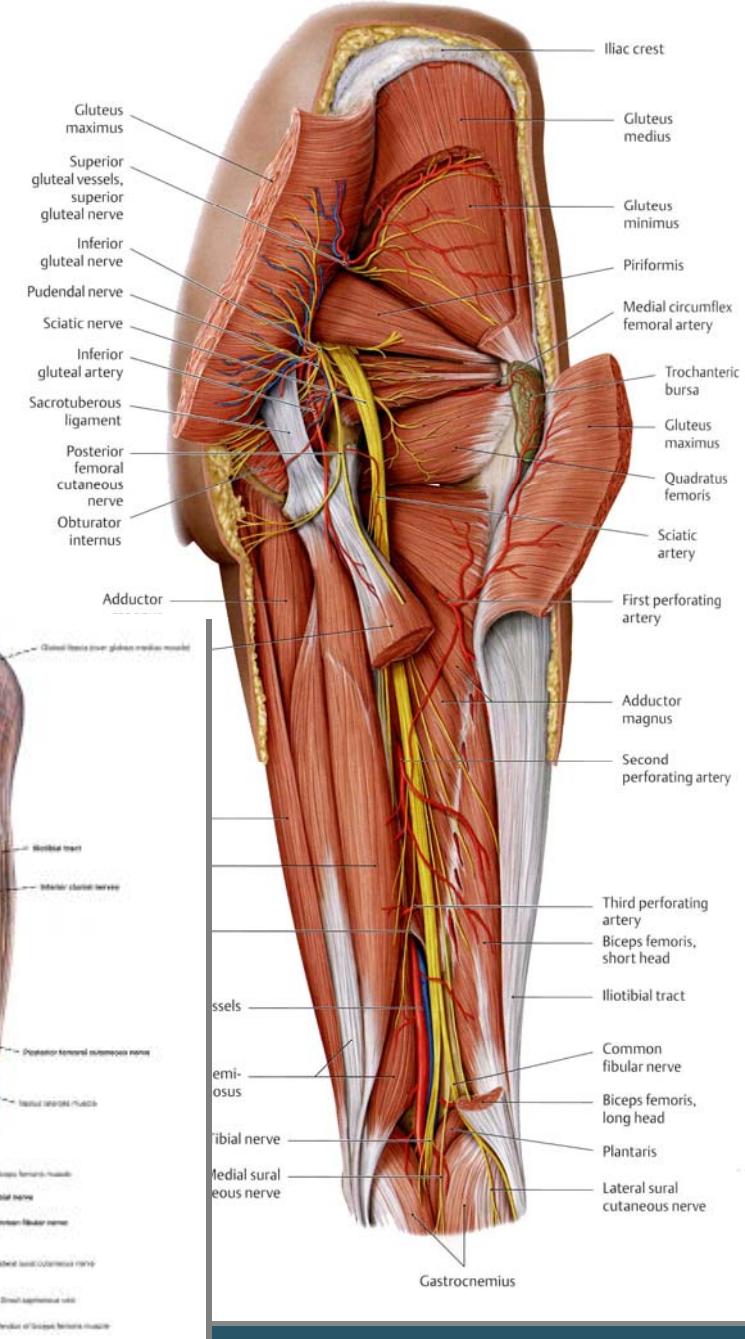
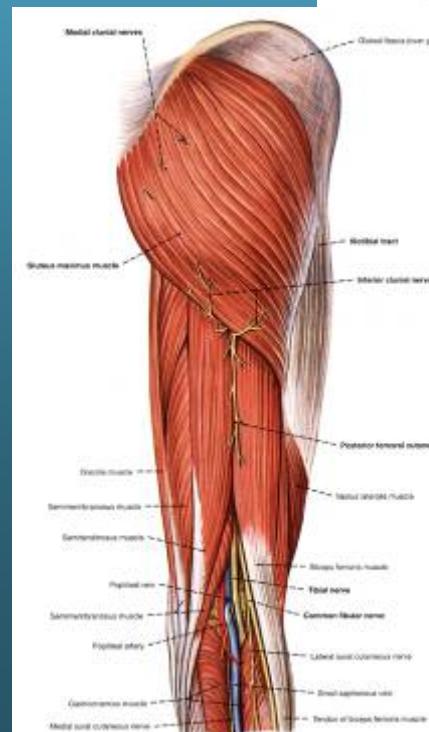
(L5, S1, 2):

- oburator internus
- superior gemellus

## Nerve to quadratus femoris

(L4,5, S1):

- inferior gemellus
- quadratus femorus

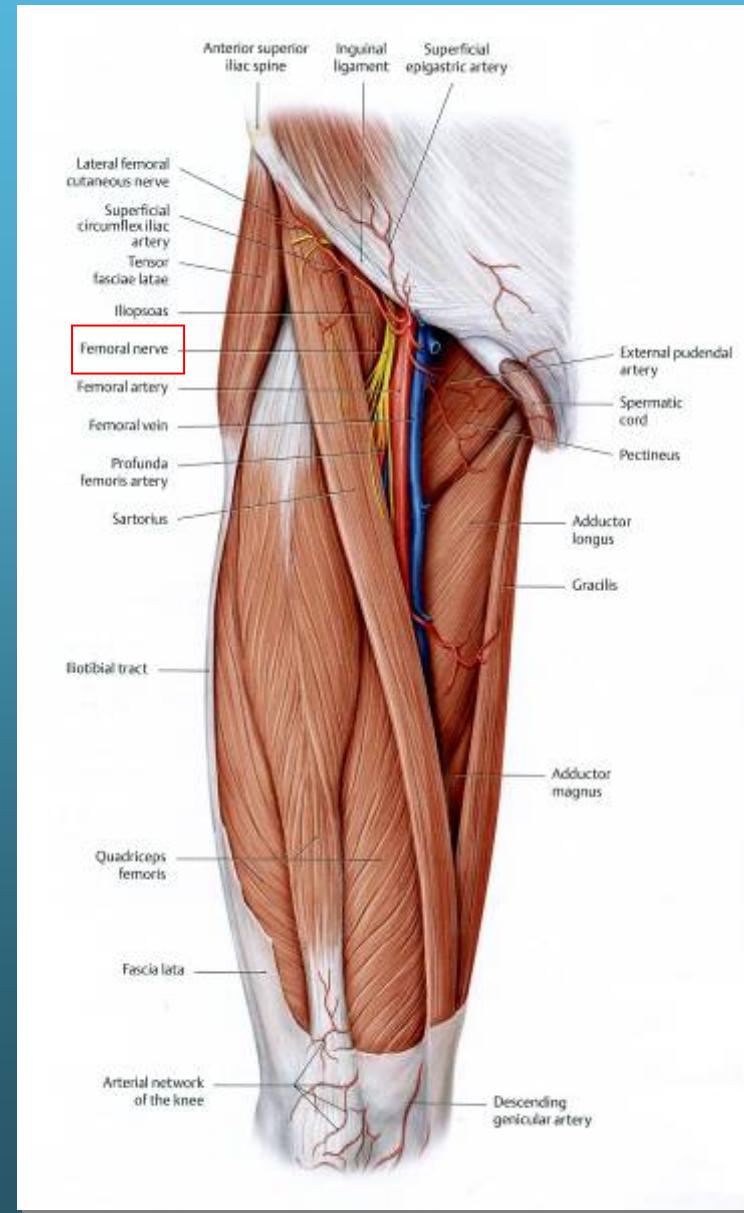
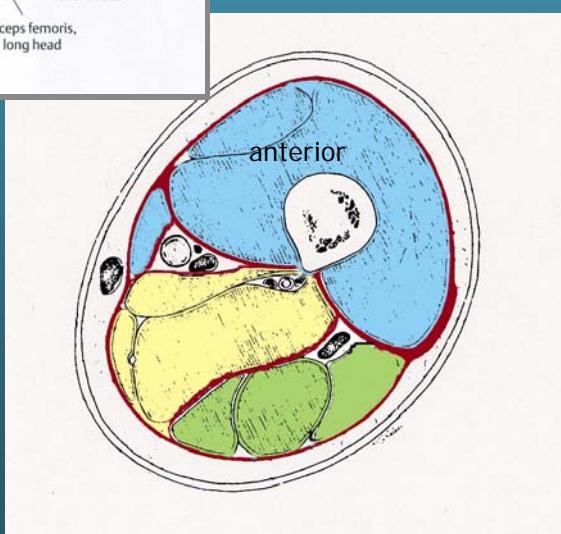
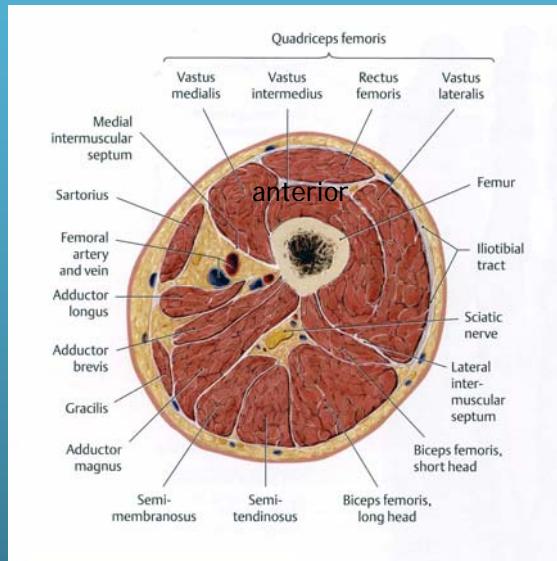


# Compartmental Innervation Of the Free Limb

	Anterior compartment	Medial compartment	Posterior compartment	Lateral compartment
Thigh				X
Leg		X		
Foot		X		X

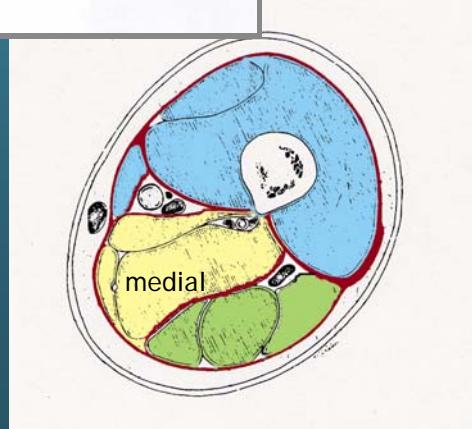
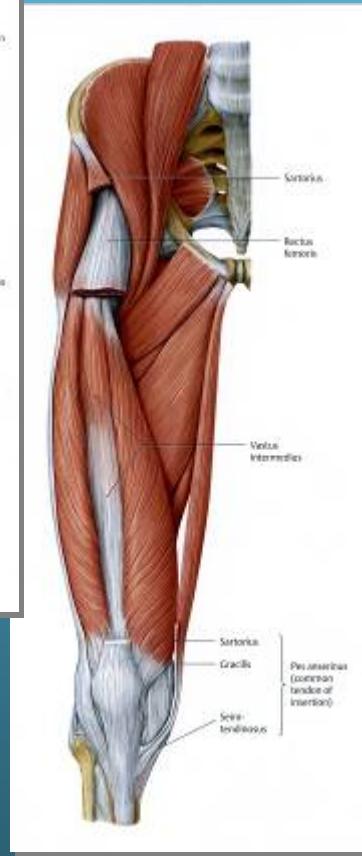
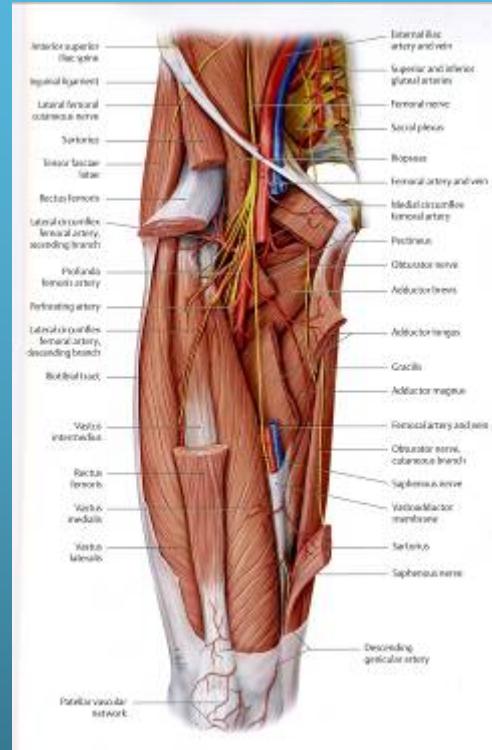
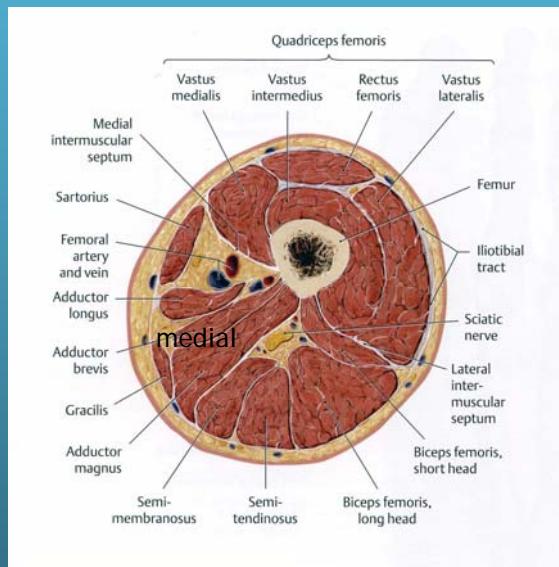
# Anterior (extensor) compartment of the thigh

Innervation: femoral nerve

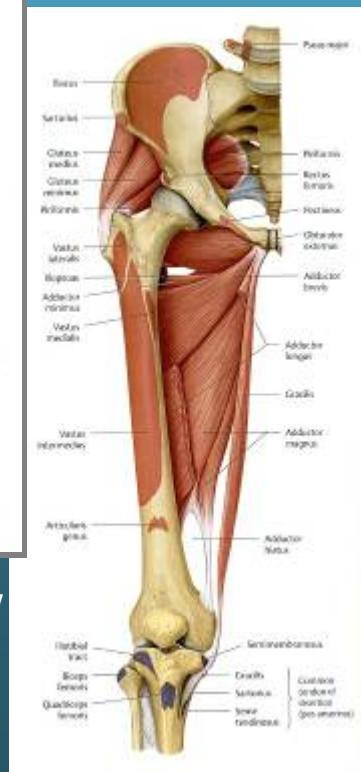


# Medial (adductor) compartment of the thigh

Innervation:  
obturator nerve\*



\*Adductor Magnus innervated by both obturator n and tibial division of sciatic n

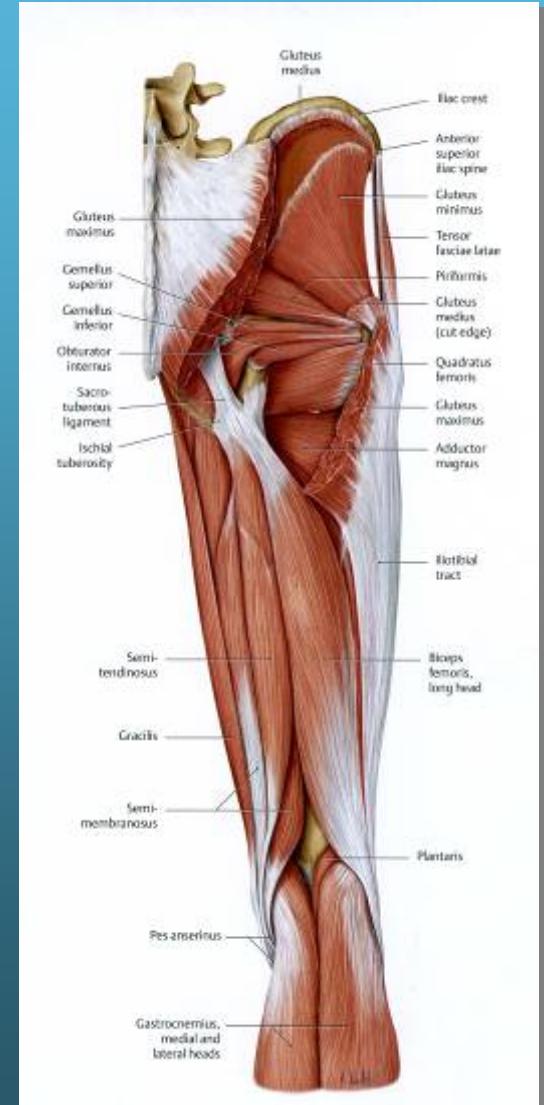
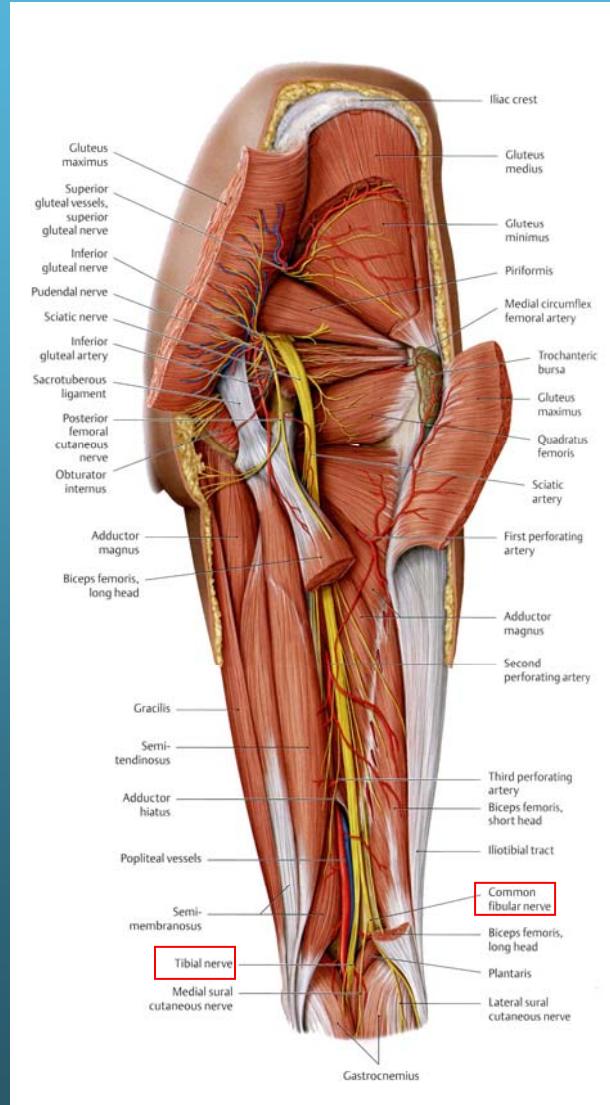
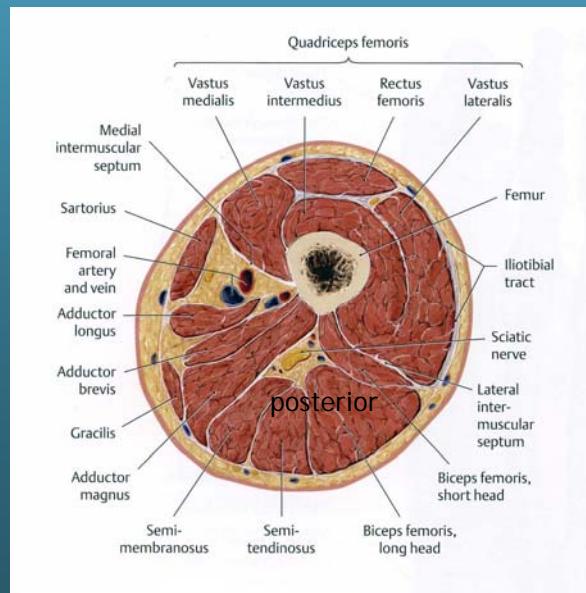


# Posterior compartment of the thigh

Hamstring mm: arise from ischial tuberosity & innervated by tibial division of sciatic n.

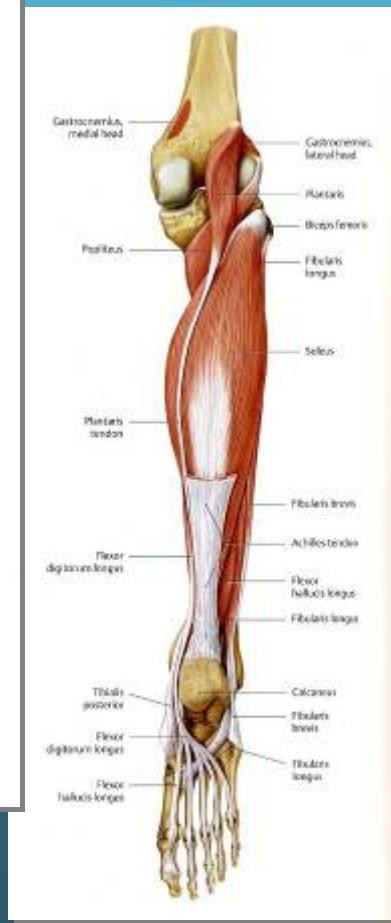
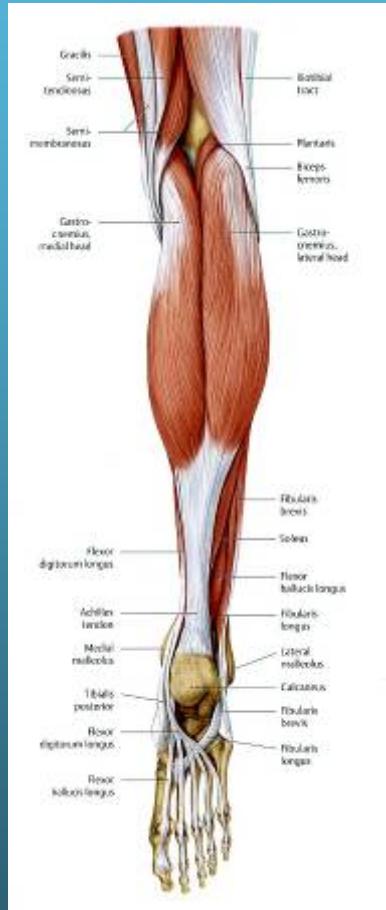
## Innervation:

- Tibial division of sciatic nerve
  - ✓ Except short head of biceps femoris: common fibular division of sciatic nerve

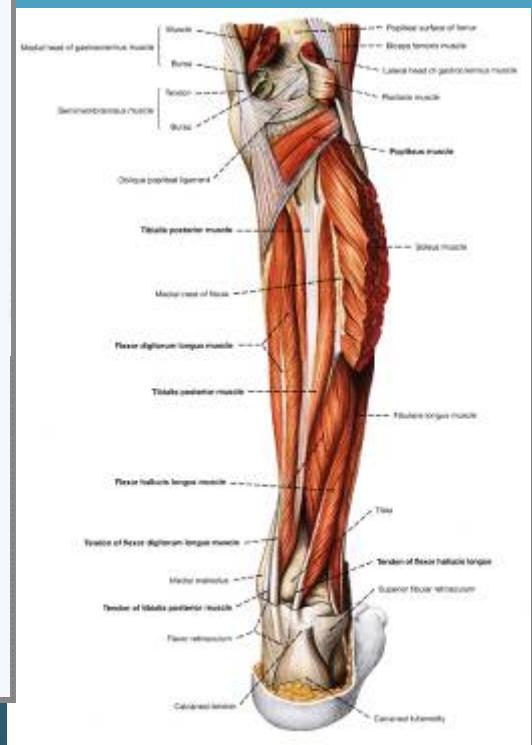
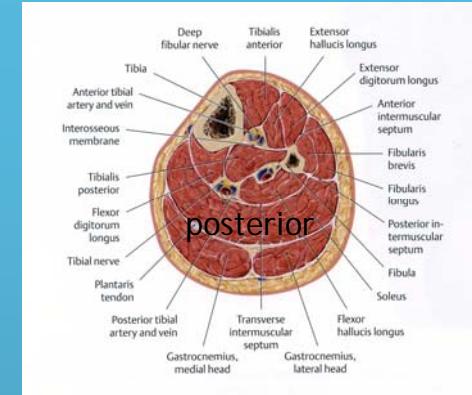
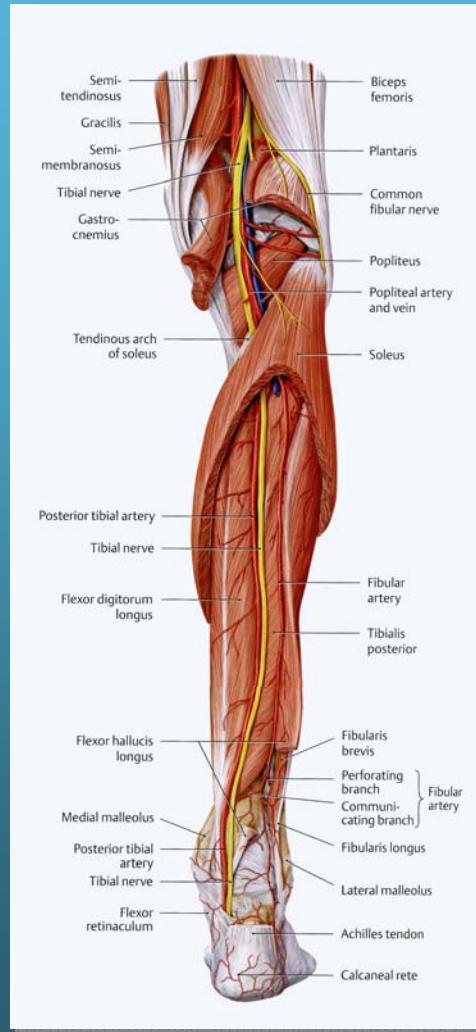


# Posterior compartment of the leg

Innervation: tibial n.



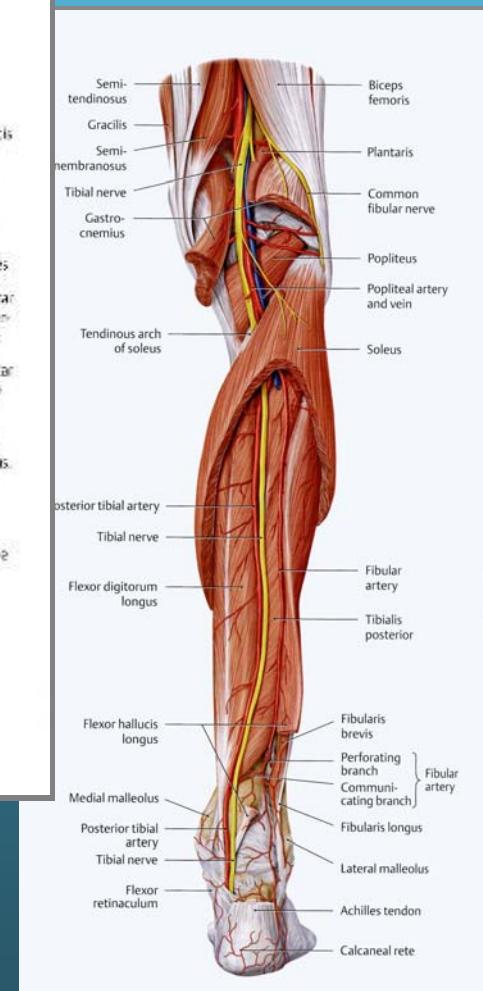
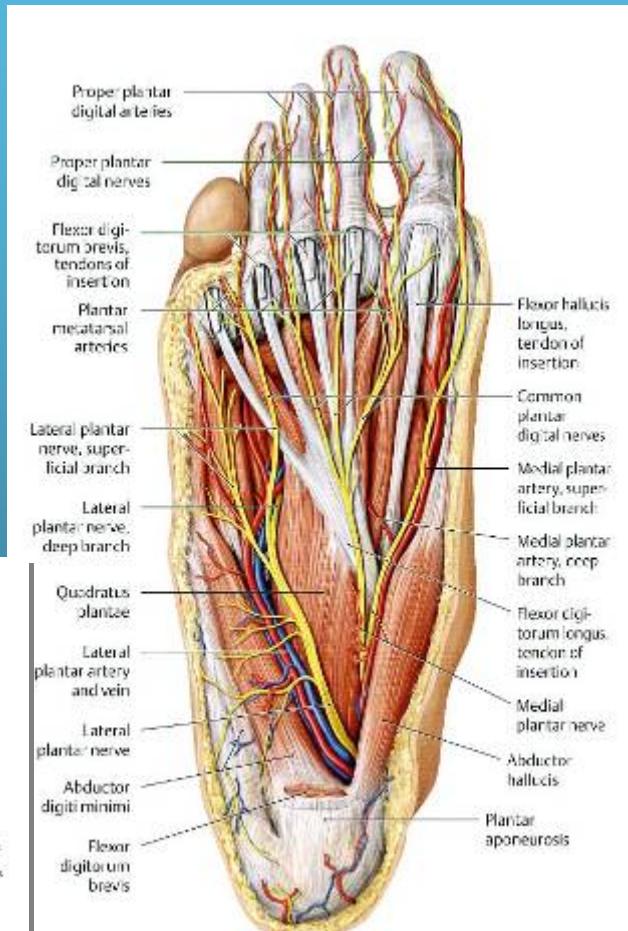
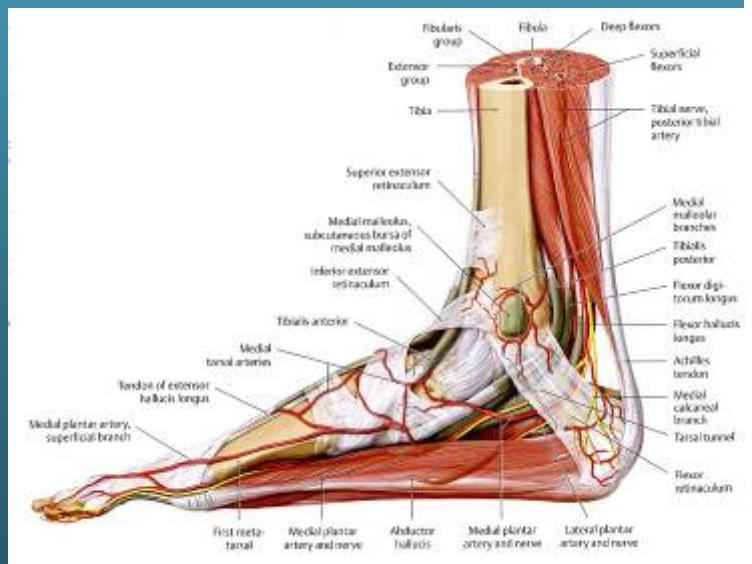
Superficial posterior crural compartment



Deep posterior crural compartment

# Plantar surface of the foot

Innervation:  
Medial & lateral  
plantar nerves



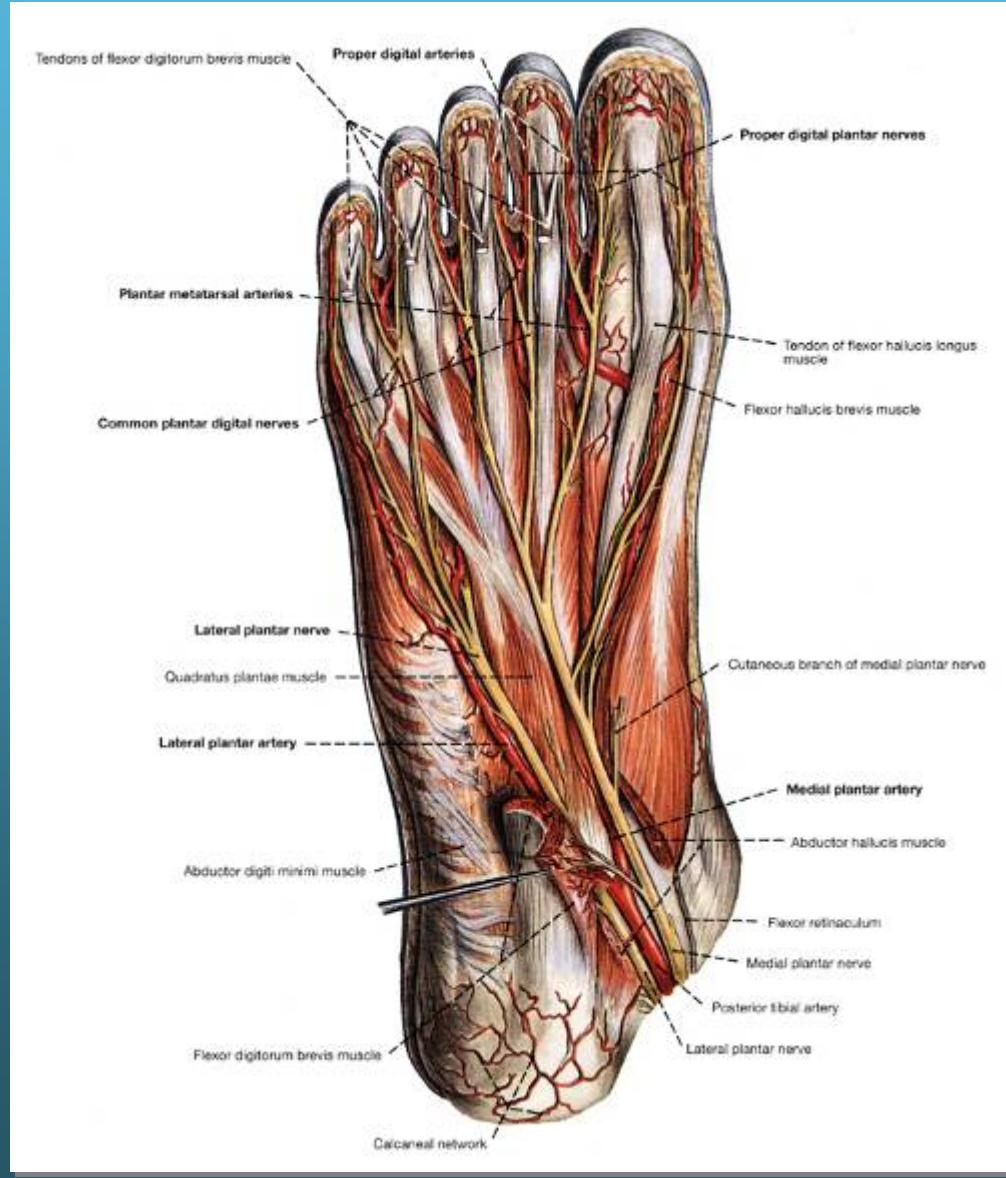
# Innervation of intrinsic muscles of the foot

## Medial plantar n

- flexor digitorum brevis
- flexor hallucis brevis
- abductor hallucis m
- 1st lumbral

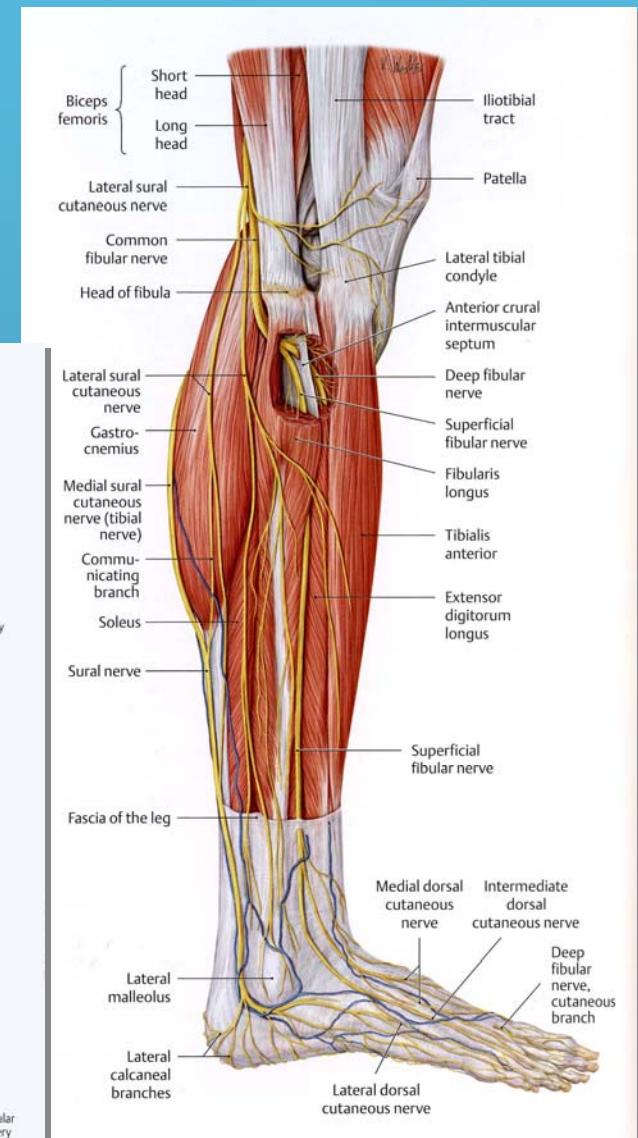
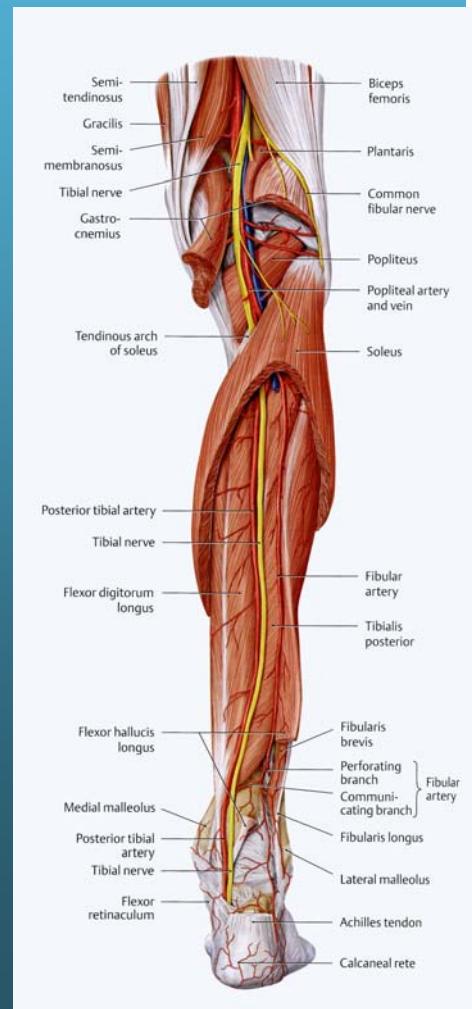
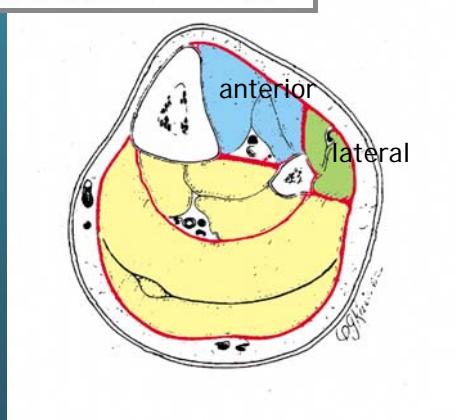
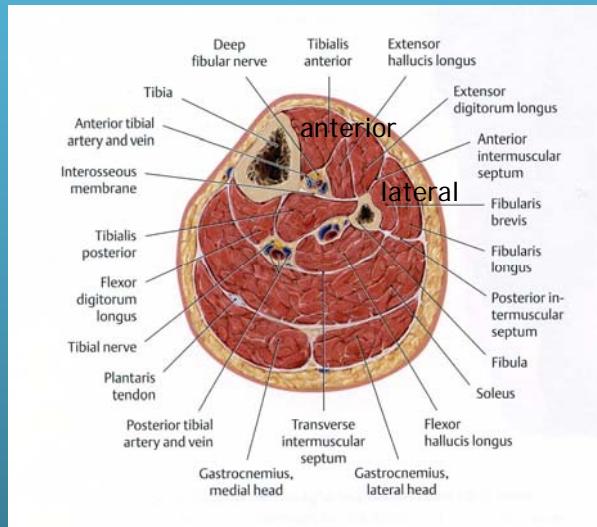
## Lateral plantar n

- abductor digiti minimi
- quadratus plantae
- 2nd, 3rd & 4th lumbricals
- adductor hallucis
- Flexor digiti minimi
- dorsal & plantar interossei



# Common fibular nerve

Nerve supply to the lateral and anterior crural compartments

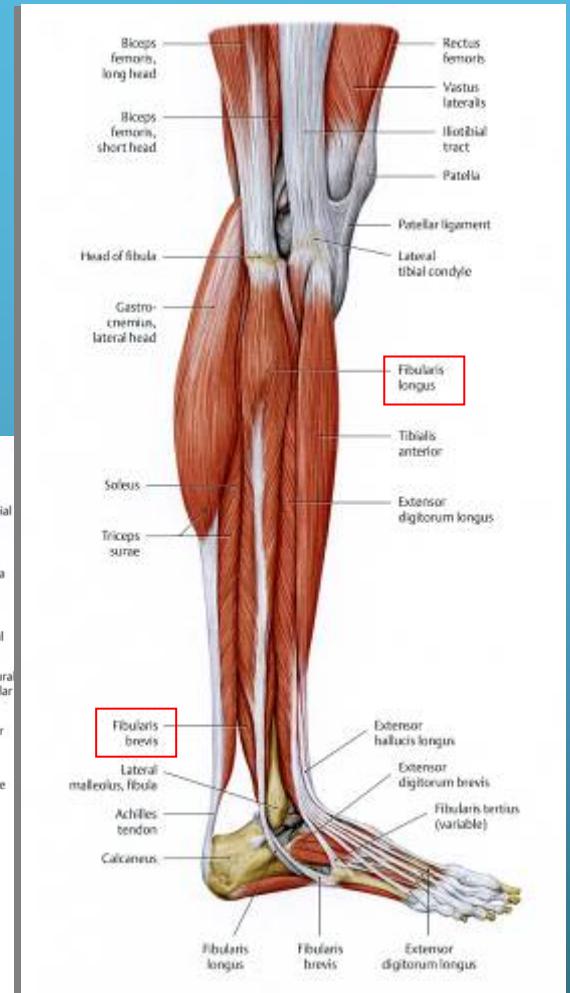
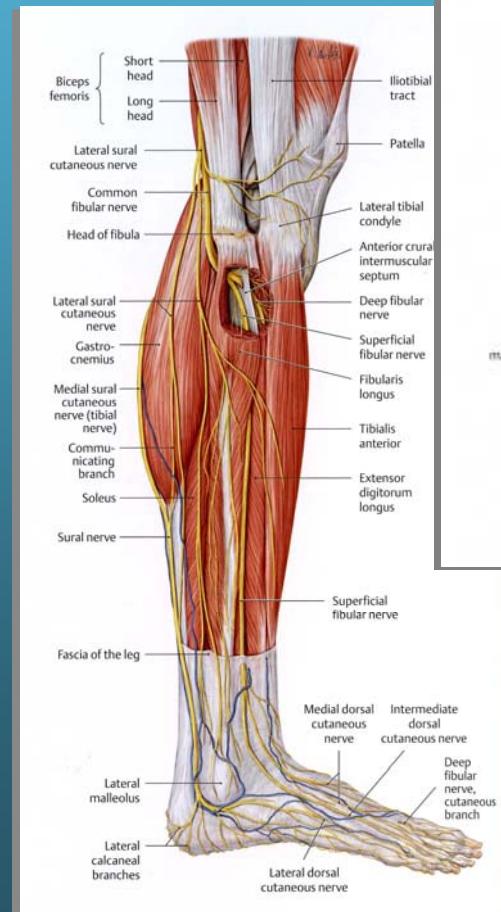
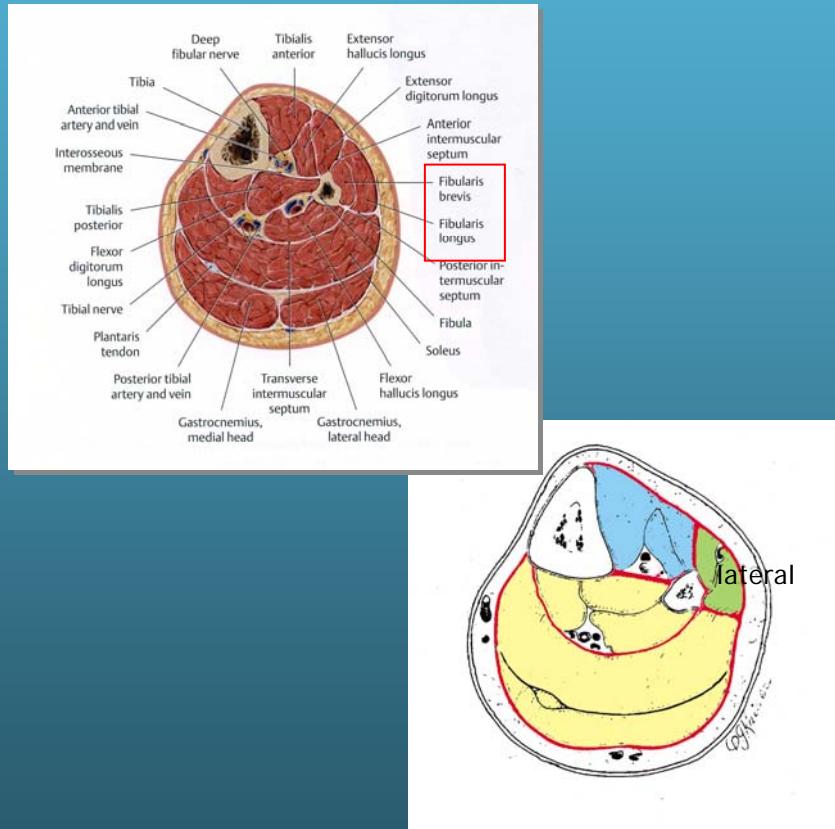


# Lateral crural compartment:

Superficial fibular nerve

Fibularis longus

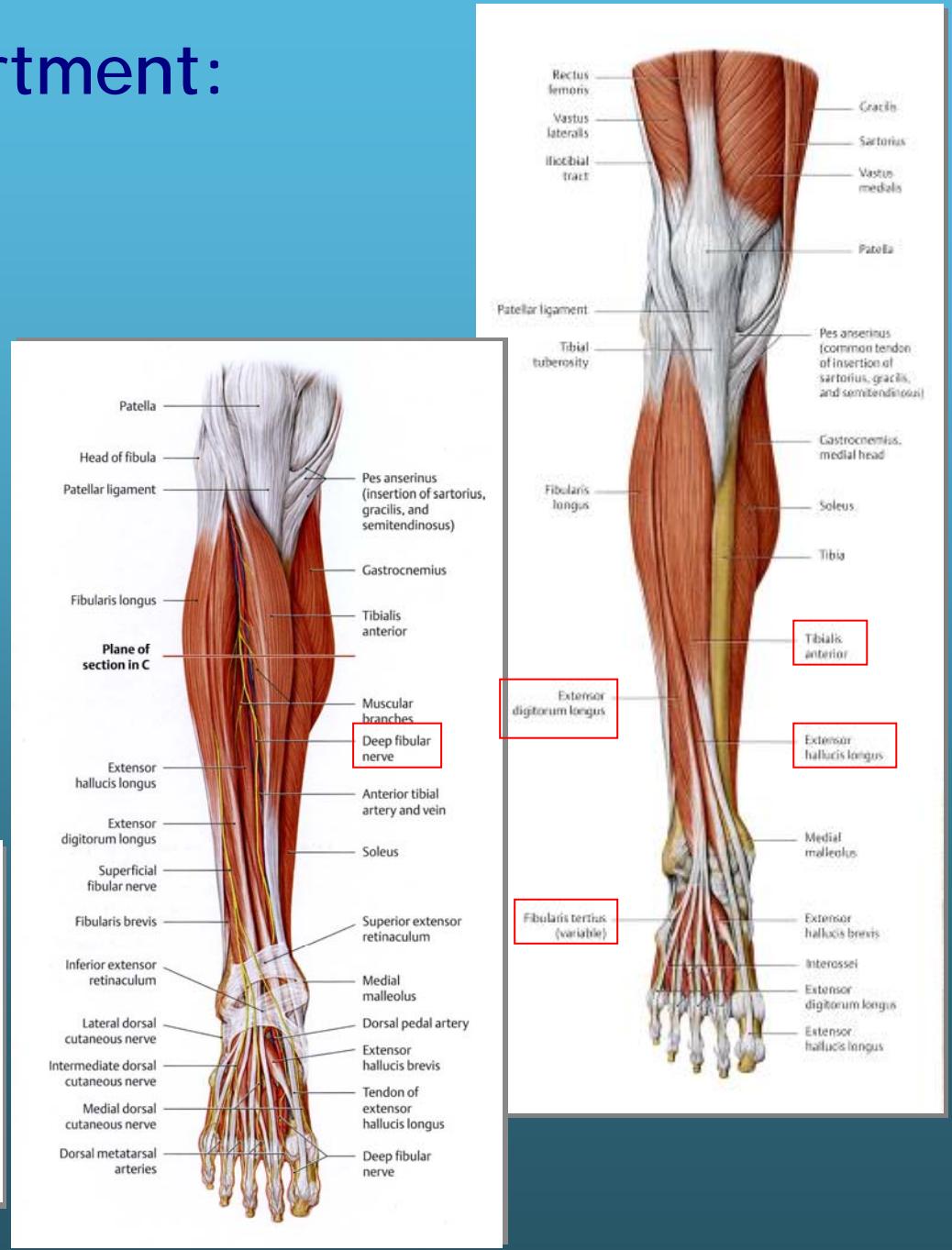
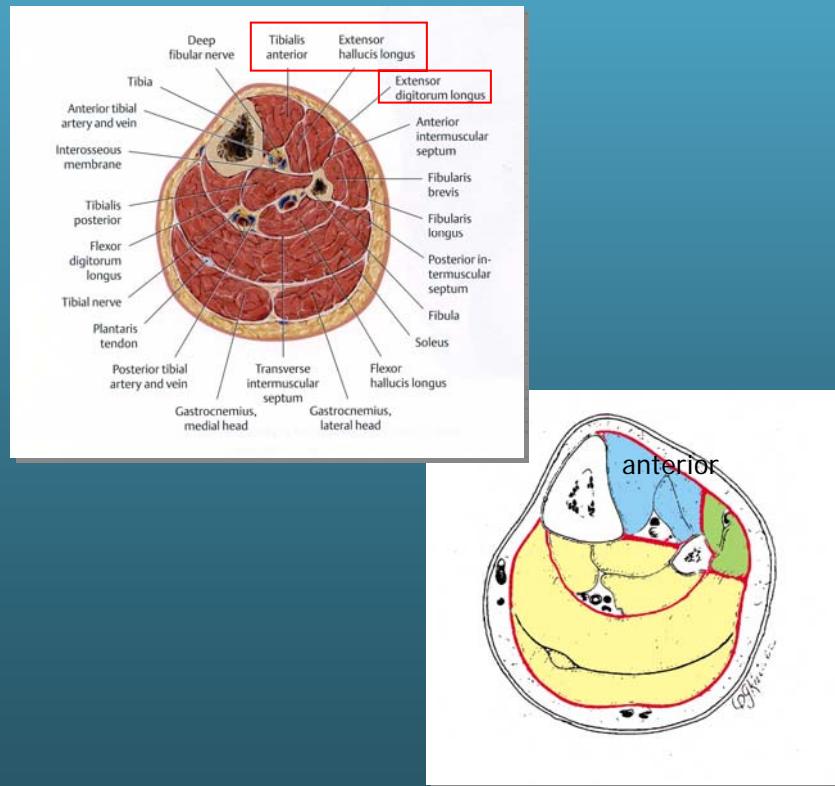
Fibularis brevis



# Anterior crural compartment:

## Deep fibular nerve

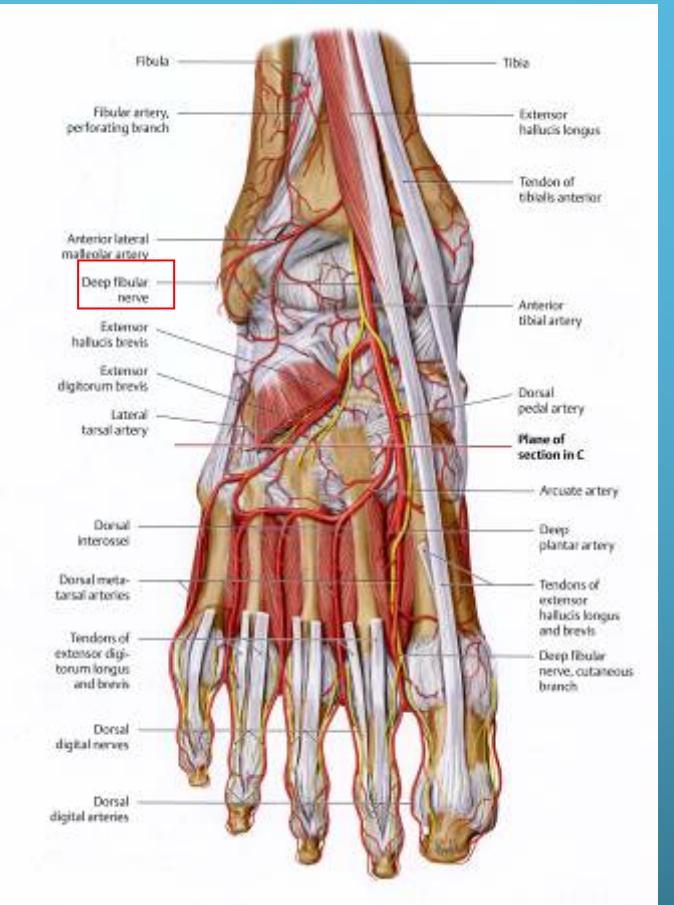
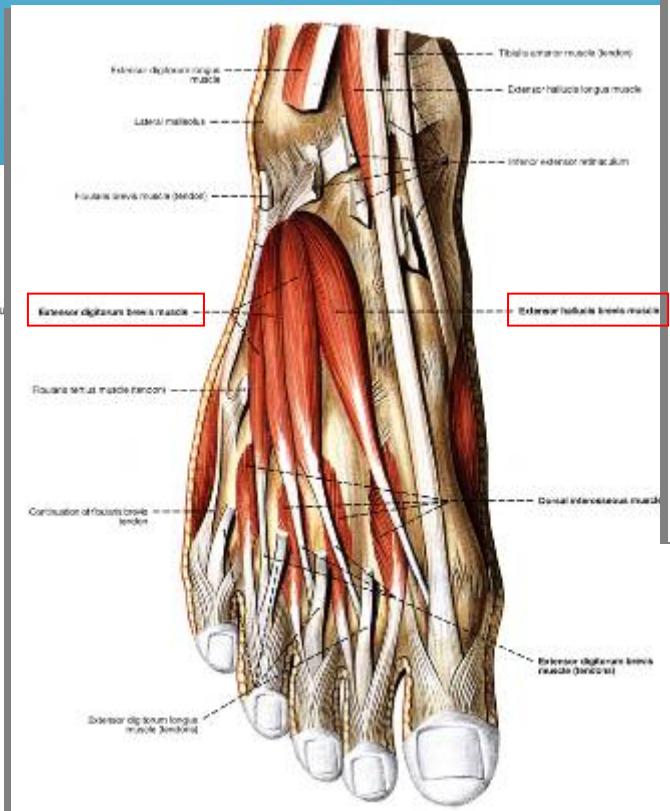
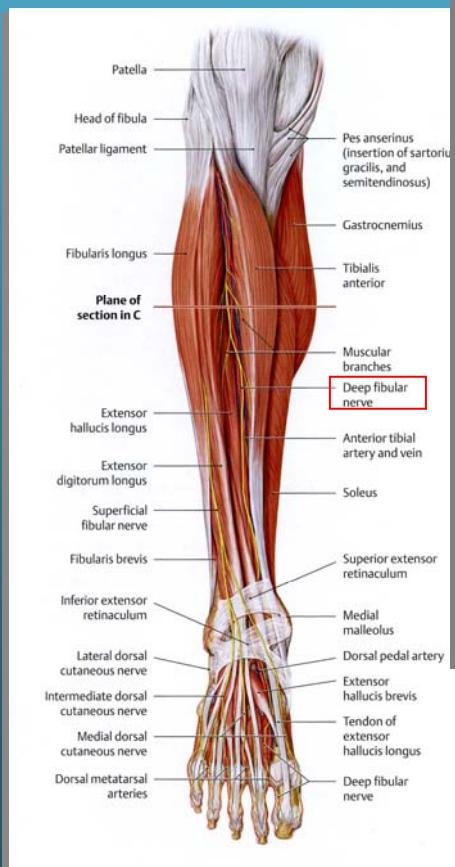
- Tibialis anterior m.
- Extensor hallucis longus m.
- Extensor digitorum longus m.
- Fibularis tertius m.



# Dorsum of the foot:

## deep fibular nerve

- Extensor hallucis brevis
- Extensor digitorum brevis

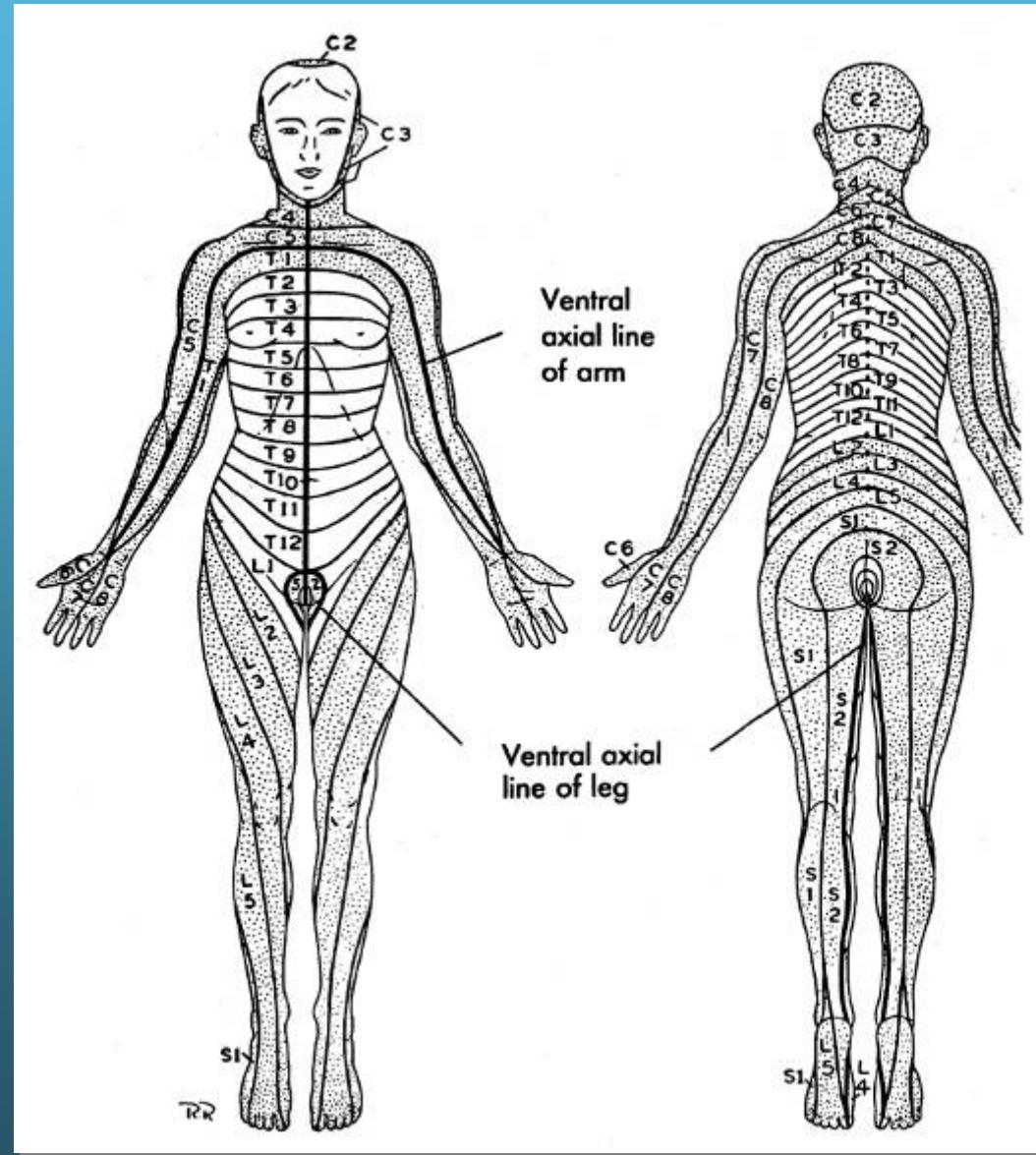


# Sensory Innervation of the Lower Limb

## Key dermatomes

- ✓ thumb - C6
- ✓ 5th digit of hand - C8
- ✓ nipples - T4
- ✓ umbilicus - T10
- ✓ hip crease - L1
- ✓ great toe - L4
- ✓ 5th toe - S1

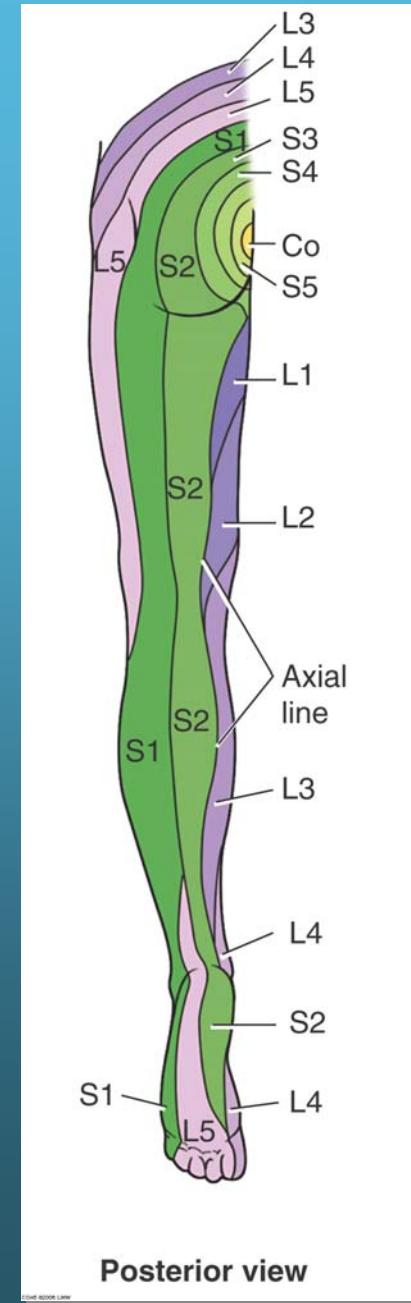
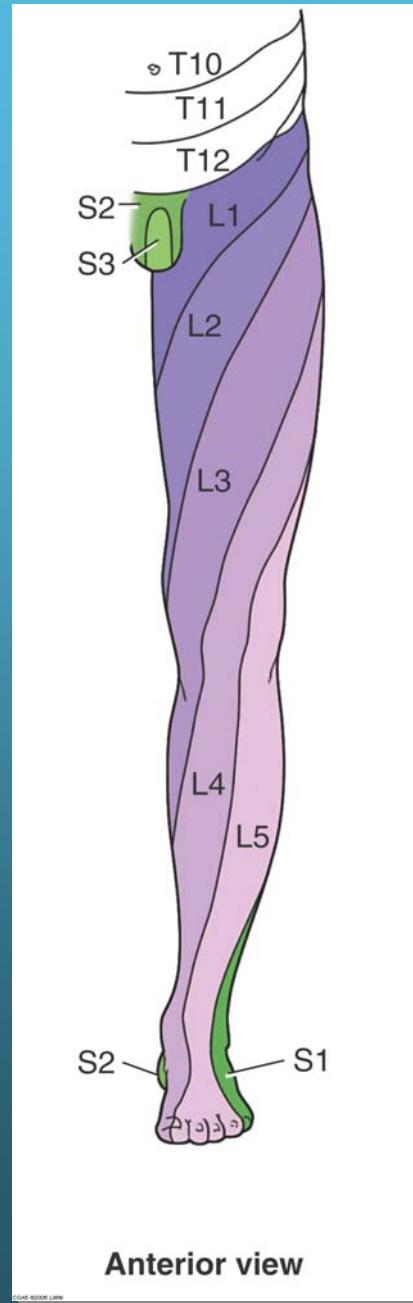
\*area of skin supplied by a dorsal nerve root



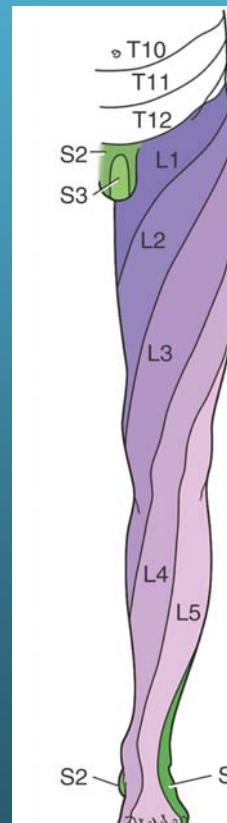
## Key dermatomes\* of the Lower Limb

- ✓ umbilicus - T10
- ✓ hip crease - L1
- ✓ great toe - L4
- ✓ 5th toe - S1

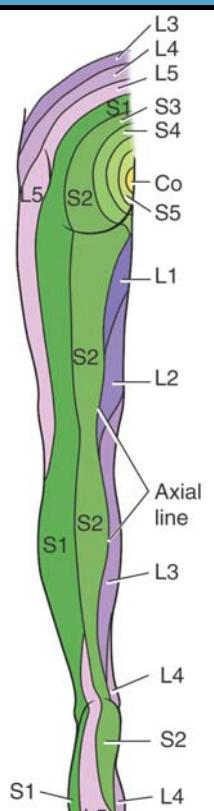
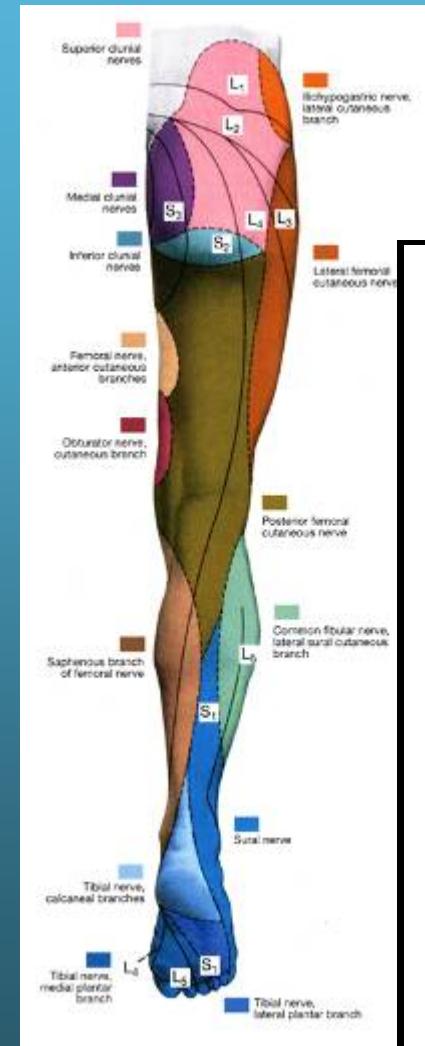
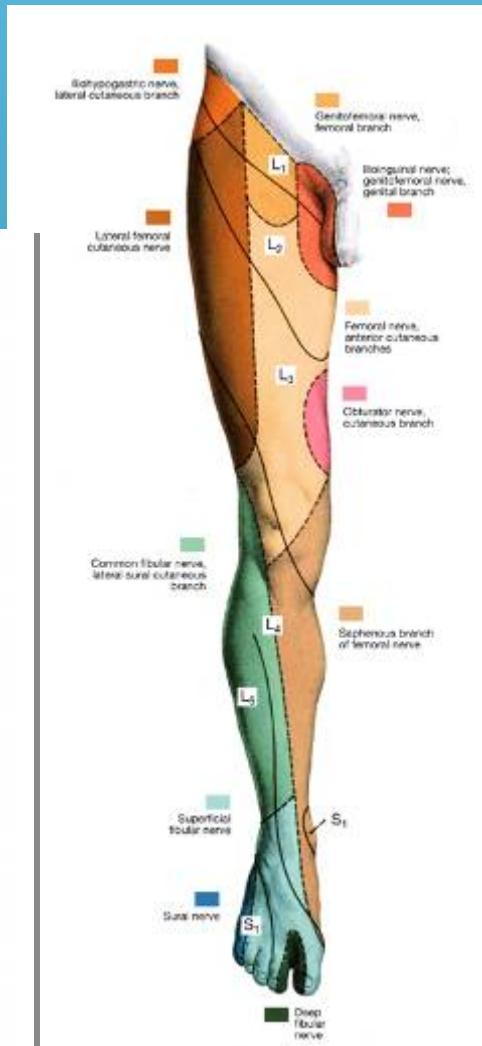
\*area of skin supplied by a dorsal nerve root



# Cutaneous Nerve Supply to the Lower Limb



Anterior view



Posterior view

# References

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