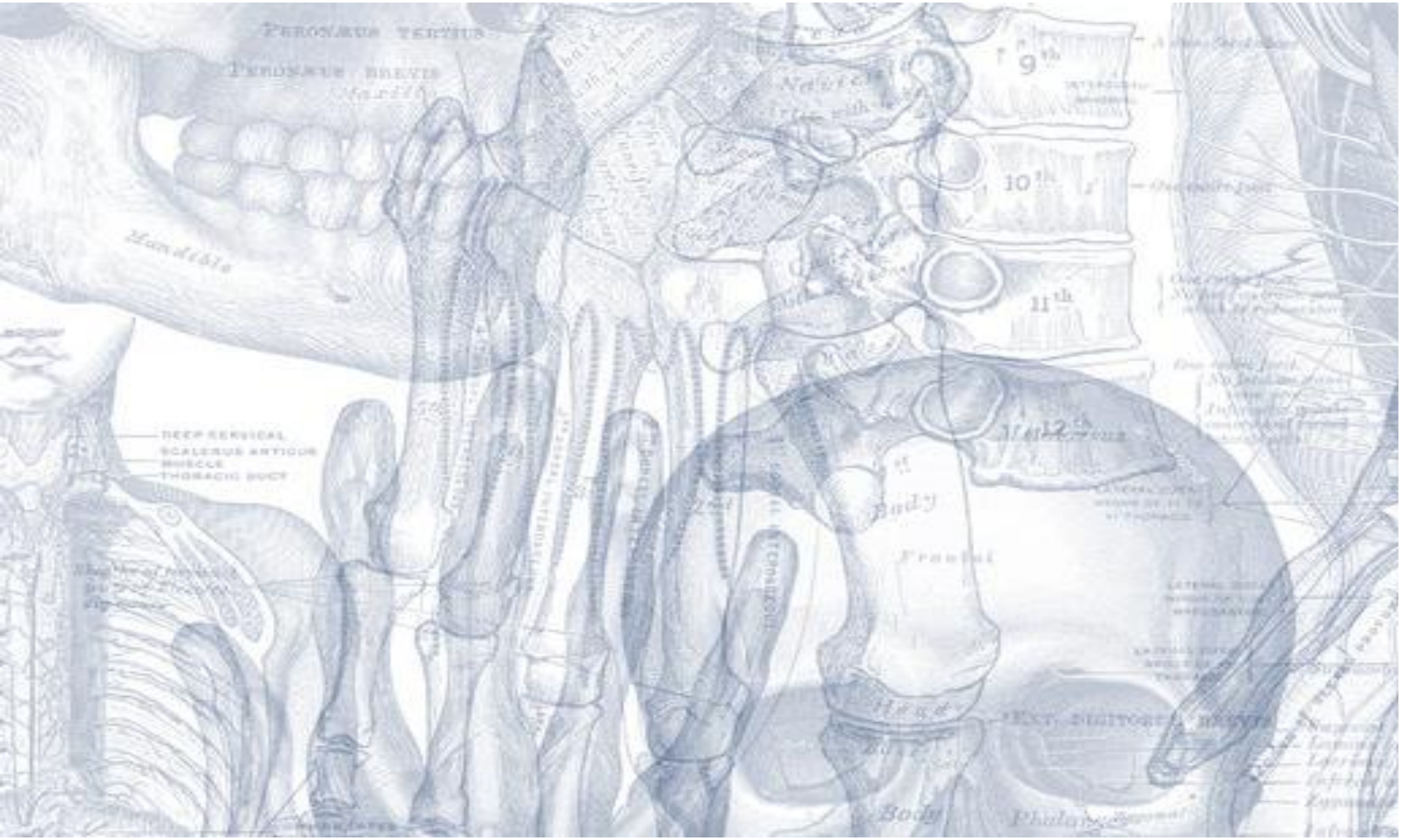
بسم الله الرحمن الرحيم



ANATOMY
TEAM 436

436
MEDICINE
KING SAUD UNIVERSITY

Anatomy Review

اللهم لا سهل إلا ماجعلته سهلا وانت تجعل الحزن اذا شئت سهلا

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Content:

For any unclear topics we highly recommend you visit the following sites/channels:

TeachMeAnatomy.info

the funky professor

ANATOMYZONE

Test Yourself

(contains clinical scenarios):

MUSCLES

MUSCLES OF THE UPPER LIMB

Muscles of the Back

group		Muscle	Origin	Insertion	Innervation	Function
Deep		The largest muscle of this group is “erector spinae” formed of 3 vertical columns (from lateral to medial): iliocostalis, Longissimus , spinalis.	Sacrum	Skull	Posterior Rami of spinal nerves	straighten and rotate the back. extensors and rotators of head & vertebral column
Interm ediate		Serratus posterior superior	_	_	anterior rami of thoracic spinal nerves.	deep inspiration.
		Serratus posterior inferior				forced expiration
Superficial Muscles connecting vertebral column to	scapula	Trapezuis	Spines of Cervical and Thoracic Vertebrae	lateral 1/3 of clavicle + acromion & spine of scapula.	11th cranial nerve (accessory)	Upper fibers: elevate scapula Middle: retract scapula Lower: depress scapula
		Levator Scapulae	Cervical transverse process	Medial border of scapula	Root of brachial plexus C5	Elevate scapula
		Rhomboid Major	Thoracic spines	Medial border of scapula	Root of brachial plexus C5	Retract Scapula
		Rhomboid Minor	Thoracic Spines	Medial border of scapula	Root of brachial plexus C5	Retract scapula
	humerus	Latissimus Dorsi	Spines of Thoracic and Lumbar Vertebrae	Biciptal groove of the humerus	Thoracodorsal nerve C6,7,8	Extension, adduction, and medial rotation of humerus"climbing"

Muscles of shoulder region

Muscle	ORIGIN	INSERTION	ACTION	NERVE
Deltoid	Lateral 1/3 of clavicle + acromion and spine of scapula	Deltoid tuberosity of humerus.	1. Anterior fibers: flexion & medial rotation of humerus (arm, shoulder joint). 2. Middle fibers: abduction of humerus from 15° - 90 °. 3. Posterior fibers: extension & lateral rotation of humerus.	axillary nerve.
Supraspinatus	Supraspinous fossa.	greater tuberosity of humerus.	abduction of humerus from 0° - 15°.	suprascapular nerve.
Infraspinatus	Infraspinaous fossa.		lateral rotation of humerus.	
Teres minor	lateral border of scapula.		lateral rotation of humerus.	axillary nerve.
Teres major	lateral border of scapula.	bicipital groove of humerus.	extension, adduction & medial rotation of humerus.	lower subscapular nerve.
Subscapularis	subscapular fossa	lesser tuberosity of humerus.	medial rotation of humerus.	upper & lower subscapular nerves.

Muscles of pectoral region

Muscle	ORIGIN	INSERTION	ACTION	NERVE
Pectoralis major	**Clavicular head:** From medial ½ of the front of the clavicle. **Sternocostal head: From** Sternum. Upper 6 costal cartilages. Aponeurosis of external oblique.	Lateral lip of bicipital groove.	- Adduction and medial rotation of the arm. - Clavicular head helps in flexion of arm (shoulder).	Medial & lateral pectoral nerves.
Pectoralis minor	from 3rd , 4th , and 5th ribs close to their costal cartilages.	coracoid process.	-Depression of shoulder. -Draw the ribs upward and outwards during deep inspiration.	medial pectoral nerve.
Subclavius	From 1st rib at its junction with the 1st costal cartilage.	Subclavian groove at the inferior surface of middle 1/3 of clavicle.	Steadies the clavicle during movement of the shoulder joint	Nerve to subclavius from upper trunk of brachial plexus.
Serratus anterior	Upper eight ribs.	Ventral aspect of the medial border and inferior angle of the scapula.	-Draws the scapula forward (protrusion, in boxing). -Rotates scapula outwards in raising the arm above 90 degree.	Long thoracic nerve, (nerve of Bell or nerve to serratus anterior).

Muscles of arm region

Muscle	ORIGIN	INSERTION	ACTION	NERVE
Biceps brachii	Long Head from supraglenoid tubercle of scapula (intracapsular) Short Head from the tip of coracoid process of scapula The two heads join in the middle of the arm.	-In the posterior part of the radial tuberosity. -Into the deep fascia of the medial aspect of the forearm through bicipital aponeurosis.	-Strong supinator of the forearm. used in screwing -Powerful flexor of elbow -Weak flexor of shoulder	Musculocutaneous
Coracobrachialis	Tip of the coracoid process	Middle of the medial side of the shaft of the humerus	Flexor & a weak adductor of the arm	
Brachialis	Front of the lower half of humerus.	Anterior surface of coronoid process of ulna	Strong flexor of the forearm	Musculocutaneous & Radial
Triceps brachii	-**Long Head** from infraglenoid tubercle of the scapula. -**Lateral Head** from the upper half of the posterior surface of the shaft of humerus above the spiral groove. -**Medial Head** from the lower half of the posterior surface of the shaft of humerus below the spiral groove.	Common tendon inserted into the upper surface of the olecranon process of ulna	Strong extensor of the elbow joint	Radial nerve

Muscles of Forearm region

FLEXOR GROUP : Superficial

Muscle	ORIGIN	INSERTION	ACTION	NERVE
Pronator teres	common flexor origin (front of medial epicondyle).	middle of lateral surface of radius	pronation & flexion of forearm	median nerve
Flexor carpi radialis		Base of 2nd metacarpal bone	Flexion & abduction of the hand	
Palmaris longus		into the flexor retinaculum & palmar aponeurosis	Flexes hand & tightens palmer aponeurosis	
Flexor carpi ulnaris		Pisiform, hook of hamate 5th metacarpal bone	Flexion and adduction of the hand	Ulnar nerve

Muscles of Forearm region

	Muscle	ORIGIN	INSERTION	ACTION	NERVE
FLEXOR GROUP : Intermediate	**Flexor digitorum superficialis**	Common flexor origin, Coronoid process of ulna; Anterior surface of radius	base of middle phalanges of medial 4 fingers	Flexes middle and proximal phalanges of medial 4 fingers, and the hand	median nerve
FLEXOR GROUP : Deep	**Flexor digitorum profundus**	above ulna	bases of distal phalanges of medial 4 digits	Flexes distal phalanges of medial 4 digits	median nerve except medial half are innervated by the ulnar nerve
	Flexor pollicis longus	above radius	Base of distal phalanx of thumb	flexes interphalangeal, metacarpophalangeal & carpometacarpal joints of thumb.	median nerve
	Pronator quadratus	above the ulna and radius	distal fourth of anterior surface of radius	pronates forearm (prime mover), helps to hold the bones together	median nerve

Muscles of Forearm region

	Muscle	ORIGIN	INSERTION	ACTION	NERVE
Extensor group : lateral superficial	**Brachioradialis**	Lateral supracondylar ridge of humerus	Base of styloid process of radius	Flexes forearm; (elbow). Rotates forearm to the midprone position	radial nerve itself
	Extensor carpi radialis longus		Posterior surface of base of 2nd metacarpal bone	Extends and abducts hand at wrist joint	radial nerve itself
tensor group :superficial	**Extensor carpi radialis brevis**	common extensor origin, (front of lateral epicondyle of the humerus	base of 3rd metacarpal bone	Extends and abducts hand at wrist joint	deep branch of radial nerve (purely motor nerve)
	Extensor digitorum		Extensor expansion of the medial 4 fingers.	Extends medial four fingers at the MCP and IP joints	deep branch of radial nerve (purely motor nerve)

Muscles of Forearm region

	Muscle	ORIGIN	INSERTION	ACTION	NERVE
Extensor group : superficial	**Extensor digiti minimi**	common extensor origin, (front of lateral epicondyle of the humerus	Extensor expansion of the little finger	Extends the little finger, and contributes to extension at the wrist	deep branch of radial nerve (purely motor nerve)
	Extensor carpi ulnaris		Base of the 5th metacarpal bone.	Extension and adduction of wrist	deep branch of radial nerve (purely motor nerve)
	Anconeus		Posterior and lateral part of the olecrannon	Moves the ulna during pronation and extends at the elbow joint	radial nerve itself

Muscles of Forearm region

Muscle	ORIGIN	INSERTION	ACTION	NERVE
Supinator.	-Lateral epicondyle of the humerus -Posterior surface of the ulna	posterior surface of the radius	Supinates the forearm	**posterior interosseous nerve** (continuation Deep Branch of Radial Nerve) ***(PURELY MOTOR nerve)***
Abductor pollicis longus	Interosseous membrane	thumb	Abducts the thumb	
Extensor pollicis brevis	Posterior surface of the radius and interosseous membrane		Extends at the metacarpophalangeal and carpometacarpal joints of the thumb	
Extensor pollicis longus	posterior surface of the ulna and interosseous membrane		Extends all joints of the thumb: carpometacarpal, metacarpophalangeal and interphalangeal	
Extensor indices		index	Extends the index finger	

Muscles of Hand region

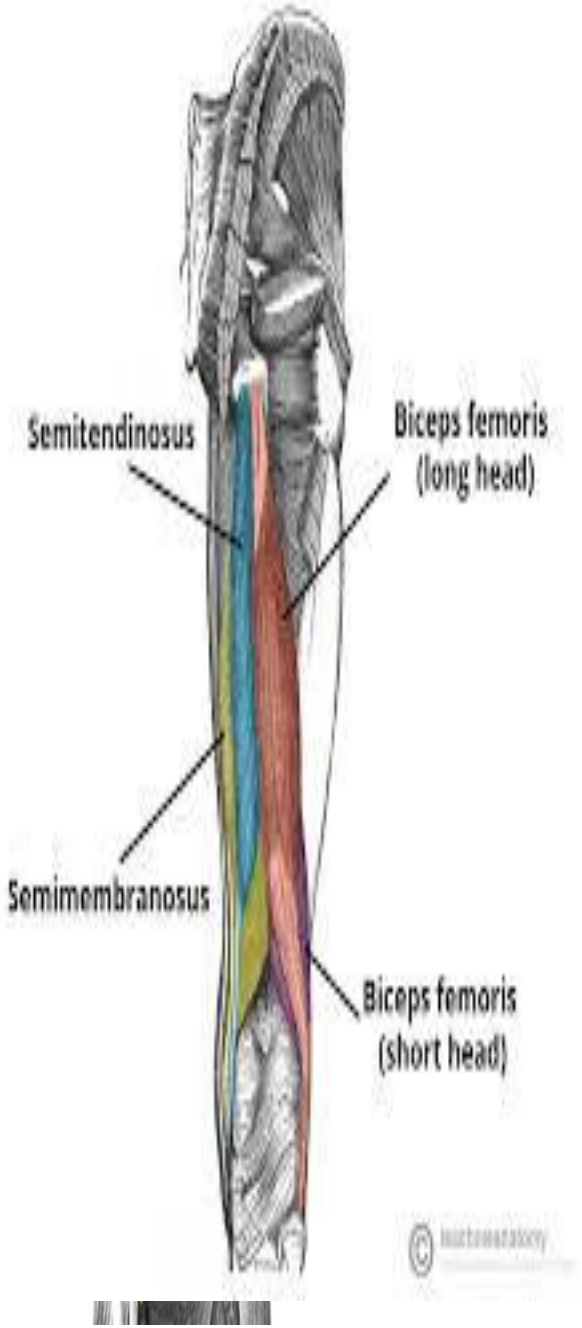
Muscle		ORIGIN	INSERTION	ACTION	NERVE
Palmaris Brevis		Palmar Aponeurosis And Flexor Retinaculum	Skin of Palm	Corrugation of skin to improve grip	ulnar nerve (Superficial). Branch
Hypothenar Eminence	**Abductor Digiti Minimi**	Pisiform	Base of Proximal phalanges Of Little Finger	Abduction	Deep branch of Ulnar
	Flexor Digiti Minimi Brevis	Flexor Retinaculum		Flexion	
	Opponens Digiti Minimi	Palmar surface of 5th metacarpal	Medial margin of 5th metacarpal	Pulls the 5th metacarpal forward (Cup the palm)	

Muscles of Hand region

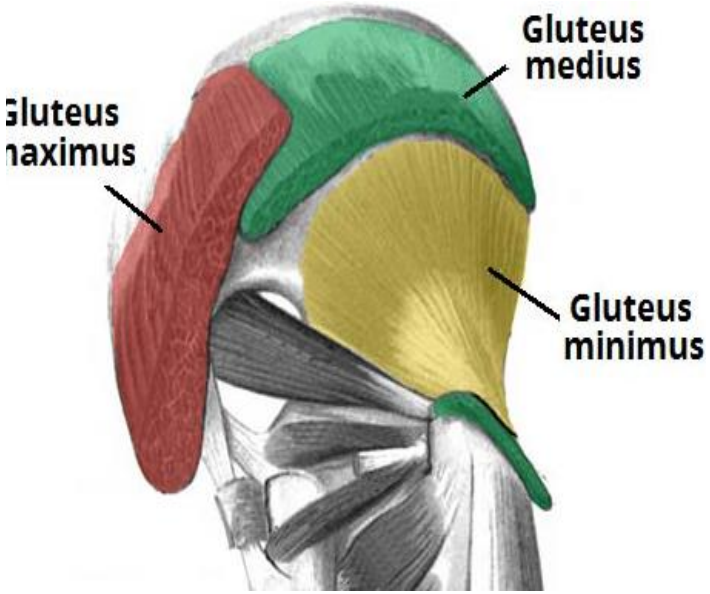
Muscle		ORIGIN	INSERTION	ACTION	NERVE
Thenar Eminence	**Abductor Pollicis Brevis**	Flexor Retinaculum (Scaphd& Trapez)	Base of Proximal phalanges of Thumb	Abduction	Median Nerve
	Flexor Pollicis Brevis	Flexor Retinaculum		Flexion	Median Nerve
	Oppenens Pollicis		Lateral part of 1ST metacarpal	Opposition	Median Nerve
Adductor Pollicis		*Oblique Head: Anterior bases of 2nd & 3rd metacarpals. Transverse Head : 3rd metacarpal*	Medial side of base of prox.ph of thumb	addiction	Deep branch of Ulnar nerve
Lumbrical Muscles (4 MUSCLES)		Tendons of Flex.dig. profundus	Extensor Expansion of medial four fingers	Flex metacarpophal angeal joints and extend interphalangeal	1ST & 2ND (Lateral two) : Median N. 3RD & 4TH

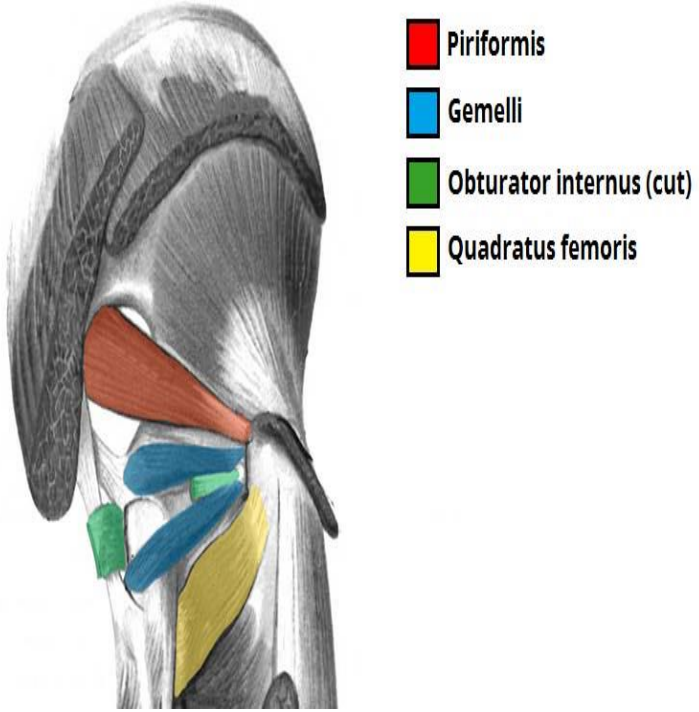
Muscles of Hand region

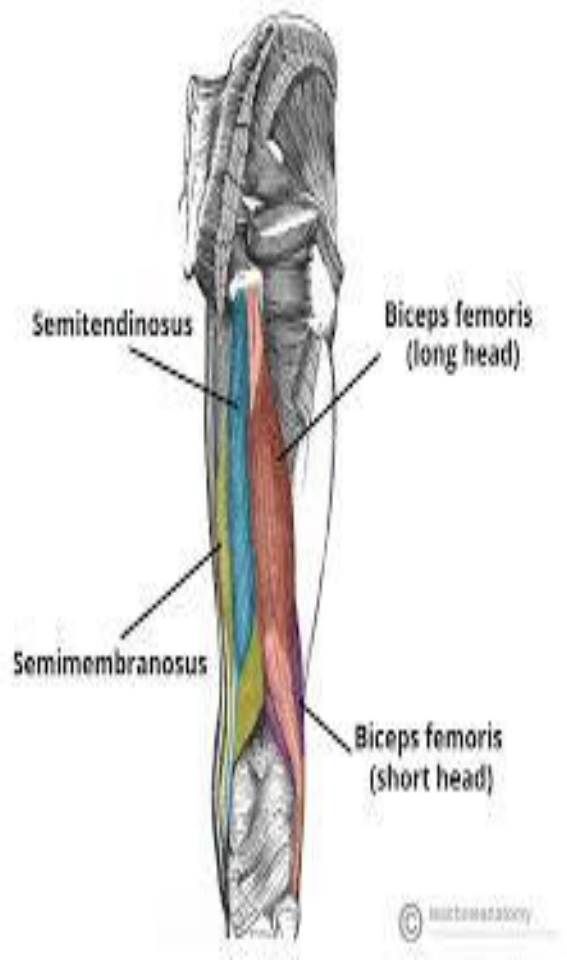
Muscle	ORIGIN	INSERTION	ACTION	NERVE
Palmar Interossei (4 MUSCLES)	1st : Base of 1st metacarpal. Other three: Ant. Surface of Shafts of 2nd , 4rd & 5th metacarpals.	Proximal phalanges of thumb ,index, ring, & little fingers and Extensor expansion	Adduction of fingers toward center of the 3rd one.	Ulnar nerve
Dorsal Interossei (4 MUSCLES)	Contiguous sides of shafts of Metacarpals	Proximal Phalang of index, ring ,mid finger & Extensor expansion	Abduction of fingers away from the 3rd one	Ulnar nerve

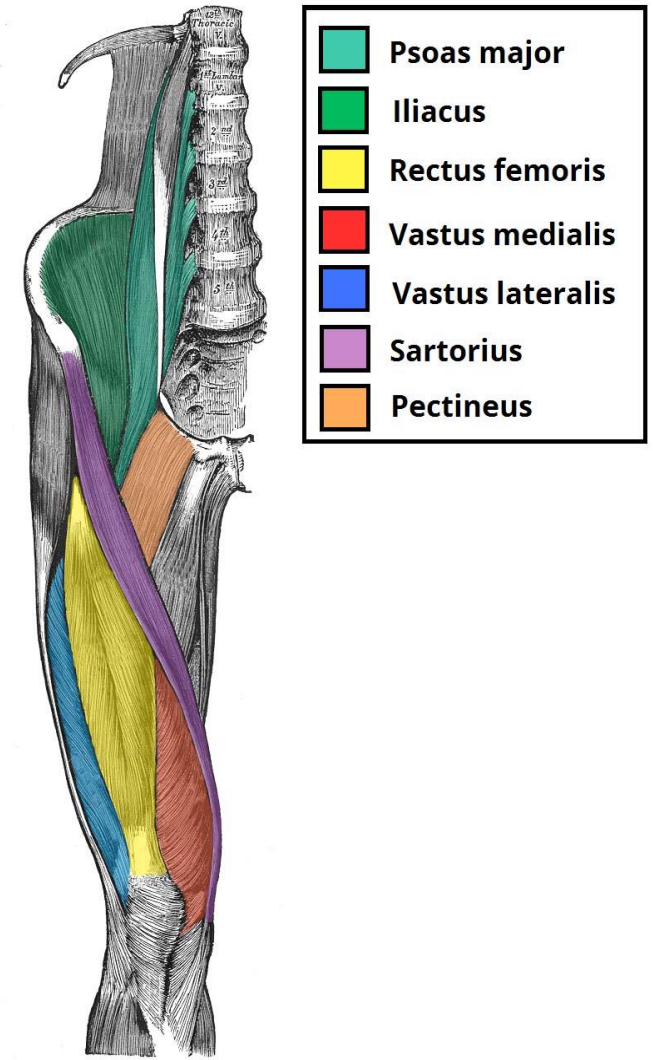


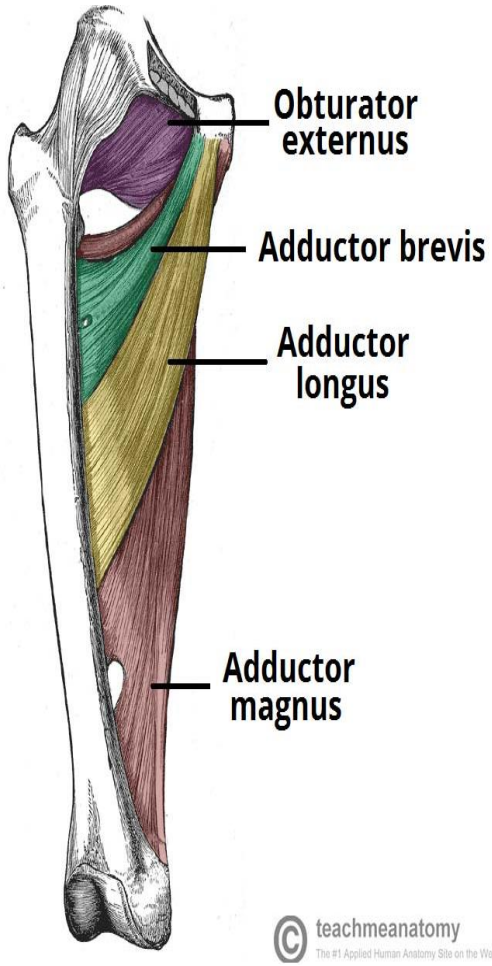
JSCLES OF THE LOWER LIMB

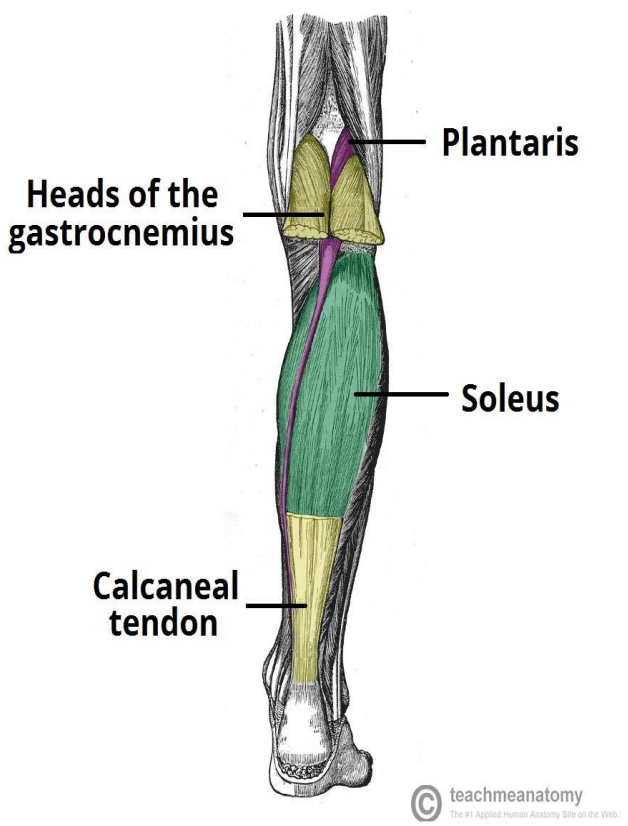
PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
	Back of sacrum, coccyx & Sacrotuberous ligament.	Iliotibial tract & Gluteal tuberosity	Inf. Gluteal nerve	Extension & Lateral rotation of hip joint. -Stabilizing femur on tibia through iliotibial tract.
	Mid. Part of Gluteal surface of ileum	Lateral greater trochanter	Sup. Gluteal nerve	Abduction & medial rotation of hip joint - Prevent tilt of pelvis
	Ant. Part of Gluteal surface of ileum	Ant. Part of greater trochanter	Sup. Gluteal nerve	Abduction & medial rotation of hip joint - Prevent tilt of pelvis

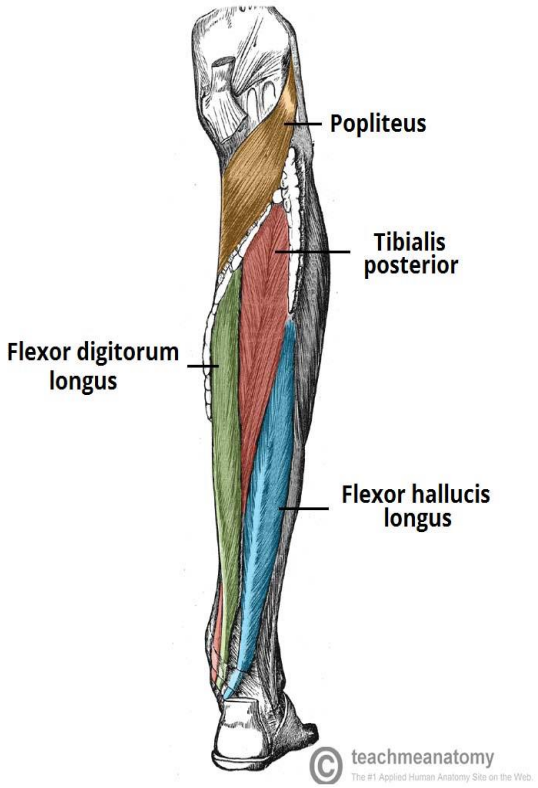
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
4	Lateral Rotators	Piriformis		Pelvic surface of Mid. 3 sacral vertebrae	Upper border of the greater trochanter	Anterior rami of S1, S2	Lateral Rotation of Hip joint
5	Lateral Rotators	Obturator Internus		Inner surface of the sidewall of the pelvis	Mid. surface of the greater trochanter	Nerve to obturator internus	Lateral Rotation of Hip joint
6	Lateral Rotators	Superior Gemelli		Upper part of lesser sciatic notch	Upper & lower parts into tendon of obturator internus	Nerve to obturator internus	Lateral Rotation of Hip joint
7	Lateral Rotators	Quadratus Femoris		Lateral border of the ischial tuberosity	Quadrate tubercle & intertrochanteric crest	Nerve to Quadratus Femoris	Lateral Rotation of Hip joint
8	Lateral Rotators	Inferior Gemelli		Lesser part of lesser sciatic notch	Upper & lower parts into tendon of obturator internus	Nerve to Quadratus Femoris	Lateral Rotation of Hip joint

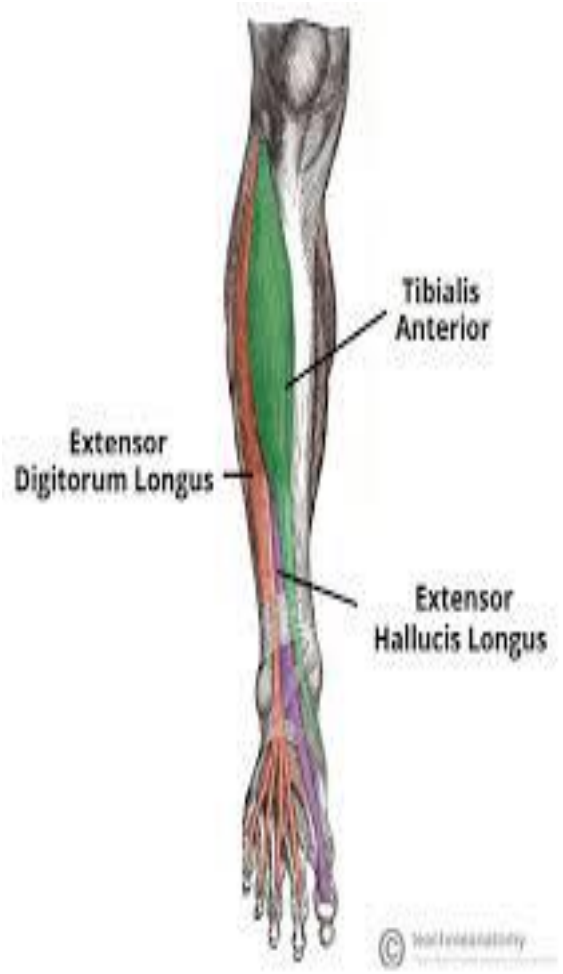
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
9	**Thigh (HAM STRING)**	Biceps Femoris		The long head from the ischial tuberosity The short head from the linea aspera	Head of the fibula	The long head is supplied by the tibial part of the sciatic -The short head is supplied by the common peroneal part of the sciatic	Flexion of the knee -Lateral Rotation of flexed leg *Long Head: Extension of hip
10		Semitendinosus		Ischial tuberosity	Medial surface of tibia > SGS	Tibial portion of sciatic nerve	Flexion & medial rotation of the leg at knee joint -Exten. of hip joint
11		Semi-membranosus		Ischial tuberosity	Medial chondyle of tibia.	Tibial portion of sciatic nerve	-It forms the Oblique Popliteal ligament. flexion&medial rotation of the leg at knee joint -Exten. Of hip joint
12		Adductor Magnus		Ischial tuberosity	Adductor tubercle of the medial condyle of the femur	Tibial portion of sciatic nerve	Exten. Of hip joint.

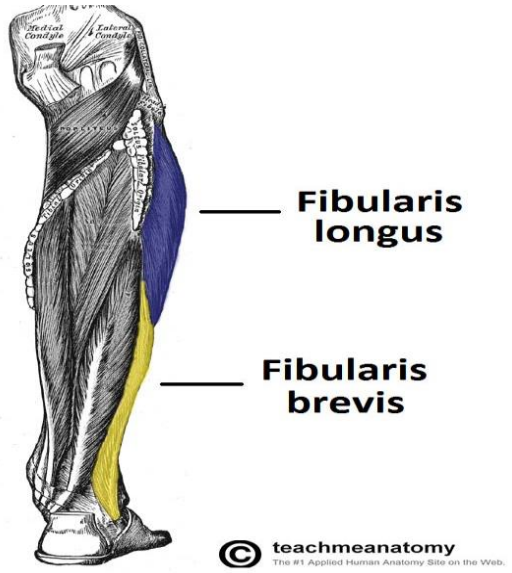
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
13	thigh (ANTERIOR)	Quadriceps Femoris		-Rectus Femoris: Ant. Inf. Iliac spine -Vastus Medialis + Vastus Lateralis: Posterior border of femur -Vastus intermedialis: Front shaft of femur	Patella -From patella to tibial tuberosity through ligamentum patellae	Femoral nerve	Extension of knee joint
14		Psoas major		T12 & lumbar vertebrae	Lesser trochanter	Femoral nerve	Flexion of hip joint
15		Iliacus		Iliac fossa	Lesser trochanter	Femoral nerve	Flexion of hip joint
16		Pectineus		Sup. Pubic ramus	Back of femur	Femoral nerve	Flexion & Adduction of hip joint
17		Sartorius		Anterior superior iliac spine	Medial surface of tibia	Femoral nerve	-Flexion, abduction & lateral rotation of hip joint -Flexion of knee joint

#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
18	thigh (ADDUCTOR)	Adductor Longus		Body of pubis	Linea aspera	Obturator nerve	Adduction of hip joint
19		Adductor Brevis		Body of pubis & inferior ramus	Linea aspera	Obturator nerve	Adduction of hip joint
20		Adductor Magnus		Inferior pubic ramus & ischial ramus	Linea aspera	Obturator nerve	Adduction of hip joint
21		Gracilis		Inferior pubic ramus & ischial ramus	Mid. Surface of tibia	Obturator nerve	Adduction of hip joint & flexion of knee joint

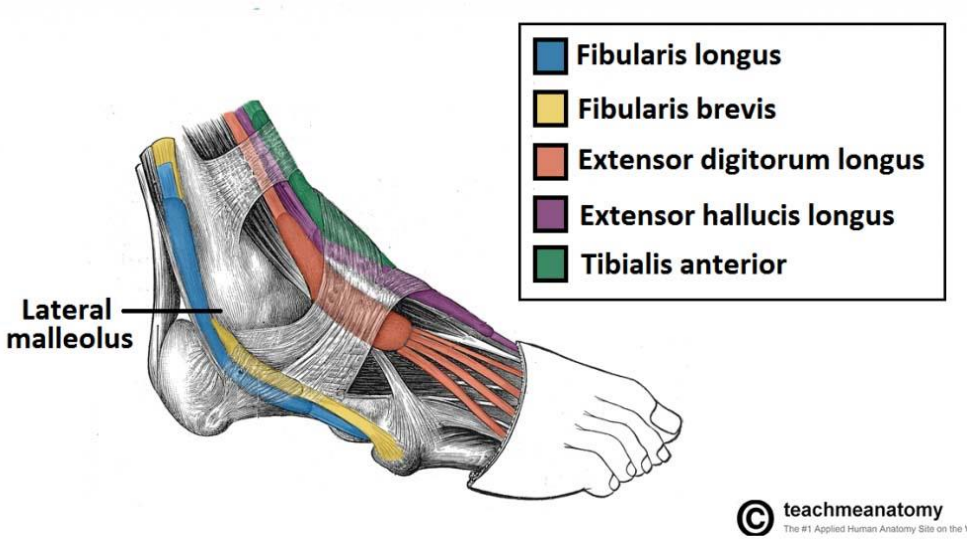
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
22	Posterior Compartment of the leg (SUPERFICIAL)	Gastrocnemius		-Lateral head lateral condyle of femur -Medial head above medial condyle	Post. Surface of calcaneus via. Tendocalcaneus	Tibial portion of sciatic nerve	Plantar flexion at ankle joint Flexion knee joint
23		Soleus		Shaft of tibia & fibula	Post. Surface of calcaneus via. Tendocalcaneus	Tibial portion of sciatic nerve	Powerful plantar flexor of ankle joint; provides main propulsive force in walking and running
24		Plantaris		Lateral ridge of femur	Posterior surface of calcaneus	Tibial portion of sciatic nerve	Plantar flexes foot at ankle joint; flexes knee joint

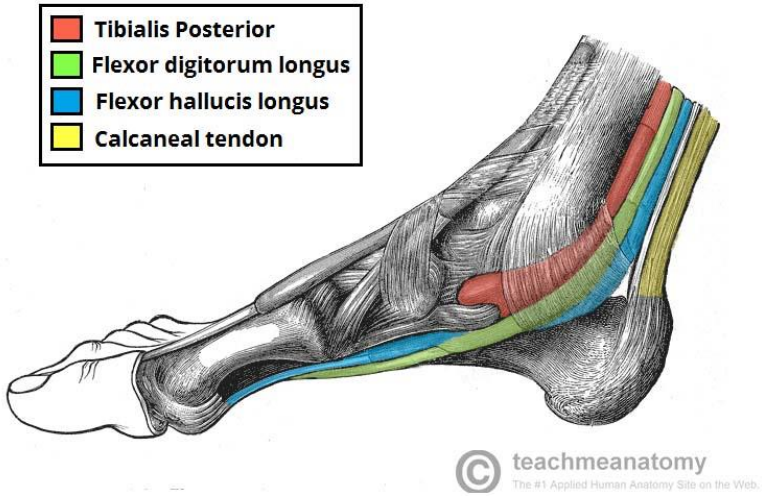
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
25	Posterior Compartment of the leg (DEEP)	Popliteus		Lateral surface of lateral condyle of femur (intracapsular)	Post. Surface of shaft of tibia (above soleal line)	Tibial portion of sciatic nerve	Flexion of leg at knee joint & unlocking the joint by lateral rotation of femur on tibia
26		Flexor digi. Longus		Post. Surface of shaft of tibia	Base of distal phalanx of lateral 4 toes	Tibial portion of sciatic nerve	-Flexes distal phalanges of lateral four toes; -plantar Flexes foot at ankle joint; -Supports medial and lateral longitudinal arches
27		Flexor hallucis longus		Post. Surface of shaft of fibula	Base of distal phalanx of big toe	Tibial portion of sciatic nerve	-Flexion of big toe -Plantar flexion at ankle joint -Support medial longitudinal arche
28		Tibialis post.		Post. Surface of tibia & fibula & interosseous memb	Navicular tuberosity and neighboring bones	Tibial portion of sciatic nerve	-Plantar flexion at ankle joint -Invert foot at subtalar & transverse tarsal joints -Support medial longitudinal arch

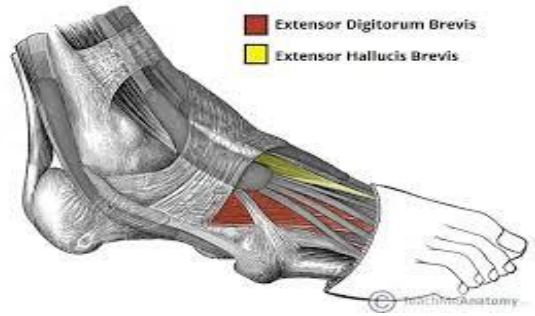
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
29	Anterior Compartment of the leg	Tibialis Ant		Lateral surface of shaft of tibia & interosseous membrane	Medial cuneiform & base of 1st metatarsal	Deep peroneal nerve	-Extension at ankle joint -Inverts foot -Holds medial long. Arch
30		Extensor digi. longus		Ant. Surface of shaft of fibula	Extensor expansion of 4 lateral toes	Deep peroneal nerve	-Extension of toes -Dorsi flexion at ankle joint
31		Peroneus Tertius		Ant. Surface of shaft of fibula	Base of 5th metatarsal	Deep peroneal nerve	-Dorsi flexion at ankle joint - Everts foot
32		Extensor hallucis long.		Ant. Surface of shaft of fibula	Base of distal phalanx of big toe	Deep peroneal nerve	Dorsi flexion of ankle -Extends big toe -Inverts foot

#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
33	Lateral Compartment of the leg	Peroneus Long.		Lateral surface of shaft of fibula	Medial cuneiform & base of 1st metatarsal	Superficial peroneal nerve	-Plantar flexion - Everts foot - Support lateral long. & Transverse arches
34		Peroneus Brevis		Lateral surface of shaft of fibula	Base of 5th metatarsal	Superficial peroneal nerve	-Plantar flexion - Everts foot - Support lateral long arch

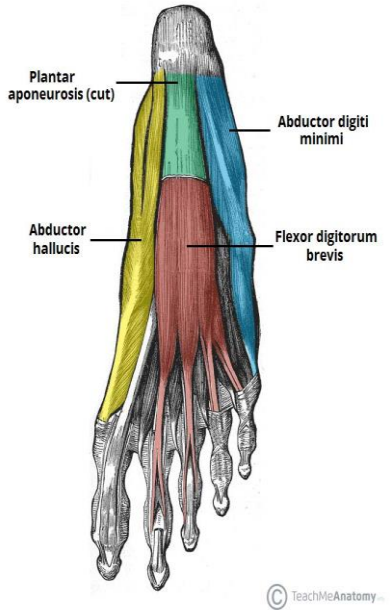
Continuation of the Tendons of Leg Muscles

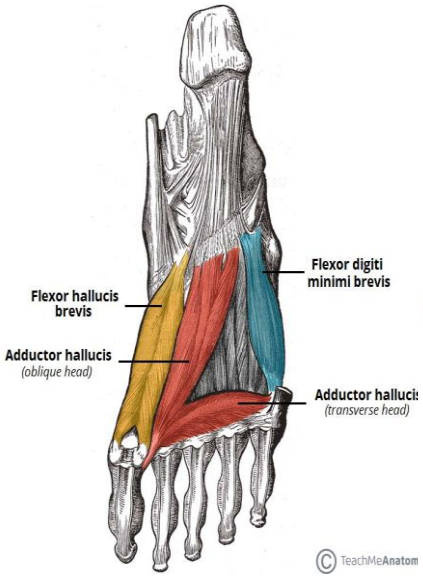


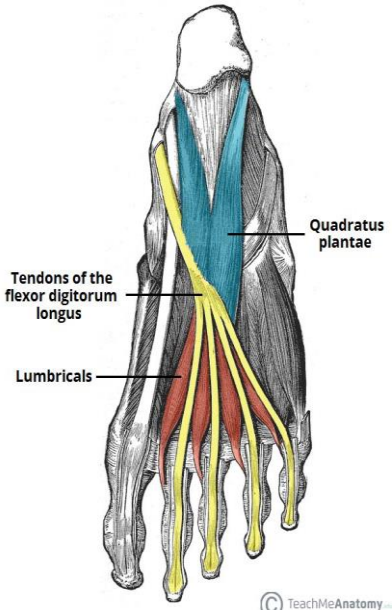


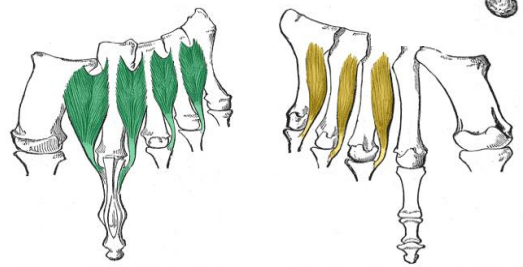
#	REGION	MUSCLES NAME	PICTURE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION	BLOOD SUPPLY
35	Foot Dorsal Aspect	Extensor Digitorum Brevis		Anterior Part of upper surface of the calcaneus and from inferior extensor retinaculum	By four tendons into the proximal phalanx of big toe and second, third, and fourth toes	Deep & superficial peroneal nerve	Extension of toes	Dorsalis Pedis

Muscles of Foot Posterior Compartment (Sole)	
1st Layer	1. Abductor hallucis, 2. Flexor digitorum brevis, 3. Abductor digiti minimi
2nd Layer	1. Quadratus plantae 2. Lumbricals 3. Flexor digitorum longus tendon 4. Flexor hallucis longus tendon
3rd Layer	1. Flexor hallucis brevis 2. Adductor hallucis 3. Flexor digiti minimi breviS
4th Layer	1. Interossei, (3 plantar + 4 dorsal) 2. Peroneus longus tendon, 3. Tibialis posterior tendon

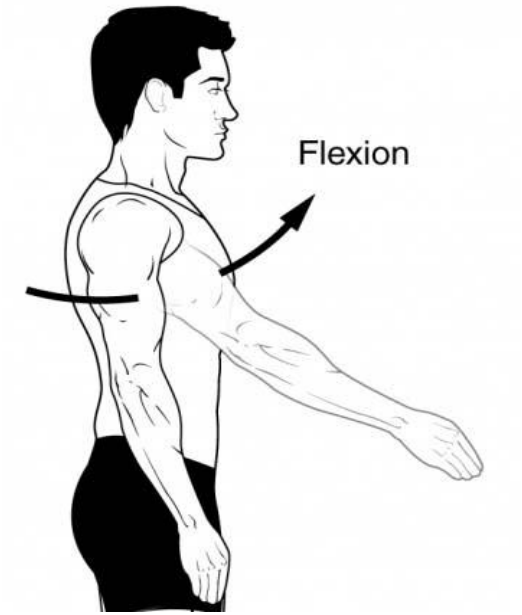




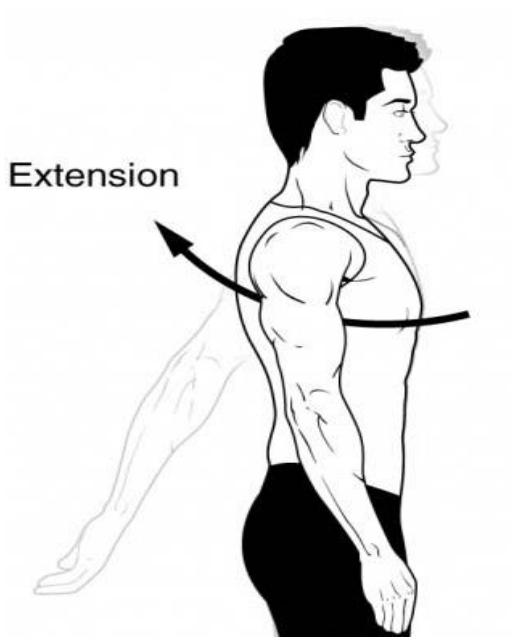




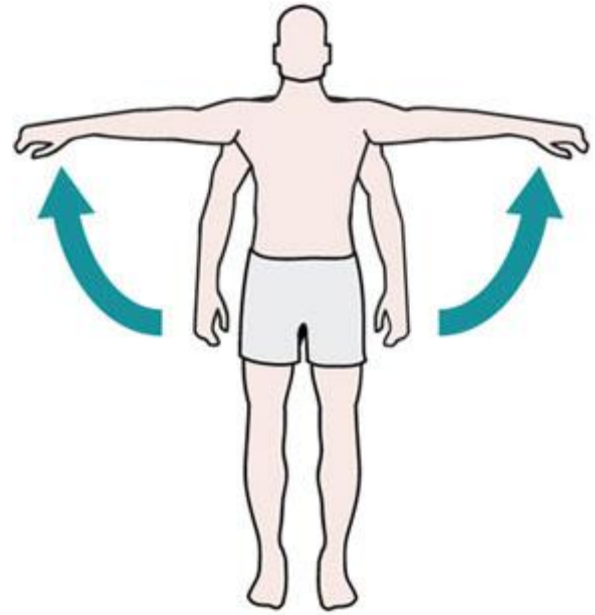
Shoulder Movements



Flexion	
Muscle	Nerve Supply
Deltoid (anterior fibers)	Axillary nerve
Pectoralis major (clavicular part)	Medial and lateral pectoral nerves
Biceps brachii	Musculucutaneous nerve
Coraco-brachialis	Musculucutaneous nerve

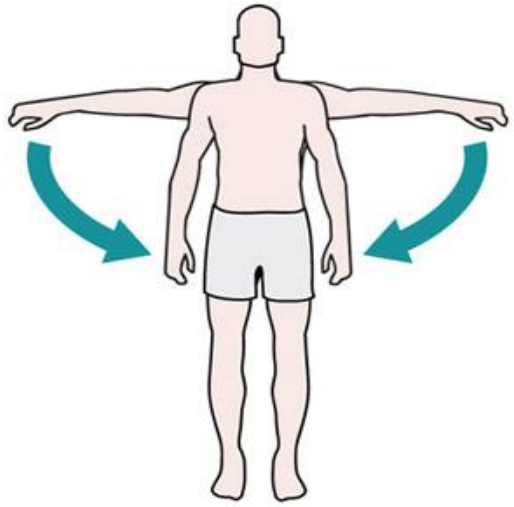


Extension	
Muscle	Nerve Supply
Deltoid (posterior fibers)	Axillary nerve
Latissimus dorsi	Thoracodorsal nerve
Teres major	Lower subscapular nerve

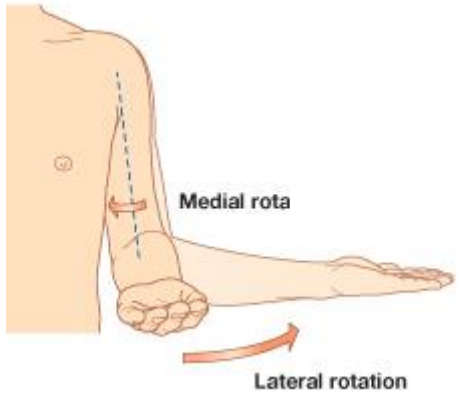


Abduction	
Muscle	Nerve Supply
Deltoid (middle fibers) (15-90)	Axillary nerve
Supraspinatus (0-15)	Suprascapular nerve

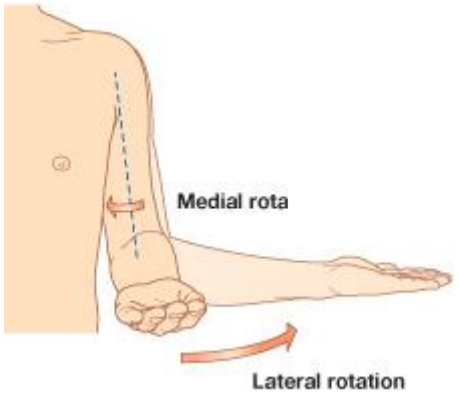
Shoulder Movements



Adduction	
Muscle	Nerve Supply
Pectoralis major (sternal part)	Medial and lateral pectoral nerves
Latissimus dorsi	Thoracodorsal nerve
Teres major	Lower subscapular nerve



Medial Rotation	
Muscle	Nerve Supply
Subscapularis	Upper and lower subscapular nerves
Latissimus dorsi	Thoracodorsal nerve
Teres major	Lower subscapular nerve
Pectoralis major	Medial and lateral pectoral nerves
Deltoid (anterior fibers)	Axillary nerve



Lateral Rotation	
Muscle	Nerve Supply
Infraspinatous	Suprascapular nerve
Teres minor	Axillary nerve
Deltiod (posterior fibers)	Axillary nerve

Elbow Movements

Flexion

Flexion	
Muscle	Nerve Supply
Brachialis	Musculocutaneous nerve
Biceps brachii	Musculocutaneous nerve
Brachioradialis	Radial nerve
Pronator teres	Median nerve

Extension

Extension	
Muscle	Nerve Supply
Triceps	Radial nerve
Anconeus	Radial nerve

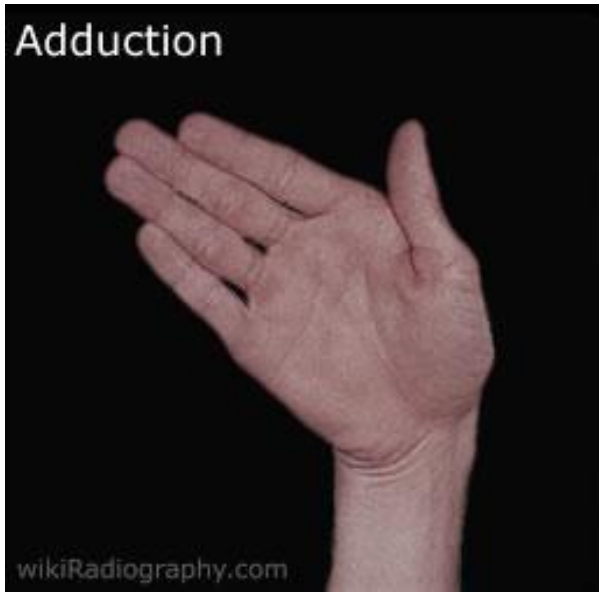
Wrist Movements

Flexion	
Muscle	Nerve Supply
Flexor carpi radialis	Median nerve
Flexor carpi ulnaris	Ulnar nerve
Palmaris longus	Median nerve
Flexor digitorum superficialis	Median nerve

Extension	
Muscle	Nerve Supply
Extensor carpi radialis longus	Radial nerve
Extensor carpi radialis brevis	Deep branch of radial nerve
Extensor carpi ulnaris	
Extensor digitorum	
Extensor indicis	
Extensor digiti minimi	
Extensor pollicis longus	

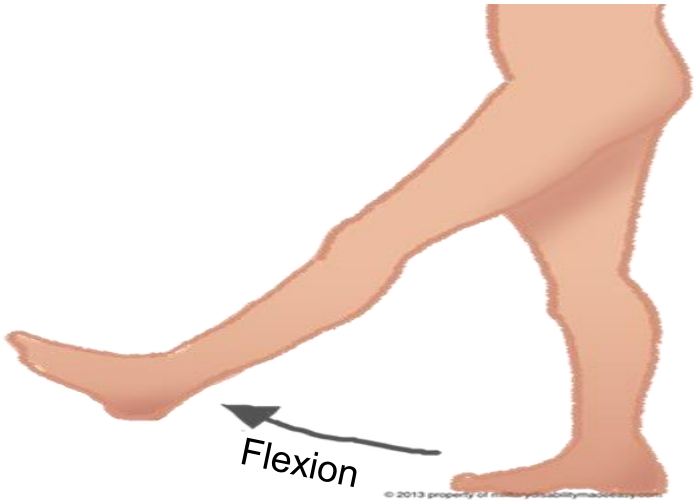
Wrist Movements

Abduction	
Muscle	Nerve Supply
Flexor carpi radialis	Median nerve
Extensor carpi radialis longus	Radial nerve
Extensor carpi radialis brevis	Deep branch of radial nerve
Abductor pollicis longus	
Extensor pollicis longus	
Extensor pollicis brevis	

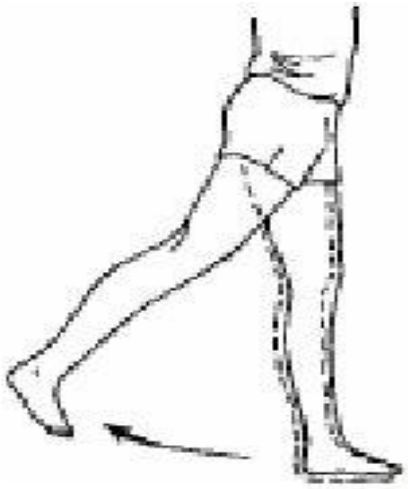


Adduction	
Muscle	Nerve Supply
Flexor carpi ulnaris	Ulnar nerve
Extensor carpi ulnaris	Deep branch of radial nerve

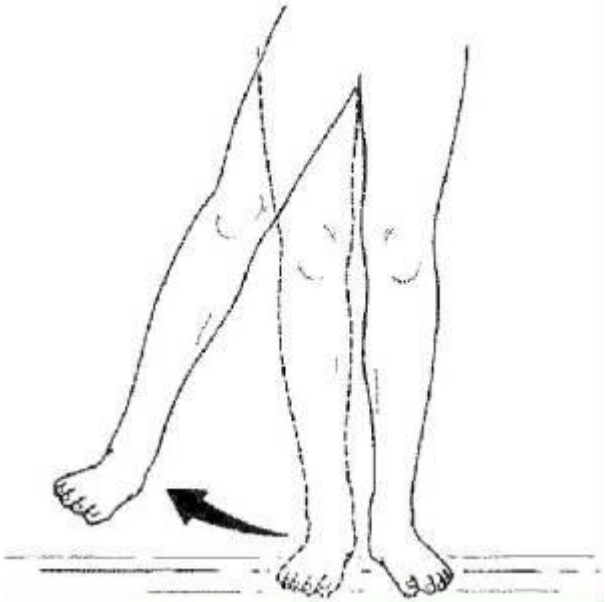
Hip Movements



Flexion	
Muscle	Nerve Supply
Iliacus	Femoral nerve
Psoas	Lumbar plexus
Rectus femoris	Femoral nerve
Sartorius	
Pectineus	

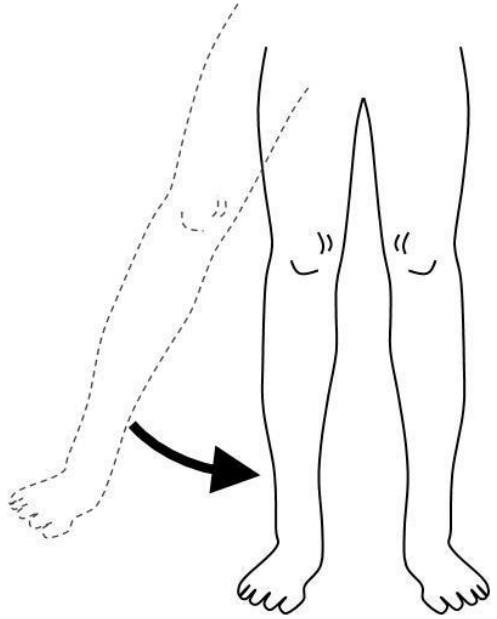


Extension	
Muscle	Nerve Supply
Gluteus maximus	Inferior gluteal nerve
Biceps femoris	Tibial portion of the sciatic nerve
Semitendinosus	
Semimembranosus	
Adductor magnus (ischial part)	

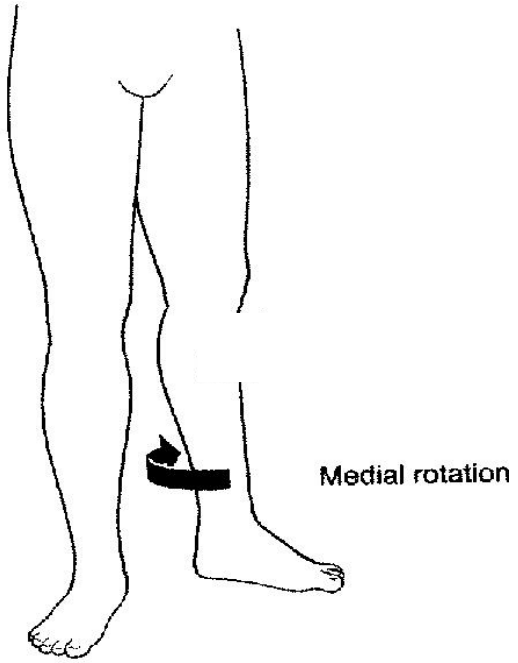


Abduction	
Muscle	Nerve Supply
Gluteus medius	Superior gluteal nerve
Gluteus minimus	
Sartorius	Femoral nerve

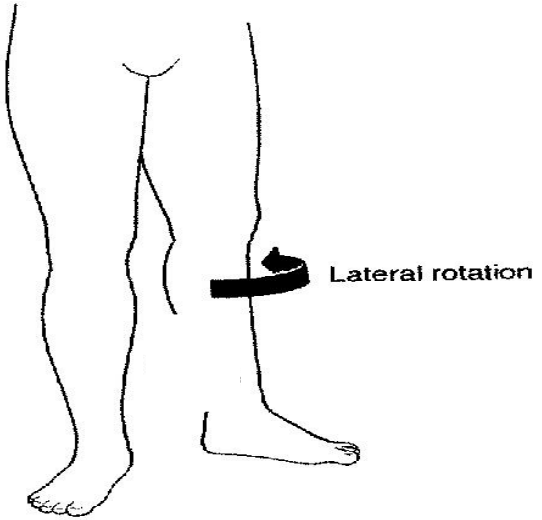
Hip Movements



Adduction	
Muscle	Nerve Supply
Adductor longus	Obturator nerve
Adductor brevis	
Adductor magnus (adductor part)	
Pectineus	Femoral nerve
Gracilis	Obturator nerve

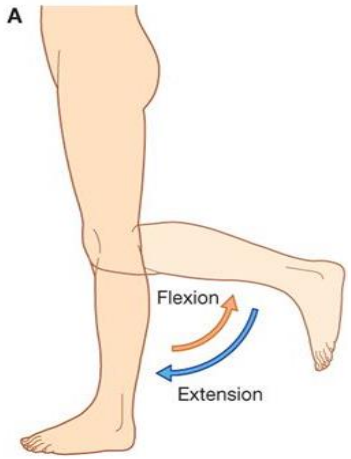


Medial Rotation	
Muscle	Nerve Supply
Gluteus medius	Superior gluteal nerve
Gluteus minimus	

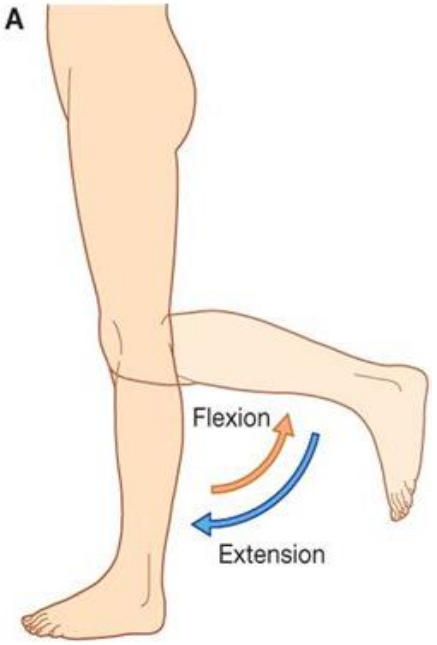


Lateral Rotation	
Muscle	Nerve Supply
Piriformis	Sacral plexus
Obturator internus	Nerve to obturator internus
Superior gemellus	
Inferior gemellus	Nerve to quadratus femoris
Quadratus femoris	
Gluteues maximus	Inferior gluteal nerve

Knee Movements

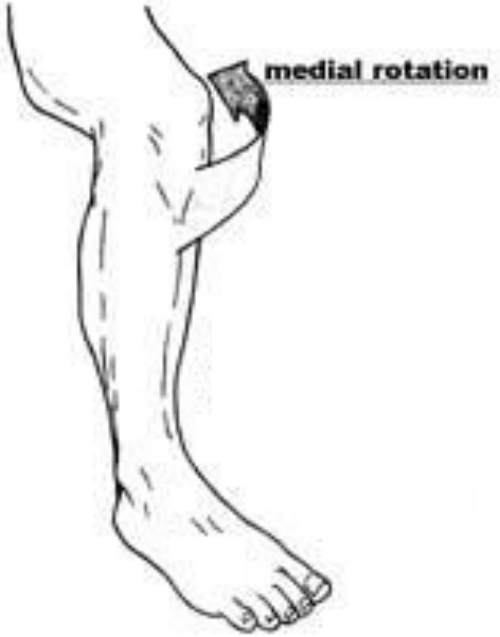


Flexion	
Muscle	Nerve Supply
Biceps femoris	Tibial nerve (long head) Common peroneal nerve (short head)
Semitendinosus	Tibial nerve
semimembranosus	
Gastrocnemius	
Popliteus	
Sartorius	Femoral nerve
Gracillis	Obturator nerve

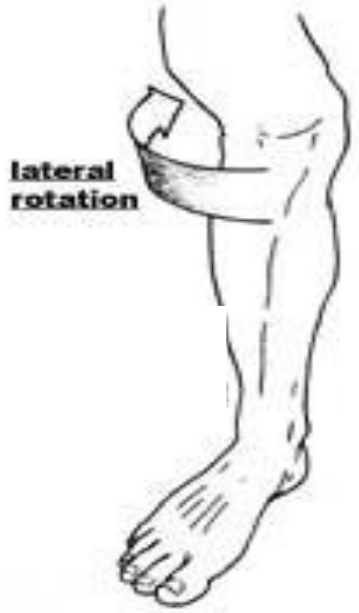


Extension	
Muscle	Nerve Supply
Quadriceps femoris	Femoral nerve

Knee Movements



Medial Rotation	
Muscle	Nerve Supply
Sartorius	Femoral nerve
Gracilis	Obturator nerve
Semitendinosus	Tibial portion of sciatic
Semimembranosus	



Lateral Rotation	
Muscle	Nerve Supply
Biceps femoris (long head)	Tibial nerve

Ankle Movements

Dorsiflexion	
Muscle	Nerve Supply
Tibialis anterior	Deep peroneal nerve
Extensor hallucis longus	
Extensor digitorum longus	
Pernoeus tertius	

Plantar flexion	
Muscle	Nerve Supply
Gastrocnemius	Tibial nerve
Soleus	
Plantaris	
Peroneus longus	Superficial peroneal nerve
Peroneus brevis	
Tibialis posterior	Tibial nerve
Flexor digitorum longus	
Flexor hallucis longus	

Ankle Movements

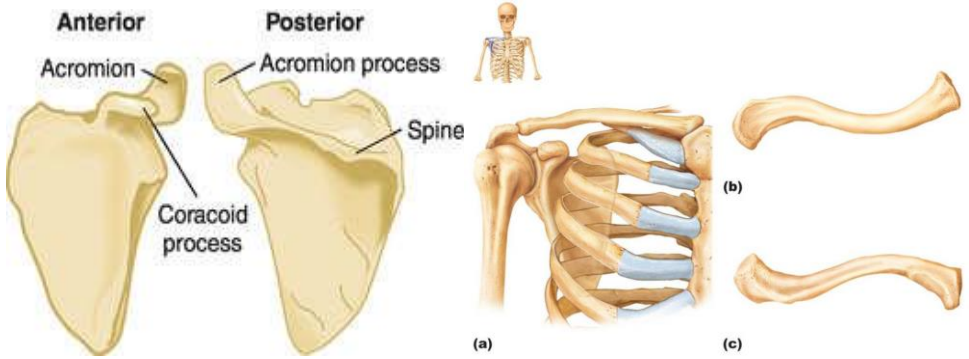
Inversion	
Muscle	Nerve Supply
Tibialis anterior	Deep peroneal nerve
Extensor hallucis longus	
Tibialis posterior	Tibial nerve

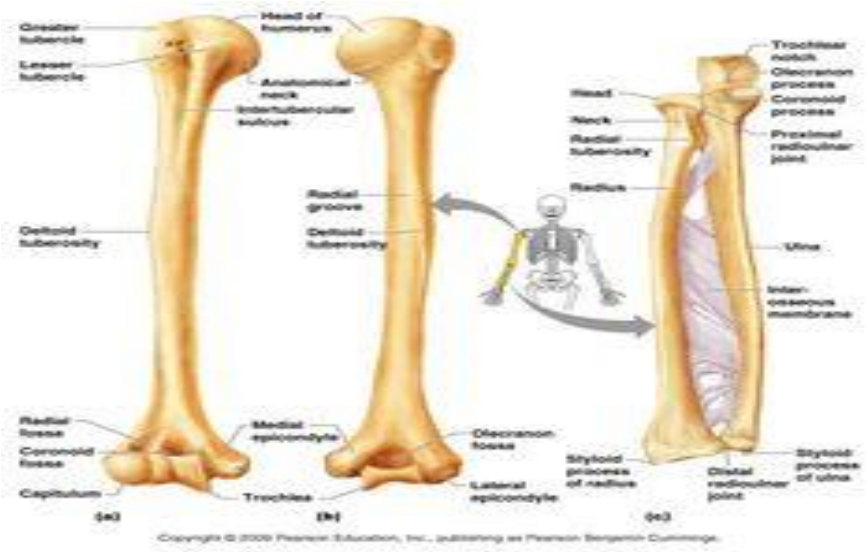
Eversion	
Muscle	Nerve Supply
Peroneus tertius	Deep peroneal nerve
Peroneus brevis	Superficial peroneal nerve
Peroneus longus	

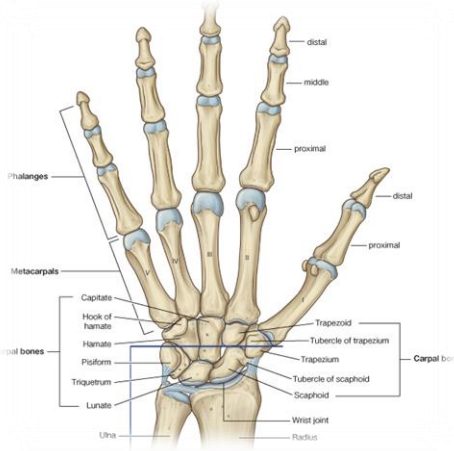
BONES

Bones of the Upper Limb

- Pectoral Girdle
  - Scapula
  - Clavicla
- Arm
  - Humerus
- Forearm
  - Radias
  - Ulna
- Hand
  - Carpals
  - Phalanges
  - Metacarpals



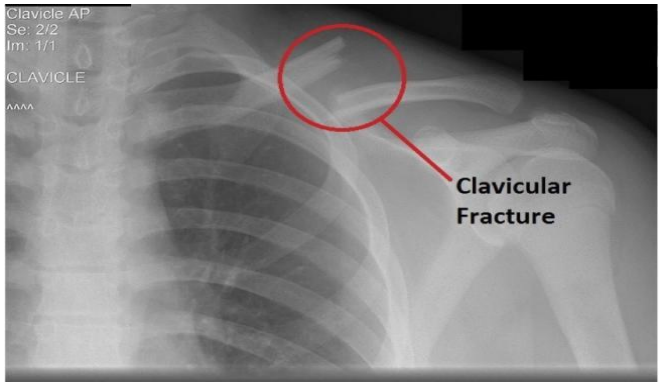




Fractures

Clavicle

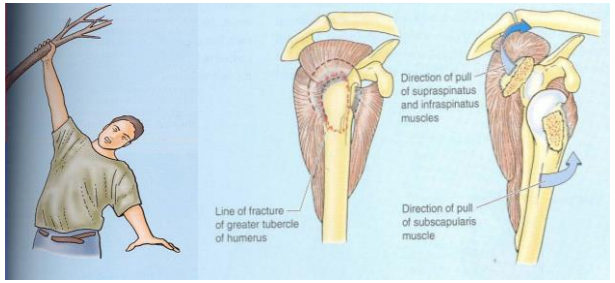
The **clavicle** is commonly fractured especially in children as forces are impacted to the outstretched hand during falling.
The weakest part of the clavicle is the junction of the middle and lateral thirds.



Humerus

Surgical neck fractures are the most common fractures of the humerus especially in old people with osteoporosis.

Fractures result from direct falling on the hand (transition of force through the bones of forearm of the extended limb).



Fracture type	Nerve affected
Surgical neck	Axillary nerve
Radial groove	Radial nerve
Distal end of humerus	Median nerve
Medial epicondyle	Ulnar nerve

<u>Distal humeral fracture</u>:
Medial epicondyle fracture are common fracture type of the distal humerus
A supraepicondylar fracture occurs by falling on a flexed elbow

Fractures

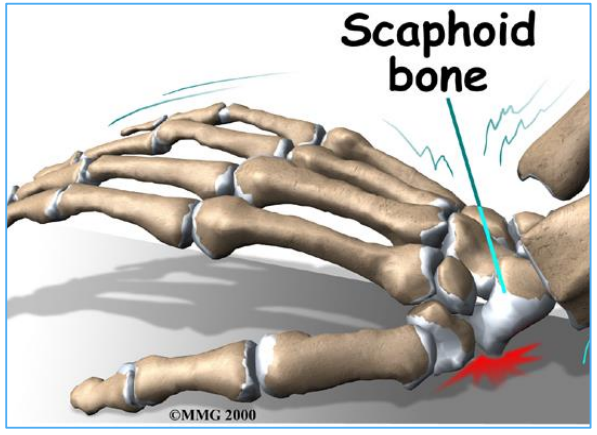
Radius & Ulna

- Because the radius & ulna are firmly bound by the interosseous membrane, a fracture of one bone is commonly associated with dislocation of the nearest joint.
- **Dinner fork deformity**
- **Colle's fracture**(fracture of the distal end of radius) is the most common fracture of the forearm
- Results from forced dorsiflexion of the hand as a result to ease a fall by outstretching the upper limb

Figure 14.4 (a) Scaphoid fracture (arrow). (b) Colles' f
showing 'dinner fork' deformity. (c) Colles' fracture, X

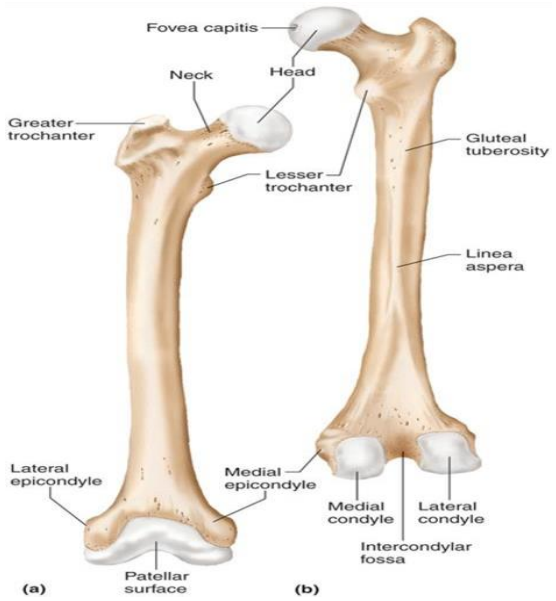
Scaphoid

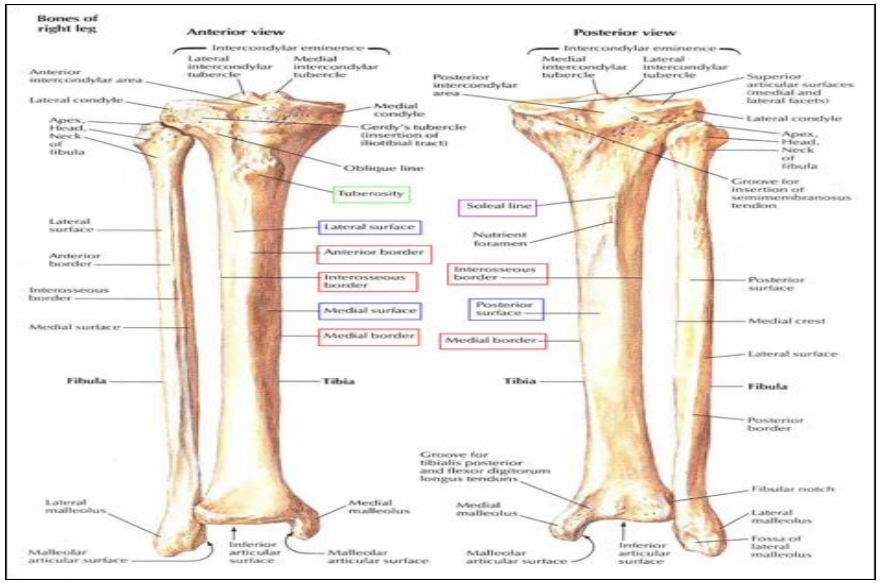
- Scaphoid is the most commonly fractured carpal bone and it is the most common injury of the wrist
- Result of a fall onto the palm when the hand is abducted
- Union of the bone may take several months because of poor blood supply to the proximal part of the scaphoid.

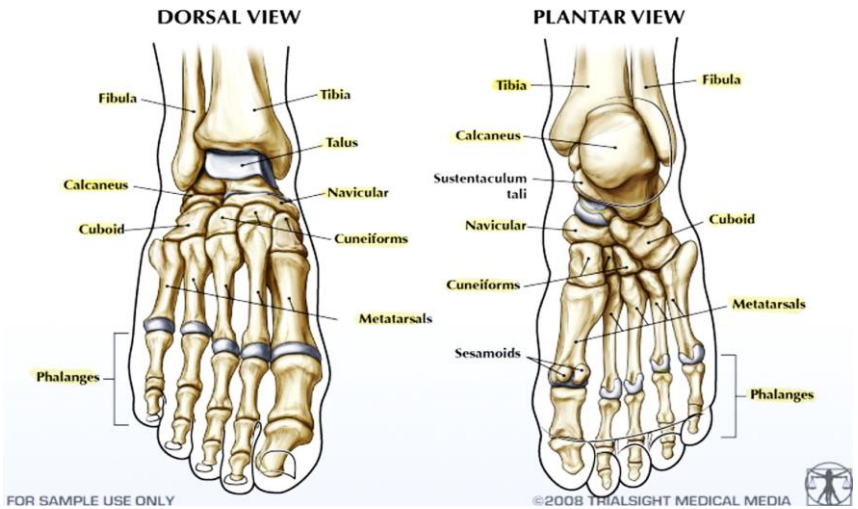


Bones of the Lower Limb

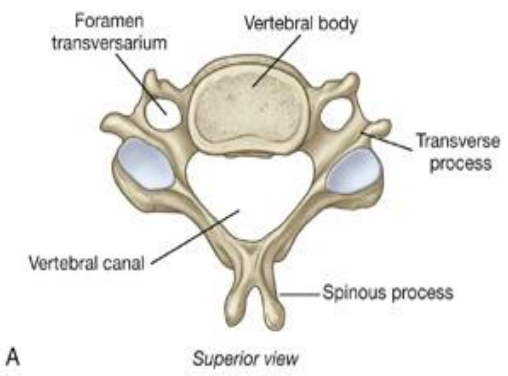
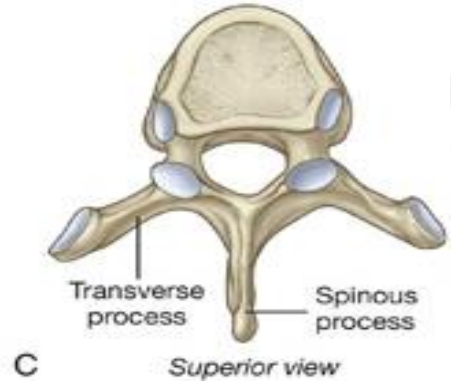
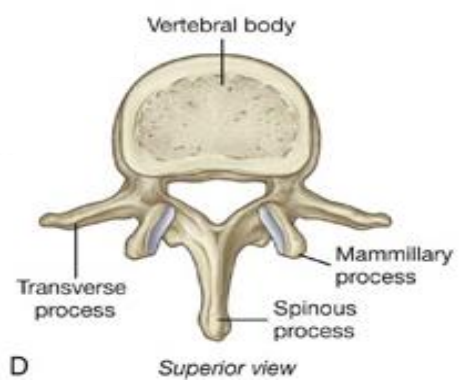
- Thigh
  - Femur
- Leg
  - Tibia
  - Fibula
- Foot
  - Tarsals
  - Metactarsals
  - Phalanges







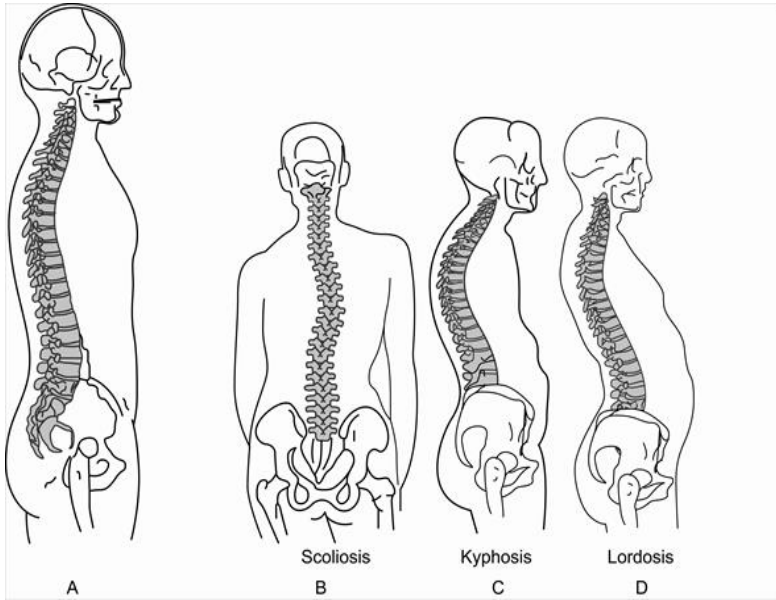
Vertebral Column

	Cervical	Thoracic	Lumbar
Number	7	12	5
Body	Small, Longer horizontally	Medium, heart shaped	Large, kidney shaped
Vertebral foramen	Triangular	Circular	Triangular
Spinous process	Short, bifid	Long, inclined downward	Short, flat, quadrangular, projects backward
Transverse process	Has transverse foramen		Long and slender
Superior articular process	Upward & backward	Backward & laterally	Medially
Inferior articular process	Downward & forward	Forward & medially	Laterally
			

Vertebral Column

Abnormal curvatures of spine:

Exaggerated Thoracic curvature: **Kyphosis**
Exaggerated Lumbar curvature: **Lordosis**
Lateral curvature of spine: **Scoliosis**



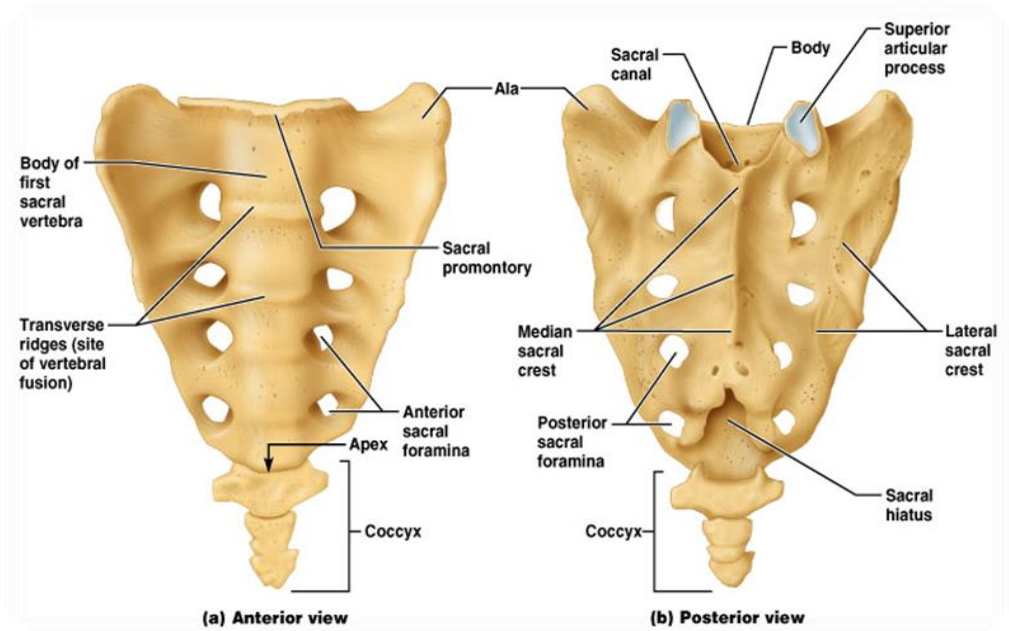
Vertbra **L5** is the most common site for
Spondylolysis which is a defect in the pars interarticularis of the vertebral arch.
Spondylolisthesis which is the forward displacement of a vertebra

Sacrum

A Single Wedge shaped bone.
(consists of Five rudimentary vertebrae fused together)

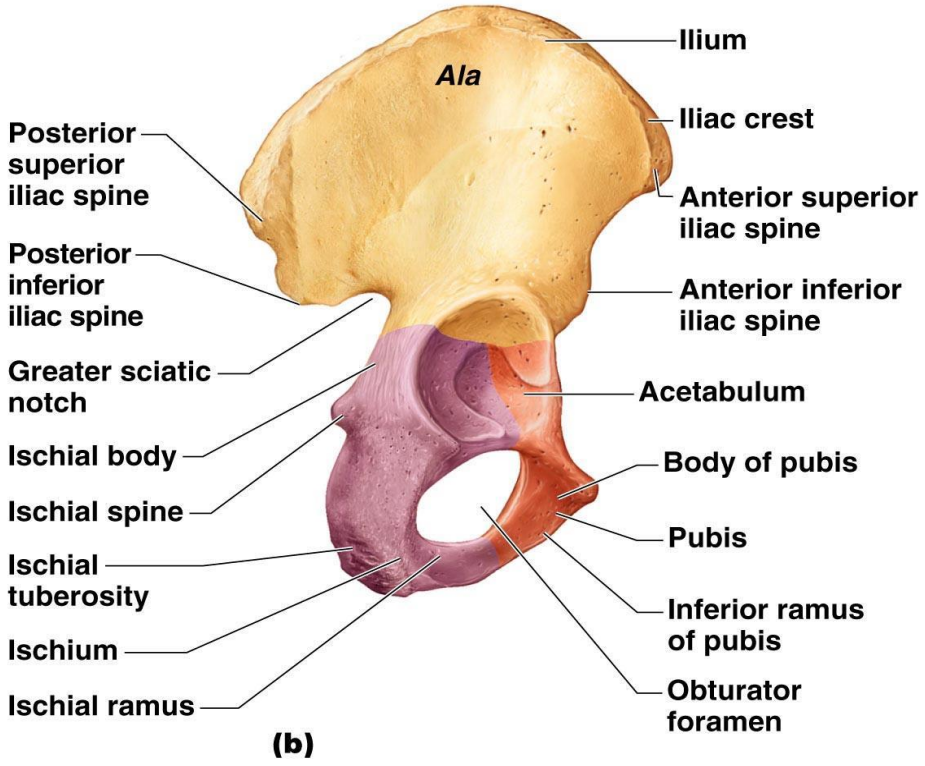
Coccyx

Consists of four vertebrae fused together forming a single Triangular piece.



Hip Bone

Irregular bone.
Composed of three (elements) bones:
1.Ilium. 2.Ischium. 3.Pubis.
They are joined at a deep socket (the Acetabulum)



Fracture of bony pelvis

The weakest parts of the bony pelvis are:

- Pubic rami.
- Acetabula.
- Region of sacroiliac joint.
- Alae of the ilium.

Pelvic Fractures can result from direct trauma to the pelvic bones as occurs in car accidents or

by forces transmitted to these bones from the lower limbs during falls on the feet.

Pelvic fractures may cause injury to:

The pelvic soft tissues, Blood vessels, Nerves, organs.

BLOOD VESSELS

Vasculature of the Upper Limb

*Team **433***

Region	Name of the Artery	Origin		Branches		Continue as..
In the Chest	**Subclavian artery**	Right	Brachiocephalic trunK			**Axillary artery**
		Left	Arch of aorta			
In the Axilla	**Axillary artery**	When the subclavian arteries cross the lateral edge of the 1st rib, they enter the axilla, and are called **axillary artery**.		First part	Highest thoracic artery.	**Brachial artery**
				Second part	1- Thoraco-acromial artery. 2- Lateral thoracic artery.	
				Third part	1- Subscapular artery. 2- Anterior humeral circumflex artery. 3- Posterior humeral circumflex artery.	
In the Upper arm	**Brachial artery**	When the axillary artery reaches the lower border of the teres major, it becomes the **brachial artery**.		1- Profunda brachii artery. 2- Superior ulnar collateral artery. 3- Inferior ulnar collateral artery. 4- Nutrient branches to the humerus. 5-Muscular. **Terminal branches:** Ulnar artery& Radial artery.		Dividing into **Radial&Ulnar arteries**

In the Forearm	**The Ulnar artery**	In the distal region of the cubital fossa, the brachial artery divides into the **radial** artery and the **ulnar** artery.	**In the Forearm:** 1-Muscular. 2- Recurrent branch for anastomosis around the elbow joint. 3-common interosseous artery which give anterior and posterior interosseous arteries. 4-branch to anastomoses around the wrist joint. **In the Hand:** Deep palmar branch.	**Superficial palmer arch**
	The Rdial artery		**In the Forearm:** 1-muscular. 2-recurrent branch for anastomosis around the elbow joint. 3-superfiscial palmer branch, joins the ulnar artery to form the superficial palmar arch. **In the Hand:** 1-Arteria radialis indicis. 2- Arteria princeps policis.	**Deep palmer arch**

Region	Name of the artery	origin	Branches	Continue as..
In the Hand	**Superficial palmer arch**	Direct continuation of the ulnar artery, completed by branch from the radial artery.	Digital arteries.	
	Deep palmer arch	The radial artery anastamoses with the deep palmar branch of the ulnar artery, forming the **deep palmar arch**	**Superiorly:** to share in anastomosis around the wrist joint. **Inferiorly:** to join branch of the superficial palmer arch.	

Superficial Veins	**Location**	**Name of the vein**		**Origin**	**Drains into..**	
	Immediately beneath the skin, in the superficial fascia.	Dorsal venous arch(Network)	Dorsal digital vein	Lies on the dorsum of the hand, in the subcutaneous tissue, proximal to the metacarpophalngeal joint.	**Dorsal digital vein** drains into **Dorsal metacarpal vein**	**Laterally:** Cephalic vein **Medially:** Basilica vein
			Dorsal metacarpal vein			
		Cephalic Vein		Begins as a radial continuation of the dorsal venous network.	**Axillary vein**	
		Basilica Vein		Arise from the medial side of the dorsal venous arch of hand.	**Brachial vein or Axillary vein**	
		Medial capital vein		Links Cephalic Vein & Basilica Vein in the cubital fossa.		
Deep veins	**Location**	**Name of the vein**		**Origin**	**Receives**	**Continue as..**
	Beside the arteries with the same name.	**Axillary vein**		Continuation of Basilica Vein	Brachial vein& close to its termination the Cephalic Vein	Subclavian vein
		Subclavian vein		Continuation of Axillary vein		Unite with the internal jugular to form the Brachiocephalic vein.

Vasculature of the Lower Limb

ARTERIES OF LOWER LIMB:

1\FEMORAL ARTERY : 1.Superficial Epigastric. 2.Superficial Circumflex Iliac.
3.Superficial External Pudendal. 4. Deep External Pudendal.
5.Profunda Femoris

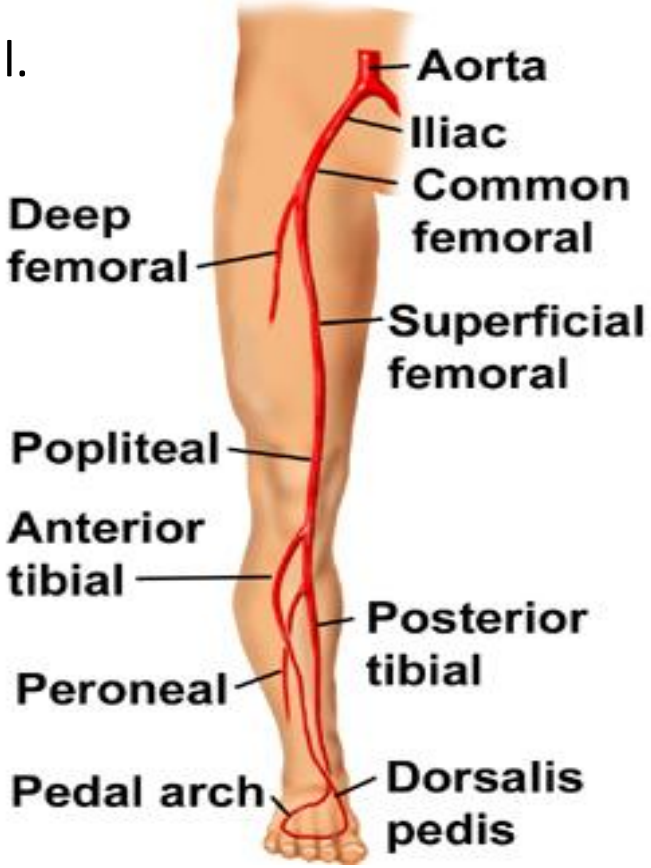
2\POPLITEAL ARTERY : Five Genicular branches

3\ANTERIOR TIBIAL ARTERY

4\DORSALIS PEDIS ARTERY: 1.deep plantar artery 2.the first dorsal metatarsal artery

5\POSTERIOR TIBIAL ARTERY: 1. Nutrient artery to the tibia 2. Calcaneal arteries
3. Peroneal (Fibular) artery

6\PLANTAR ARTERIES : -Medial plantar -Lateral plantar



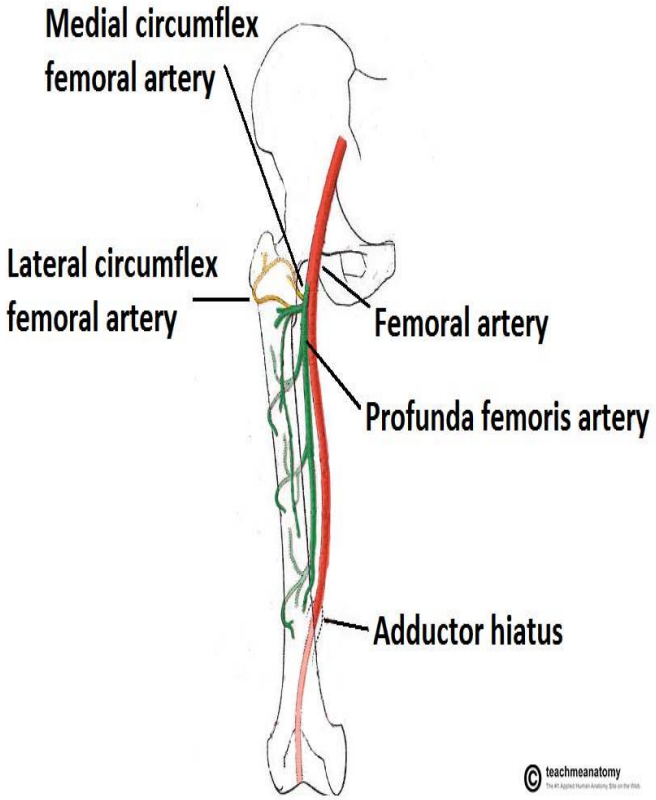
Femoral artery is a continuation to the external iliac artery, it is in front of the thigh behind the inguinal ligament (mid inguinal point), on lateral side femoral nerve, medial side femoral vein, anterior only skin and fascia ,and posterior psoas muscle.

It **terminates** by passing through adductor canal.

It exits the canal by passing through the Adductor Hiatus and becomes the **Popliteal** artery

The femoral artery supplies: Lower abdominal wall, Thigh & External Genitalia through the following branches:

1.Superficial Epigastric. 2.Superficial Circumflex Iliac.
3.Superficial External Pudendal. 4. Deep External Pudendal.
5.Profunda Femoris (Deep Artery of Thigh)



Profuda femoris artery: It is the main arterial supply to the thigh. It arises from the lateral side of the femoral artery & Passes medially behind the femoral vessels. It gives: Medial & lateral circumflex femoral arteries. Three perforating arteries. It ends by becoming the 4th perforating artery.
ARTERIALANASTOMOSIS IN THE GLUTEAL REGION: (It supplies blood to the lower limb in case of ligation of the femoral artery)
It is formed by the union of: Medial & Lateral circumflex femoral arteries + the Inferior gluteal artery + the First perforating artery.
It forms anastomosis between branches of External& Internal iliac arteries.

Trochanteric Anastomosis: Formed from anastomosis of branches of Medial & Lateral circumflex femoral arteries. Its main function is to supply the head & neck of femur

Cannulation of FA:
because of the superficial position of the femoral artery, it is used **for left cardiac angiograph**y. A long catheter is inserted percutaneously into the artery and passed up the external iliac artery, common iliac artery , aorta to the left ventricle.

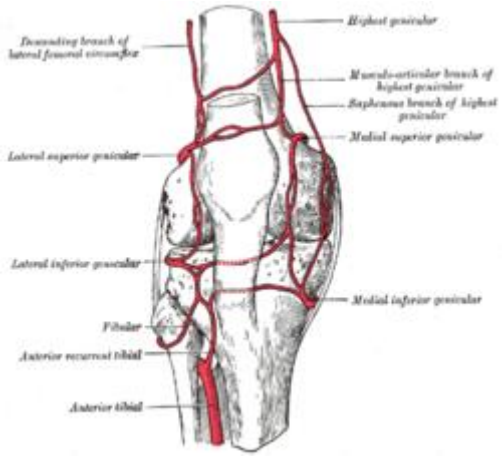
FEMORAL PULSE:
It can be palpated just **inferior to the Midinguinal point.** How to Stop bleeding from the femoral artery? By pressing the artery directly posterior against the superior pubic ramus and the femoral head.

POPLITEAL ARTERY:

The continuation of the femoral artery. It is the **deepest** structure in the Popliteal Fossa (posterior to the Popliteal Vein & Tibial Nerve), it runs close to the capsule of the knee joint. It **Ends** at the lower border of popliteus muscle by dividing into: Anterior and Posterior Tibial Arteries.

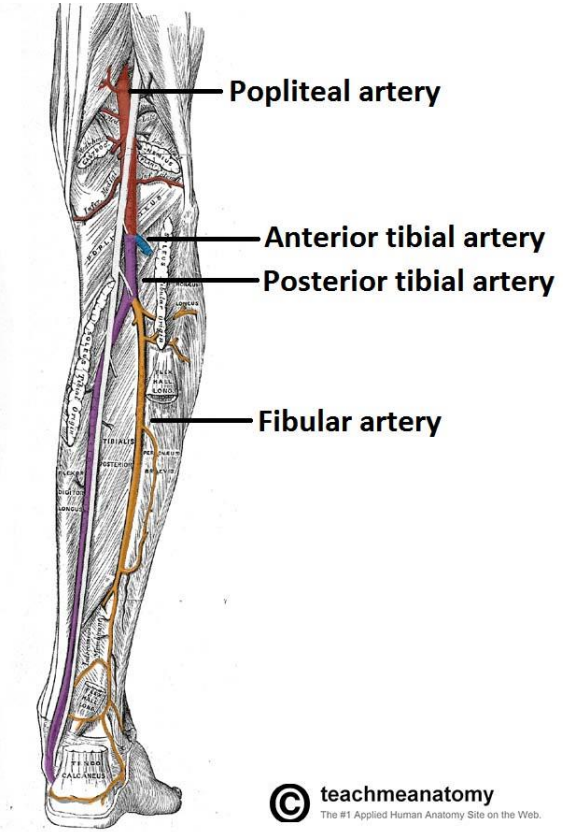
Branches of Popliteal Artery: Five Genicular branches to the articular capsule and ligaments of the knee joint

Genicular Anastomosis: It is an important anastomosis around the knee. It compensates for the narrowing of the Popliteal artery during prolonged flexion of the knee. Formed from the genicular branches of the popliteal artery.



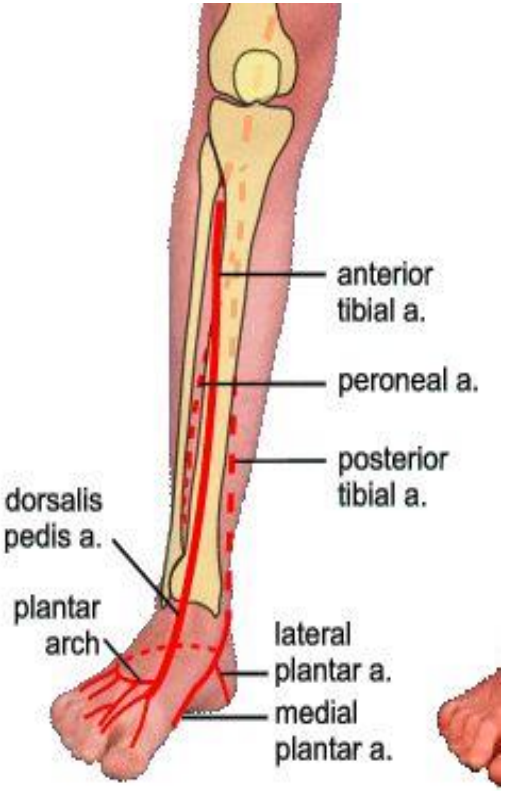
Popliteal Pulse

Because of the deep position of the artery, its pulsations are best felt in **the inferior part of the popliteal fossa** (here the artery is related to the tibia). Weakening or loss of the popliteal pulse is a sign of femoral artery obstruction.



ANTERIOR TIBIAL ARTERY:

It is the **smaller** terminal branch of the popliteal artery. It enters the anterior compartment of the leg in company with the **Deep Peroneal nerve**. It supplies structures in the Anterior Compartment of the Leg & Dorsum of foot. It **ends** at the ankle joint midway between the malleoli where it becomes the **Dorsalis Pedis artery** (dorsal artery of the foot).



DORSALIS PEDIS ARTERY:

It is the main source of blood supply to the toes. Begins in front of ankle joint as the direct continuation of the Anterior Tibial artery. It is **superficial** in position. It passes to the 1st interosseous space where it **divides** into a deep plantar artery (to the sole to join the plantar arch) and the first dorsal metatarsal artery

DP Pulse:

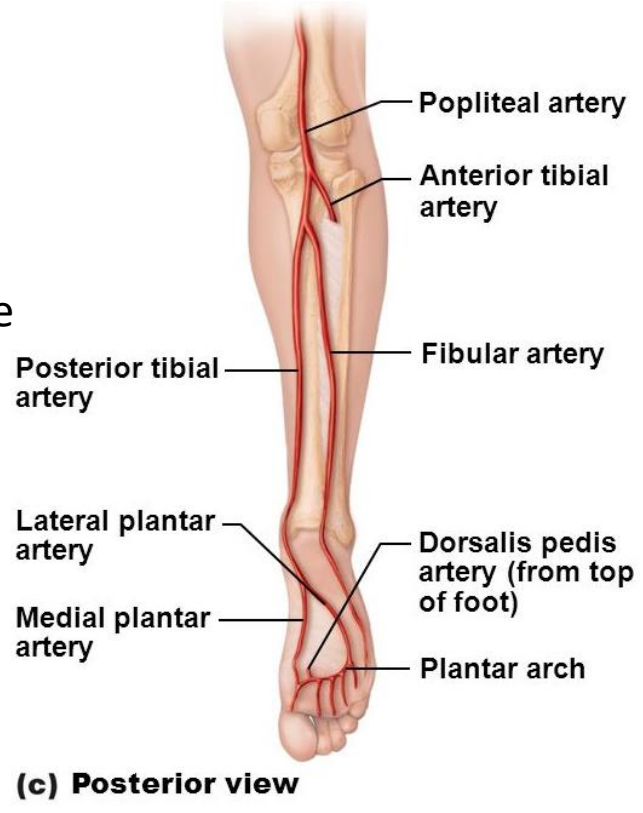
It is easy to be felt being **subcutaneous**, over the tarsal bones between the tendons of Extensor hallucis longus and Extensor digitorum longus Some people have congenitally non palpable DP pulse, the anomaly is usually **bilateral**. A diminished or absent dorsalis pedis pulse usually suggests vascular insufficiency resulting from arterial disease.

POSTERIOR TIBIAL ARTERY:

It is the **larger** terminal branch of the popliteal artery and provides the main blood supply to the Posterior compartment of the Leg & Sole of the Foot.

Its lower part is covered by skin & fascia only. **It Terminates by dividing** into: Medial & Lateral plantar arteries.

Branches: **1**. Nutrient artery to the tibia (the largest nutrient artery of the body). **2**. Calcaneal arteries: supply the Heel. **3**. Peroneal (Fibular) artery: The largest and most important branch. It supplies a nutrient artery to the fibula & Muscular branches to the muscles of the lateral and posterior compartments of the leg.



PLANTAR ARTERIES:

Medial plantar:

The **smaller** terminal branch of the posterior tibial artery. It supplies mainly the muscles of the great toe, and gives most of plantar digital arteries. Its **superficial** branch supplies the skin of the medial side of the sole.

Lateral plantar:

The **larger** branch. At the base of the 5th metatarsal bone, it curves medially to form **Plantar Arch** : completed by the medial plantar artery and branch from DP artery(deep plantar artery). The arch supplies the skin, fascia and muscles in the sole and plantar digital arteries to the adjacent digits

POSTERIOR TIBIAL PULSE:

Taken **Postero inferior to the medial malleolus** (in the groove between the malleolus and the heel) The flexor retinaculum must be **relaxed by inverting** the foot. Palpation of PT pulse is essential for examining patients with occlusive peripheral arterial diseases.

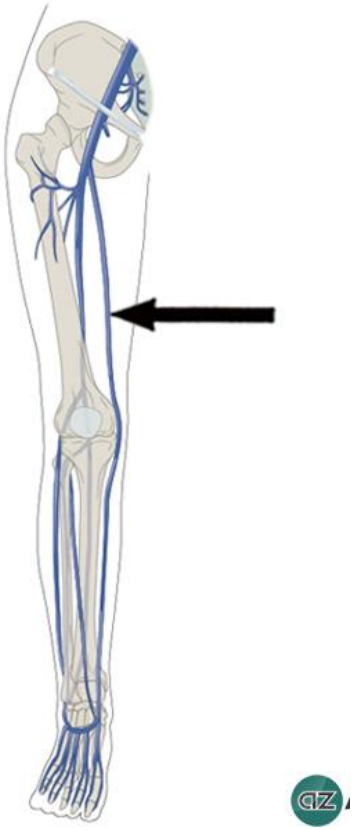
VEINS OF THE LOWER LIMB:

The veins of the lower limb are classified into:

1. **Superficial veins** : lie in the **subcutaneous** tissue (GSV & SSV) (GREAT SAPHENOUS VEIN & SMALL SAPHENOUS VEIN)

2. **Deep veins**: deep to the deep fascia and accompany all major arteries (Femoral, Popliteal veins). The superficial & deep veins **have valves** which are more numerous in the deep veins.

The blood passes from the superficial to the deep veins.



GREAT SAPHENOUS VEIN:

The **Longest Superficial vein** of the body. **Begins from the medial end of the dorsal venous arch** (as the medial marginal vein). Ascends: In front of the Medial Malleolus accompanied by the (Saphenous nerve). Posterior the Medial Condyle of the femur. Passes through the Saphenous Opening (2.5-3.25) cm below and lateral to the pubic tubercle**. Terminates in Femoral Vein**.

Because of its constant position in front of the medial malleolus, it is used for sapohenous cutdown especially in infants, obese and shocked patients

SMALL SAPHENOUS VEIN:

Originates from the **lateral end of the dorsal venous arch**. Ascends: Behind the lateral Malleolus along the middle of the back leg It Terminates in : 1. Popliteal vein 2. It may join the Great Saphenous vein. 3. Or Bifurcates: One branch joins the Great saphenous and the other joins the Popliteal vein.

GREAT SAPHENOUS VEIN	**SMALL SAPHENOUS VEIN**
Begins from the medial end of the dorsal venous arch (as the medial marginal vein)	Originates from the lateral end of the dorsal venous arch
Ascends In front of the Medial Malleolus	Ascends Behind the lateral Malleolus
accompanied by the (Saphenous nerve)	along the middle of the back leg
Posterior to the Medial Condyle of the femur	_____
. Terminates in Femoral Vein.	Terminates in : Popliteal vein OR It may join the Great Saphenous vein. OR Bifurcates: One branch joins the Great saphenous and the other joins the Popliteal vein.

VENAE COMITANTES:

Deep veins ,usually they are paired and accompany arteries. They are contained within the vascular sheath of the arteries, so the arterial pulsations help to compress and move blood in the veins especially during exercise.

PERFORATING VEINS:

Penetrate the deep fascia close to their origin from the superficial veins. They contain **valves** which normally allow the blood to flow from the superficial to the deep veins. The perforating veins pass through the deep fascia at an **oblique angle** so during muscular contraction , they are compressed. This also prevents blood flowing from the deep to the superficial veins.

VARICOSE VEINS:

It is **Dilatation** and Degeneration of the **superficial veins**

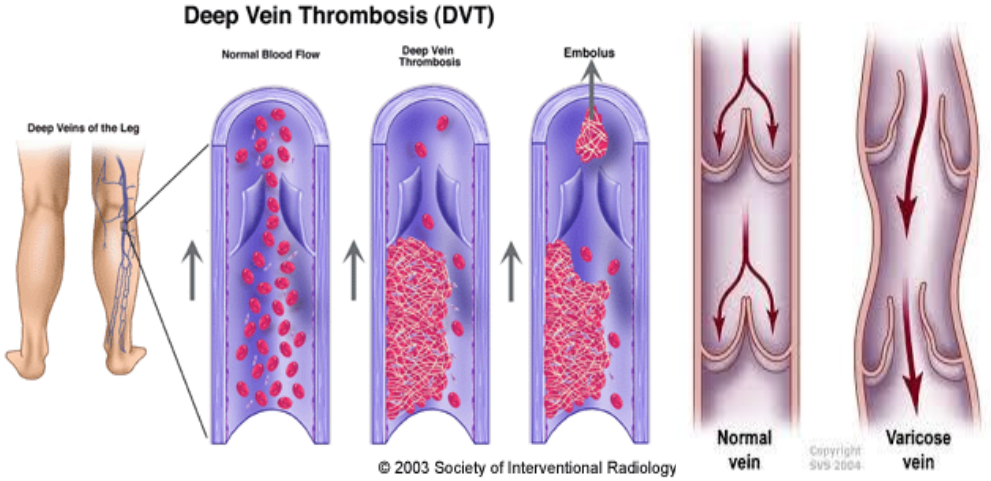
More common in the postero medial part of the lower limb

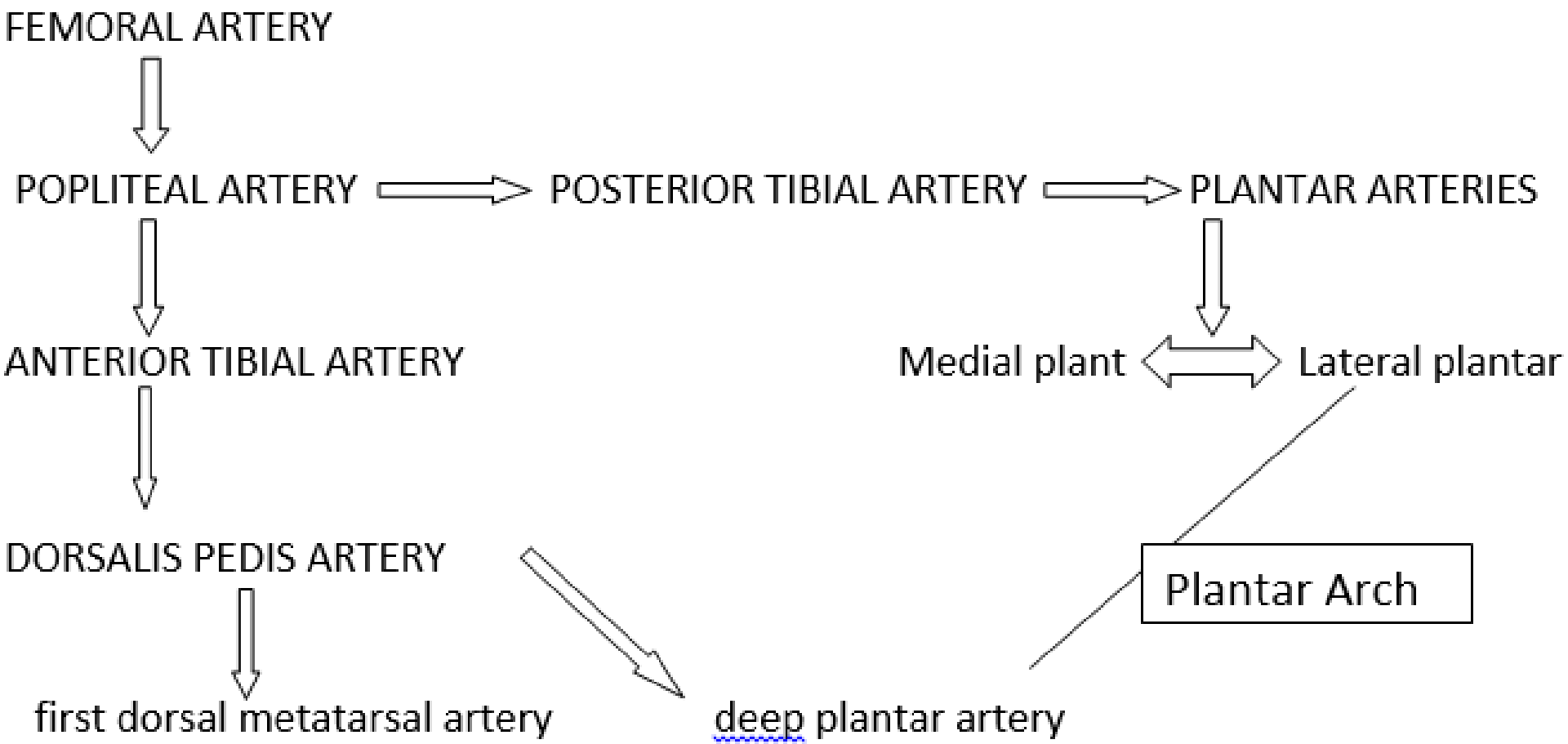
Results **because of incompetence of the valves** in the perforating veins, Or valves within the great saphenous itself

This allows the passage of high pressure blood from the deep to the superficial veins

Deep Vein Thrombosis (DVT).

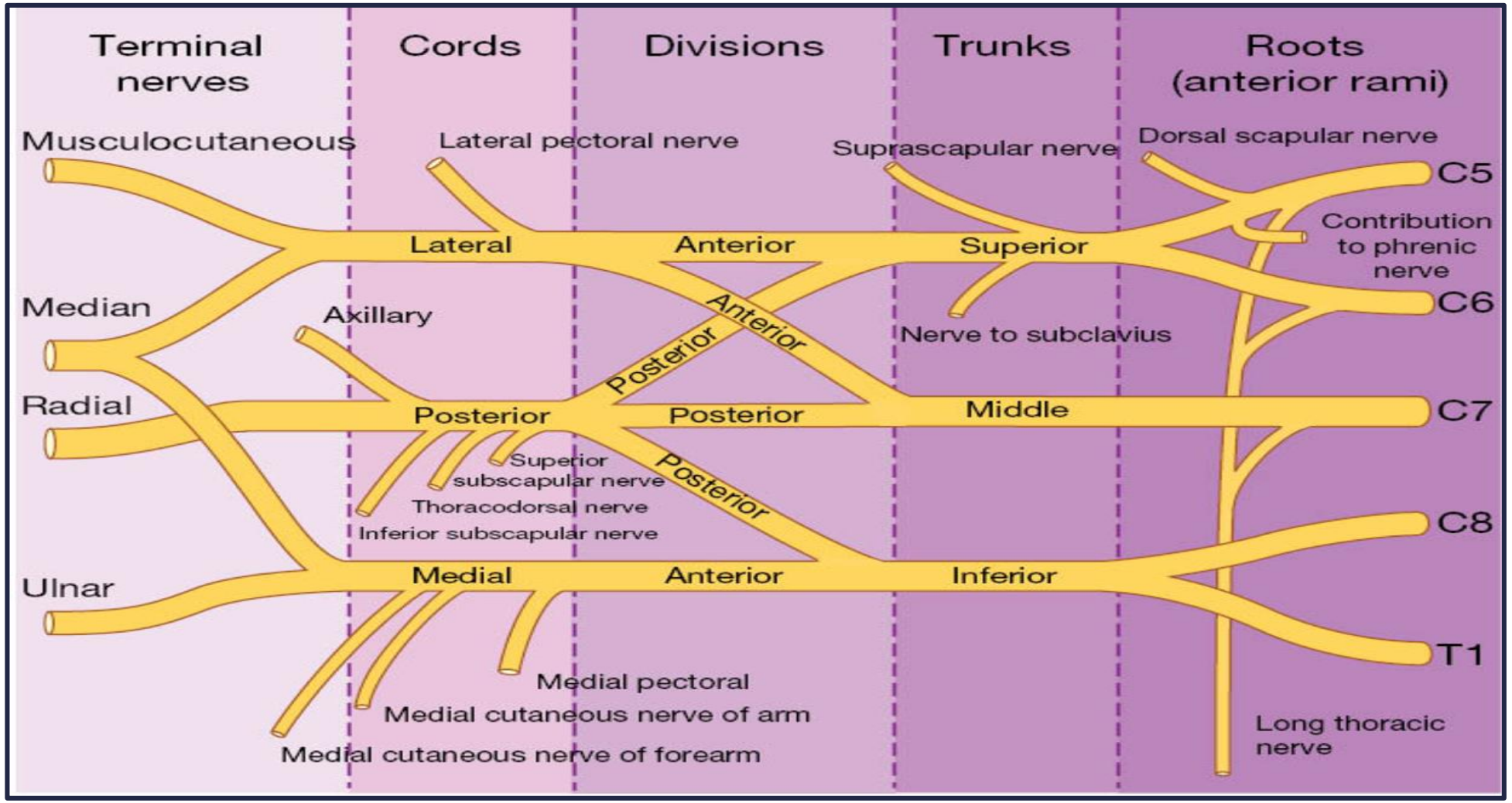
The veins of the lower limb are subject to venous thrombosis **after a bone fractur**e. Venous stasis is the main cause by pressure on the veins from the bedding during **prolonged hospital stay** and aggravated **by muscular inactivity**. Thrombophlebitis may develop around the vein. Pulmonary thromboembolism may occur when a thrombus breaks free from the lower limb vein and passes to the lungs.




FEMORAL ARTERY
POPLITEAL ARTERY
POSTERIOR TIBIAL ARTERY
PLANTAR ARTERIES
ANTERIOR TIBIAL ARTERY
Medial plant
Lateral plantar
DORSALIS PEDIS ARTERY
Plantar Arch
first dorsal metatarsal artery
deep plantar artery

NERVES

Brachial plexus



Long thoracic nerve

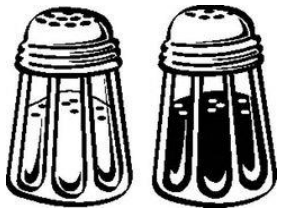
Origin: C5

Function:

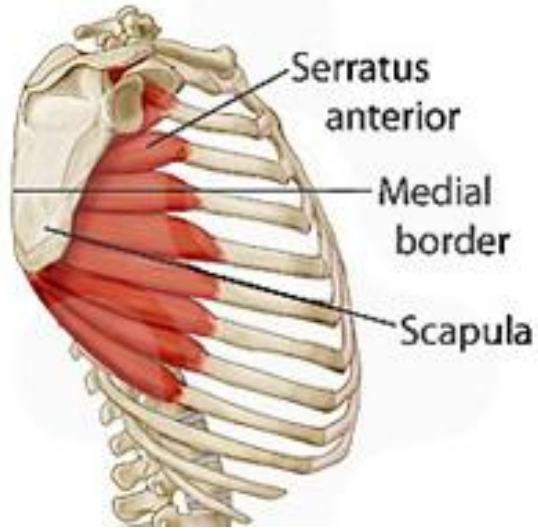
- Motor: serratus anterior

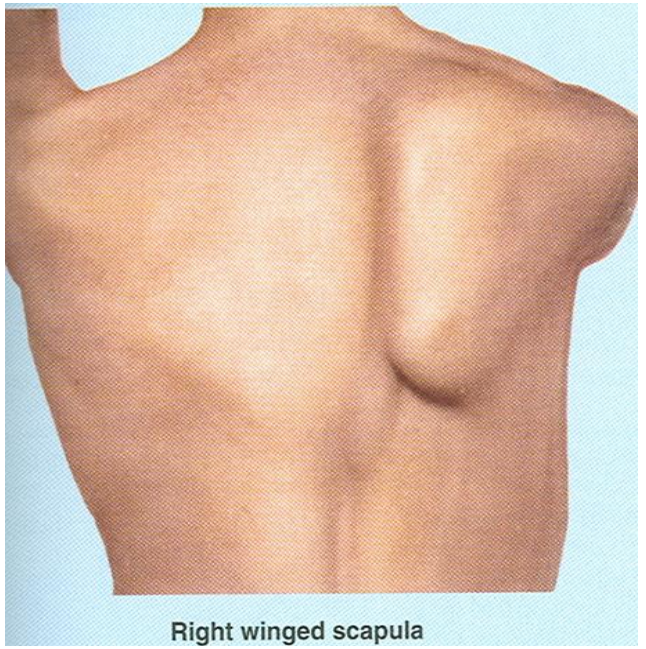
Injury:

Winged scapula



To remember: SALT
Serratus Anterior Long Thoracic





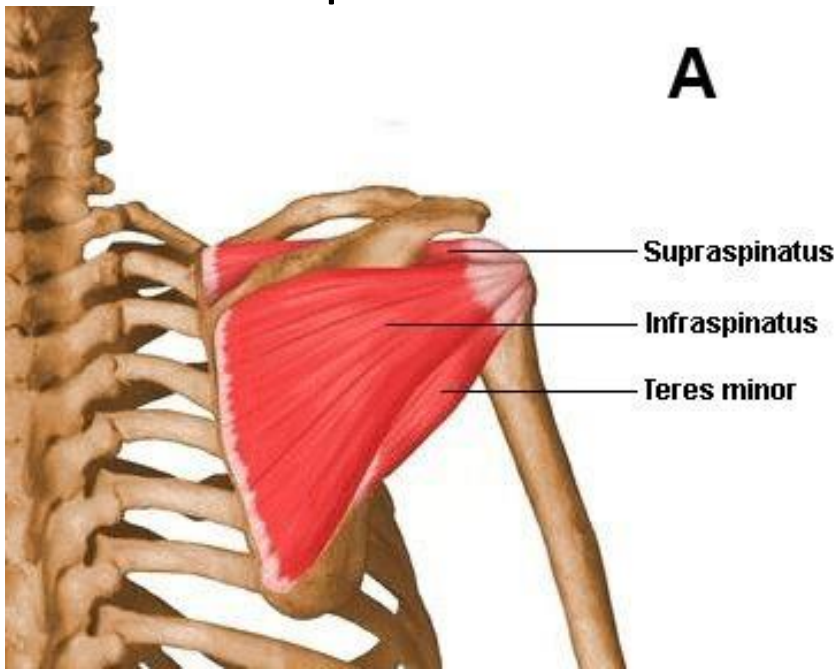
Suprascapular Nerve

Origin: superior trunk

Function:

- Motor:

1. supraspinatous
2. infraspinatous



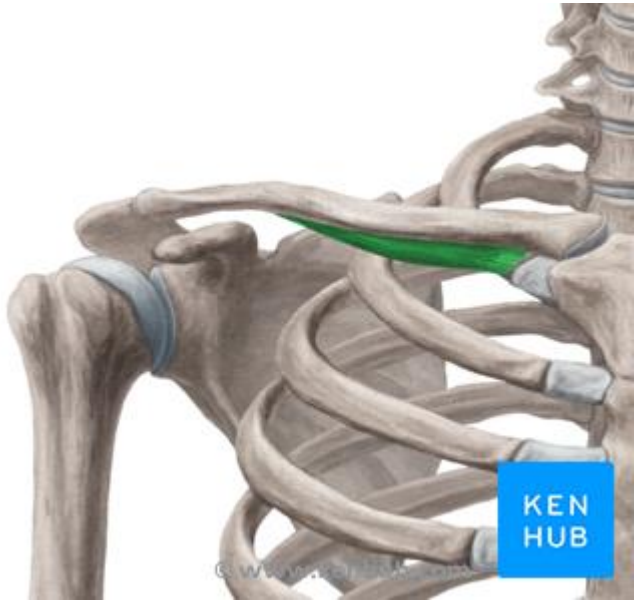
Nerve to subclavius

Origin: superior trunk

Function:

- Motor:

1. Subclavius



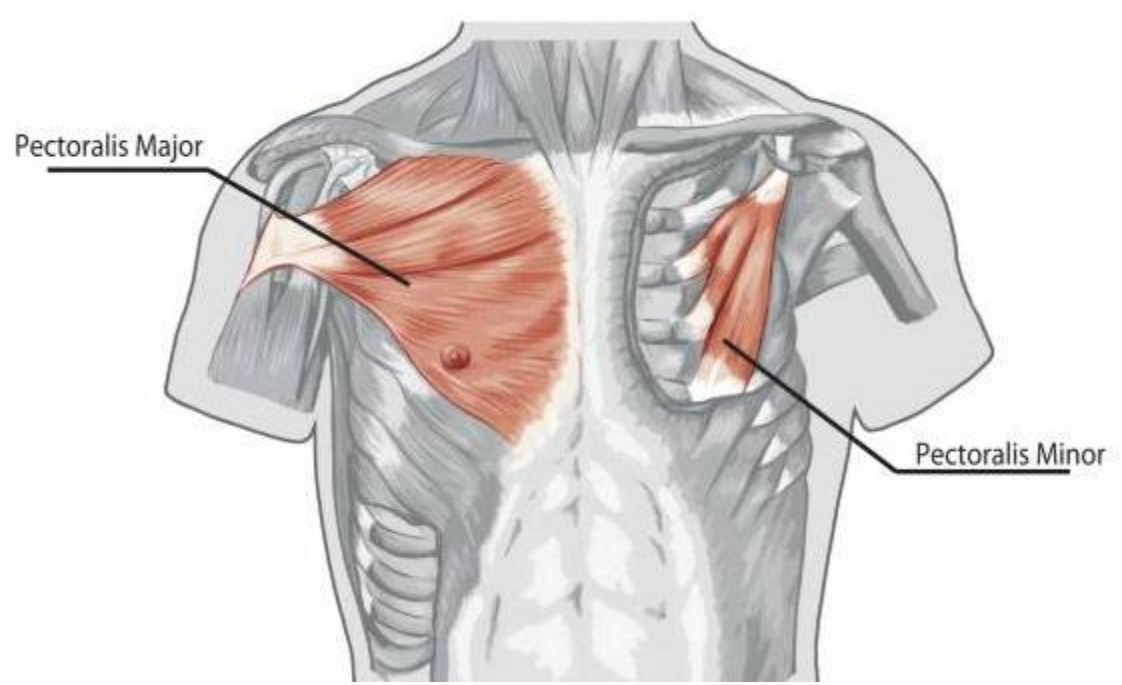
Medial Pectoral Nerve

Origin: medial cord

Function:

- Motor:

1. Pectoralis major
2. Pectoralis minor



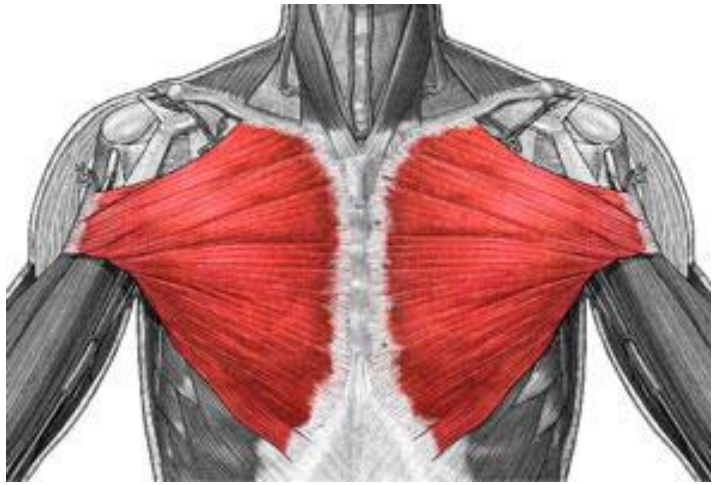
Lateral pectoral Nerve

Origin: lateral cord

Function:

- Motor:

1. Pectoralis major



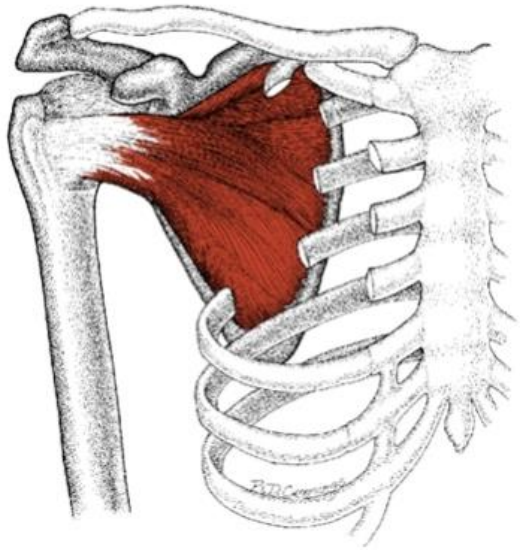
Superior subscapularis nerve

Origin: posterior cord

Function:

- Motor:

1. Subscapularis



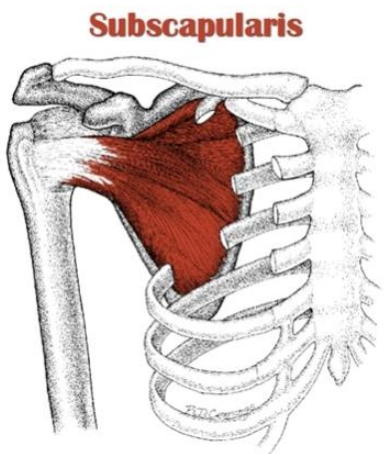
Inferior subscapularis nerve

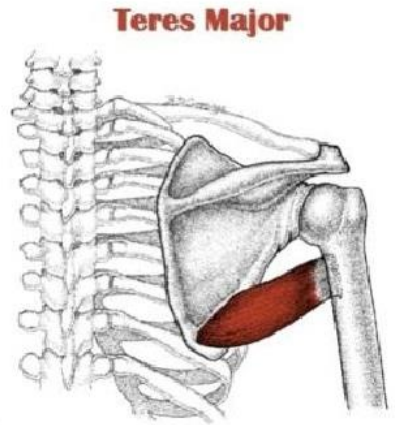
Origin: posterior cord

Function:

- Motor:

1. Subscapularis
2. Teres major





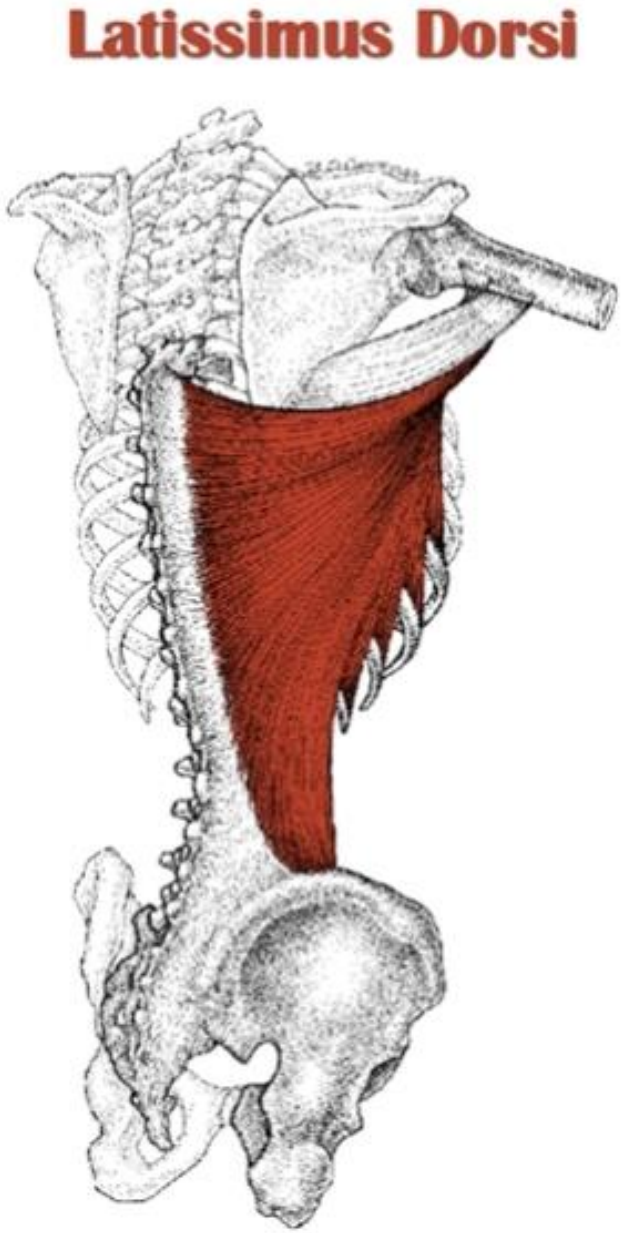
Thoracodorsal Nerve

Origin: posterior cord

Function:

- Motor:

1. Latissimus dorsi



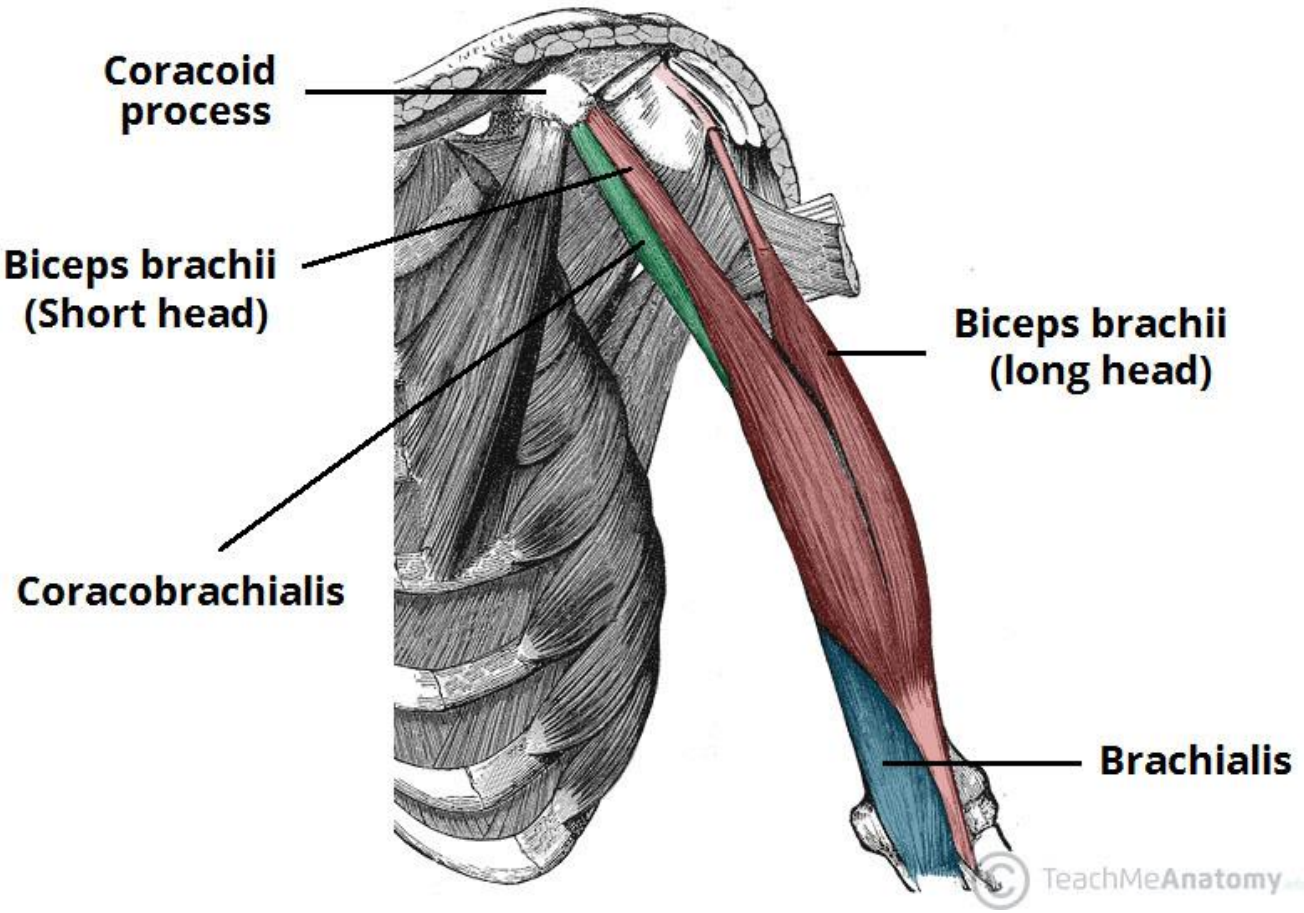
Musculocutaneous Nerve

Origin: lateral cord

Function:

- Motor: (anterior compartment of arm)

1. Biceps brachii
2. Coracobrachialis
3. brachialis



Median Nerve

Origin: medial and lateral cords

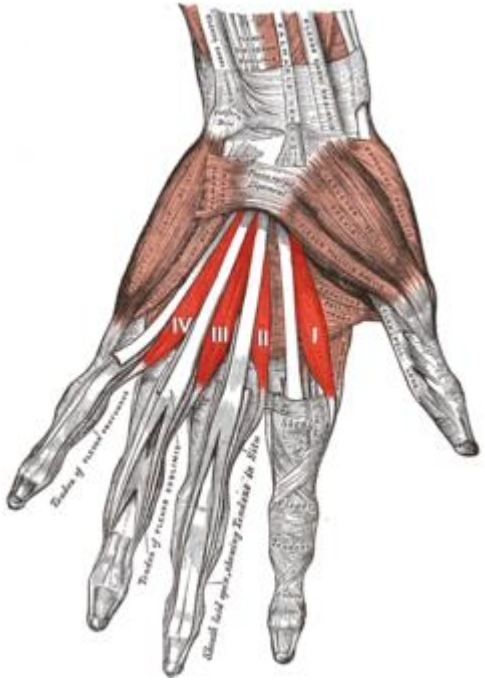
Function:

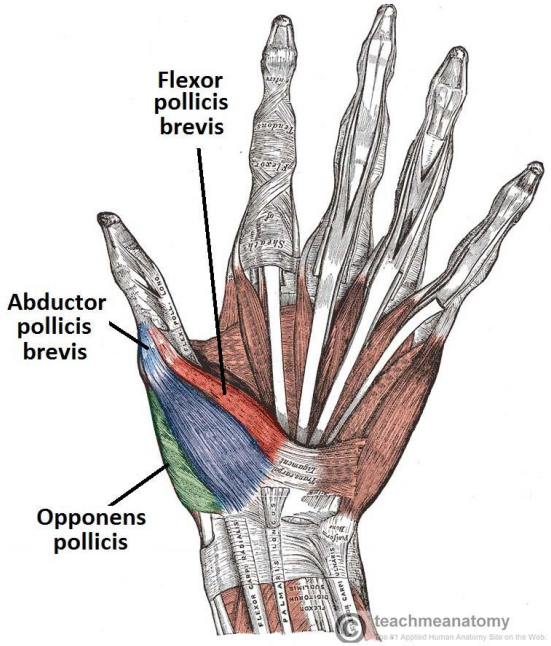
- Motor:

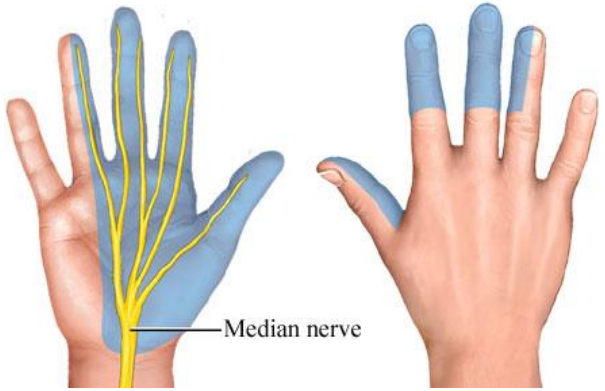
1. Anterior compartment of forearm (except FCU & ½ FDP)
2. Thenar muscles
3. 2 lateral lumbricals

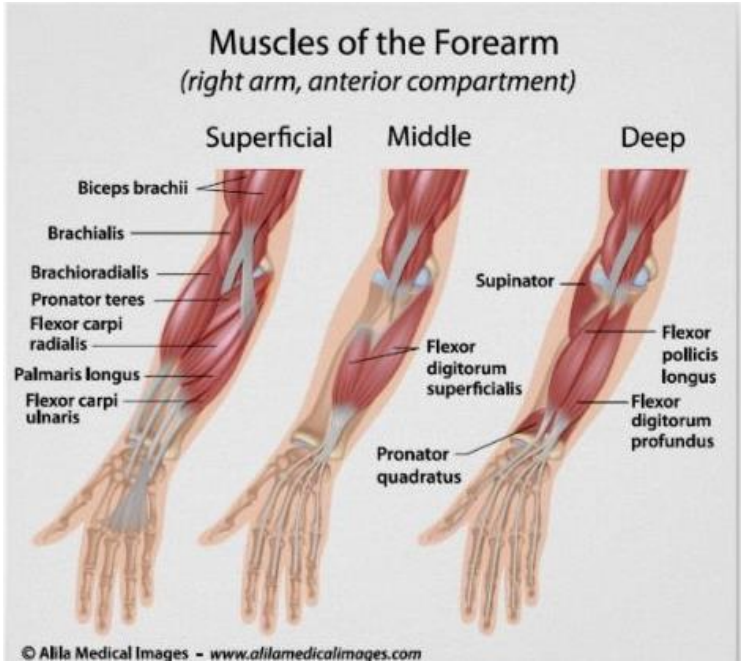
- Senosry:

Skin over the palmar surface of the lateral three and one- half digits and over the lateral side of the palm and middle of the wrist.









Median Nerve Injury

In the arm and forearm it is not usually injured because of its deep position

At elbow (due to fracture/dislocation)

ALL the muscles/skin it supplies will be affected:

Loss of pronation

Loss of thumb opposition and abduction

Loss of flexion on interphalangeal joints of index & middle fingers

Sensory loss (over skin supplied by nerve)

Weak flexion of wrist with ulnar deviation

APE HAND

At wrist (carpel tunnel syndrome/penetrating wound)

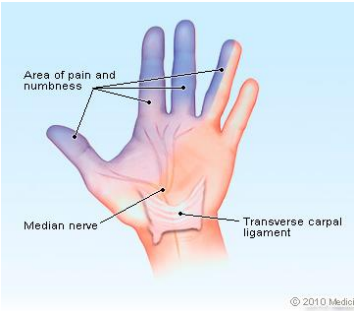
Loss of thumb opposition and abduction

Loss of flexion on interphalangeal joints of index & middle fingers

Sensory loss (over skin supplied by nerve)

APE HAND

NOTE: in caprel tunnel the symptoms vary from weak to complete loss of function. Also the symptoms begin as sensory then progress and develop into motor. The sensory supply of the palm and thenar eminence is not affected because they are supplied by the palmer cutaneous branch of the median nerve which is superficial to the flexor retinaculum.



Axillary Nerve

Origin: posterior cord

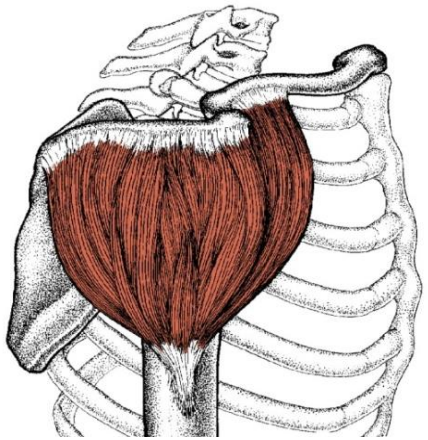
Function:

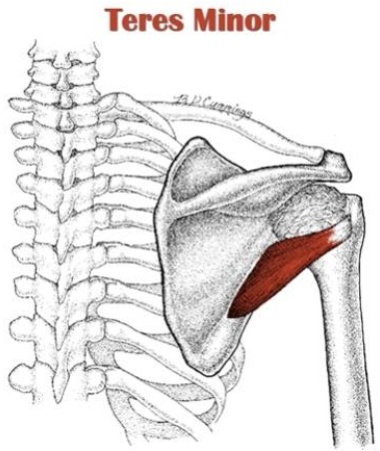
- Motor:

1. Deltoid
2. Teres minor

- Senosry:

Skin over upper lateral part of arm





Injury

Causes:

1. Fracture of surgical neck
2. Downward dislocation of shoulder
3. Misuse of crutches

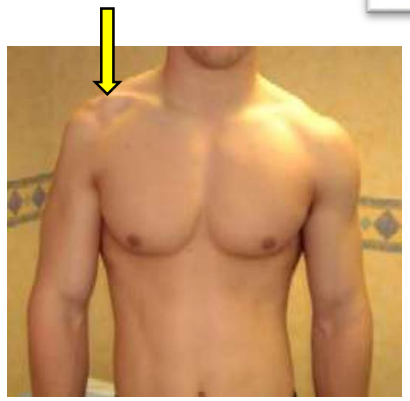
Effect:

Paralysis of deltoid and teres minor

Impaired abduction (20 – 90)

Sensory loss (over skin supplied by nerve)

Wasting of deltoid which leads to flattening of rounded contour of shoulder.



Radial Nerve

Origin: posterior cord

Function:

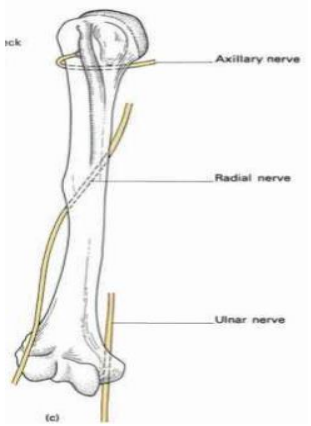
- Motor:

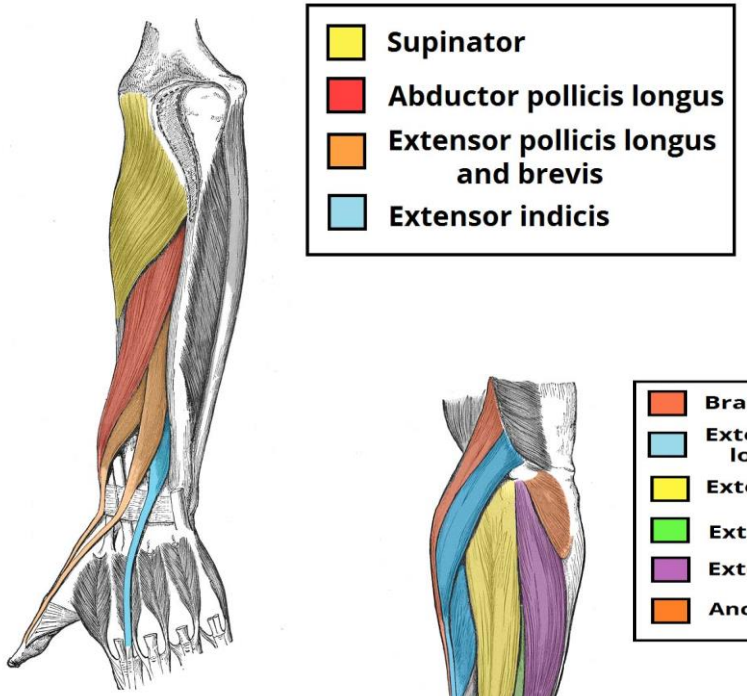
1. Posterior compartment of arm (triceps)
2. Posterior compartment of forearm

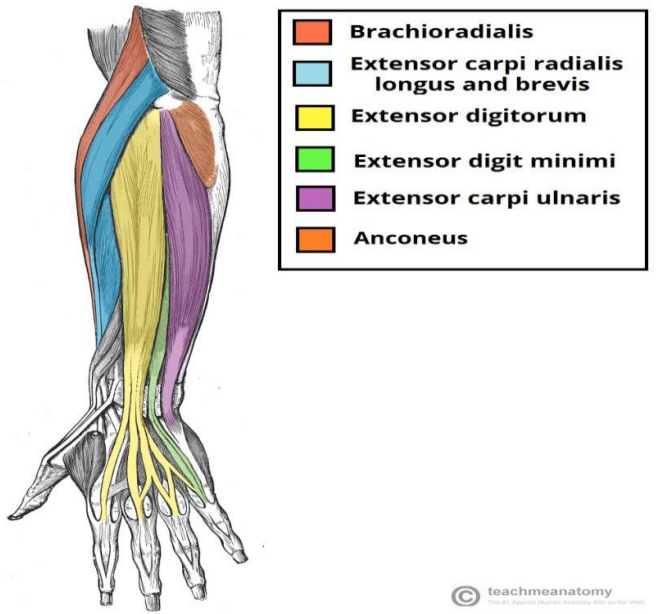
- Sensory:

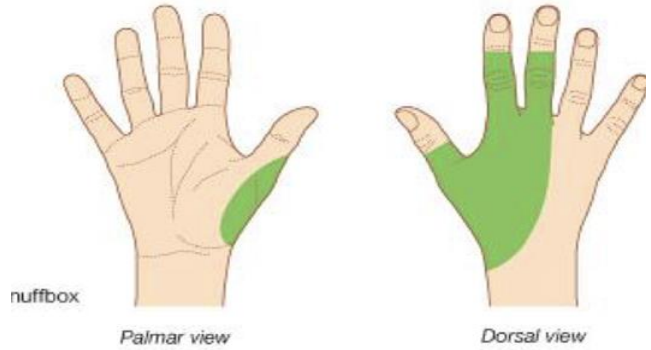
skin on the lateral two thirds of the posterior surface of the hand and the posterior surface over the proximal phalanges of the lateral three and half fingers.

NOTE: it lies directly in contact with the shaft of the humerus at the spiral groove (dangerous position)









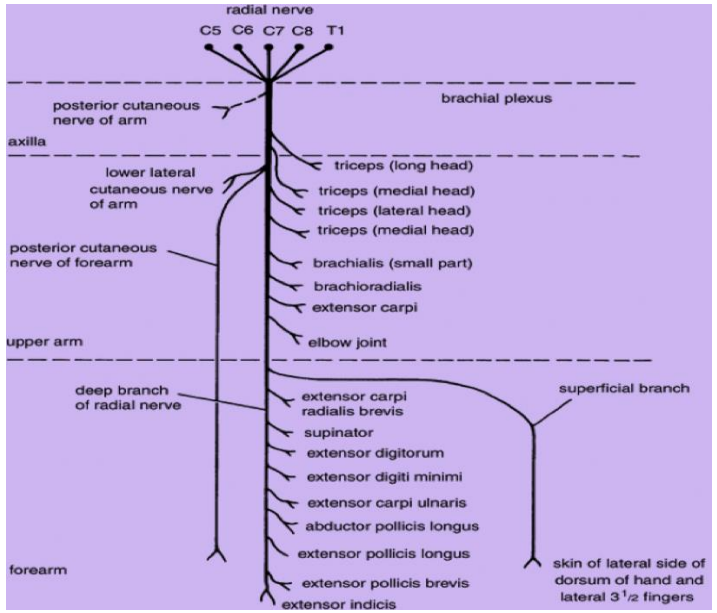
Radial Nerve

Branches

It gives off branches in the axilla and arm but divides into 2 branches (deep and superficial) as it enters the forearm.

Deep branch = motor (posterior compartment of forearm except ABE)

Superficial branch = sensory



Injury

Injuries to different areas of the arm result in different symptoms:

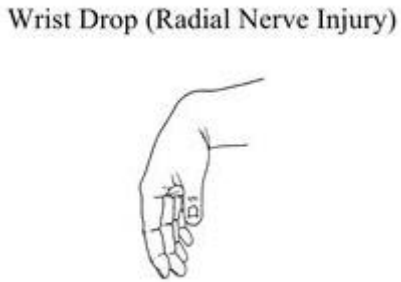
In the Axilla (caused by a drunkard falling asleep with one arm over the back of a chair also by fractures and dislocations of the proximal end of the humerus.):

Wrist drop

Loss of elbow extension

In the Spiral Groove (caused by injury or fracture of the spiral groove of the humerus):

Wrist drop



In the forearm (superficial branch):

Only sensory loss (NO WRIST DROP)

In the forearm (deep branch):

Only motor loss

NO WRIST DROP

Because flexor carpi radialis longus & supinator

Ulnar Nerve

Origin: medial cord

Function:

- Motor:

1. Flexor carpi ulnaris
2. ½ flexor digitorum profundus
3. All intrinsic hand muscles (except lateral 2 lumbricals and 3 thenar muscles)

- Sensory:

Skin over the palmer and dorsal surface of the medial one and one-half digits and associated palm and wrist.

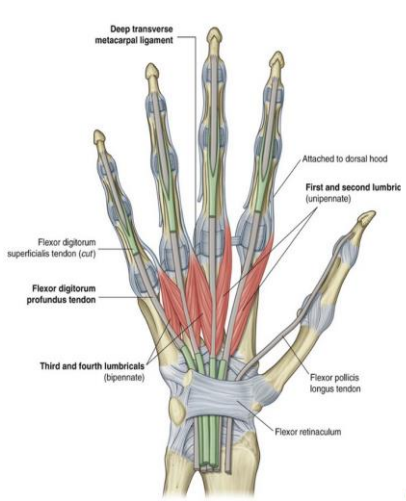


FIG. 7.104 Lumbrical muscles.

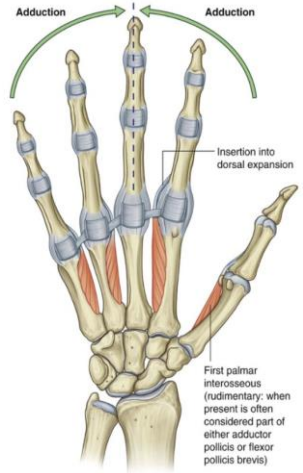


FIG. 7.101 Palmar interossei (palmar view).

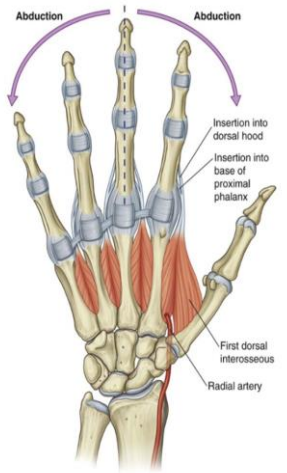
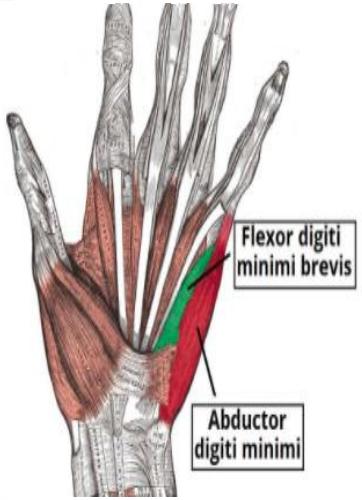
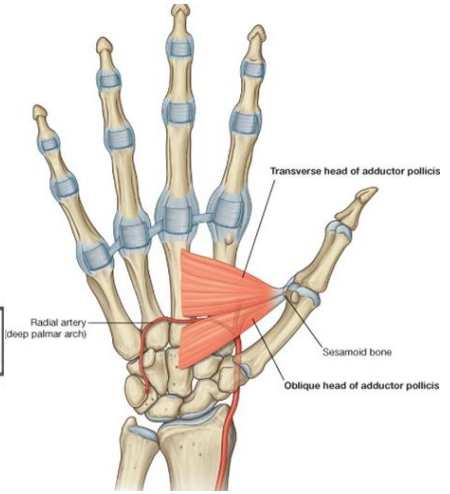
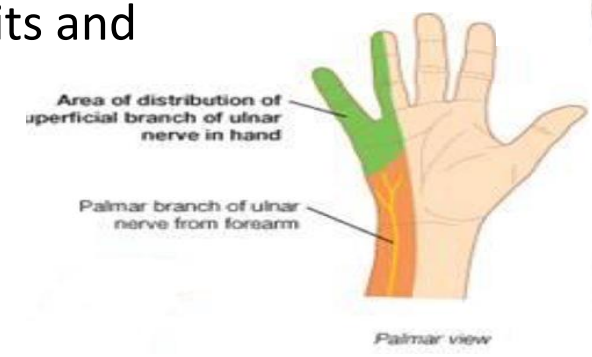
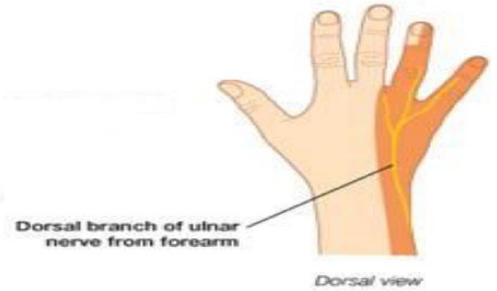


FIG. 7.100 Dorsal interossei (palmar view).





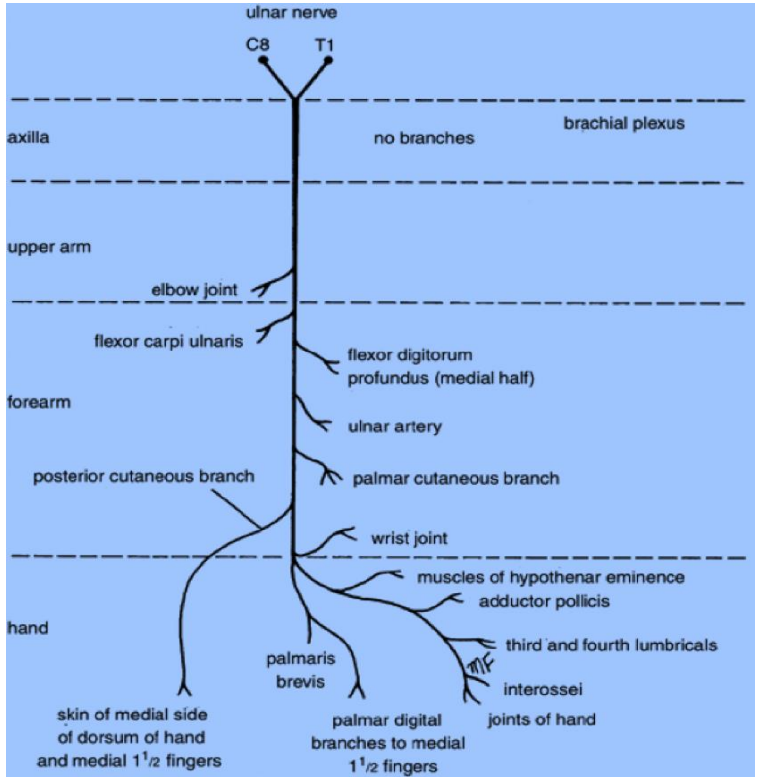




Ulnar Nerve

Branches

It has no branches in the axilla. In the forearm it has motor, cutaneous and articular branches. It ends by dividing into deep and superficial terminal branches.



Injury

<u>At the Elbow:</u> (since it lies posterior to the medial epicondyle)

Atrophy of Ulnar side of forearm.

Flexion of the wrist with <u>Abduction</u>.

Wasting of Hypothenar Eminence.

Claw hand.

<u>At the Wrist:</u>

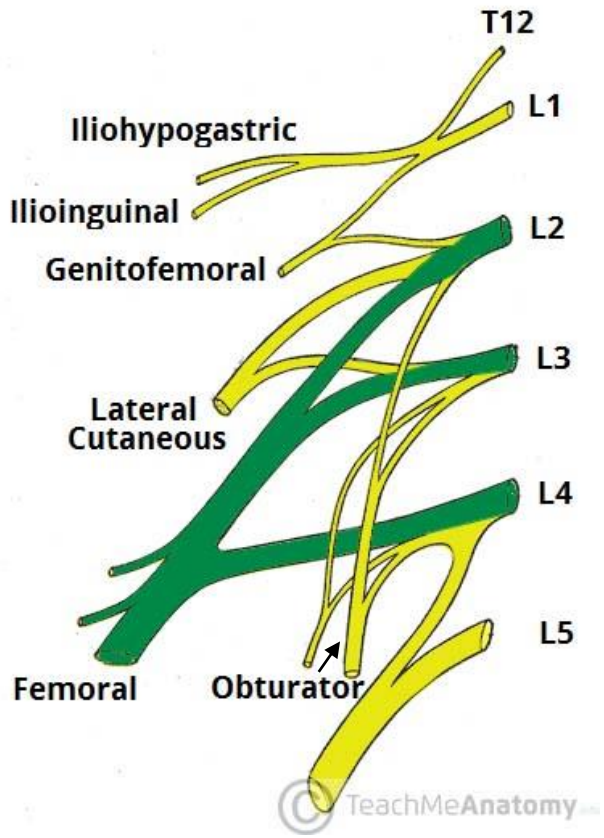
Wasting of Hypothenar Eminence.

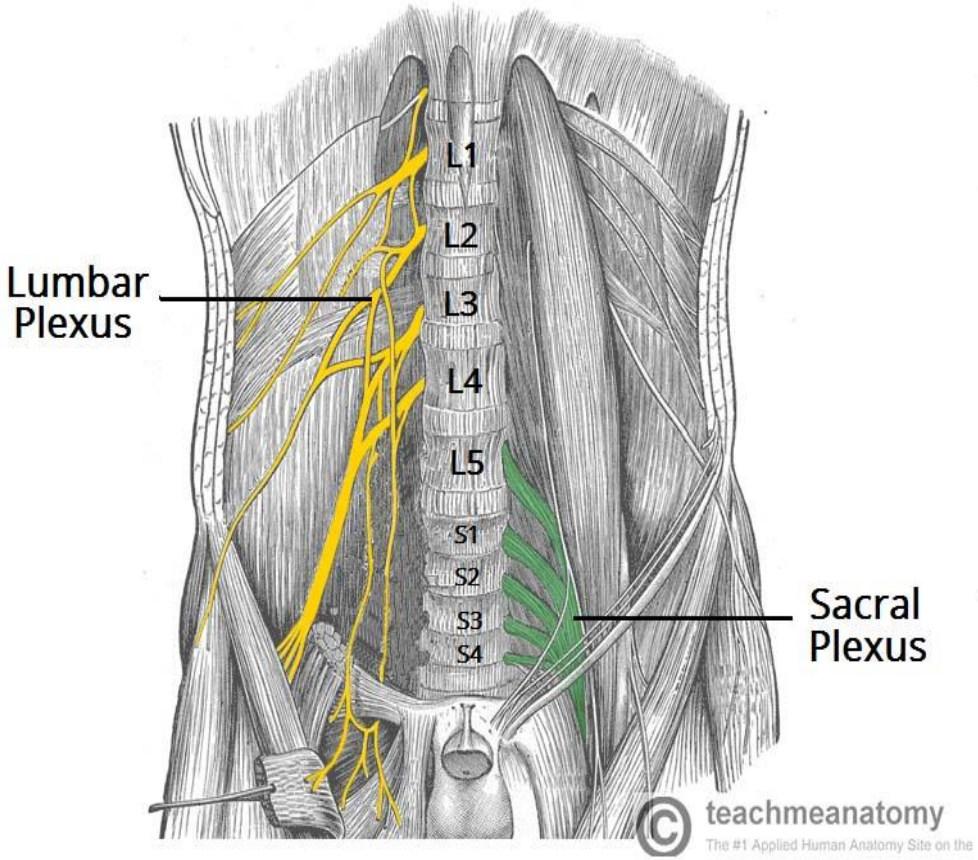
Claw Hand.

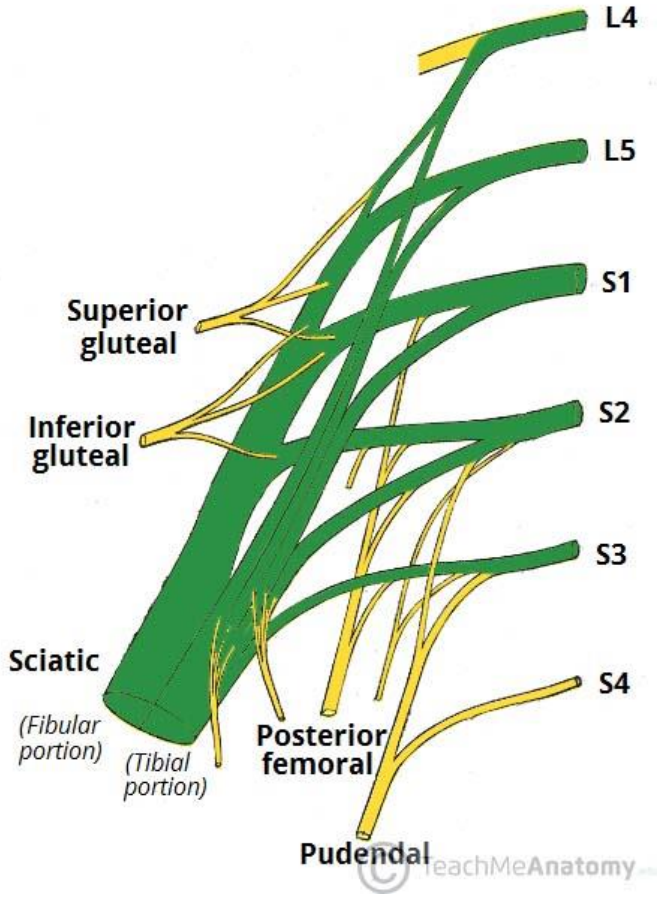

Fig. 7.110 Typical appearance of a "clawed hand" due to a lesion of the ulnar nerve.

Note: the hand appears clawed because most of the intrinsic hand muscles are lost so the metacarpophalangeal joints are hyperextended and the interphalangeal joints are flexed. It is more pronounced in the medial fingers because the lateral 2 lumbricals are intact

Lumbar and Sacral Plexus







Sciatic Nerve

Largest nerve in the body

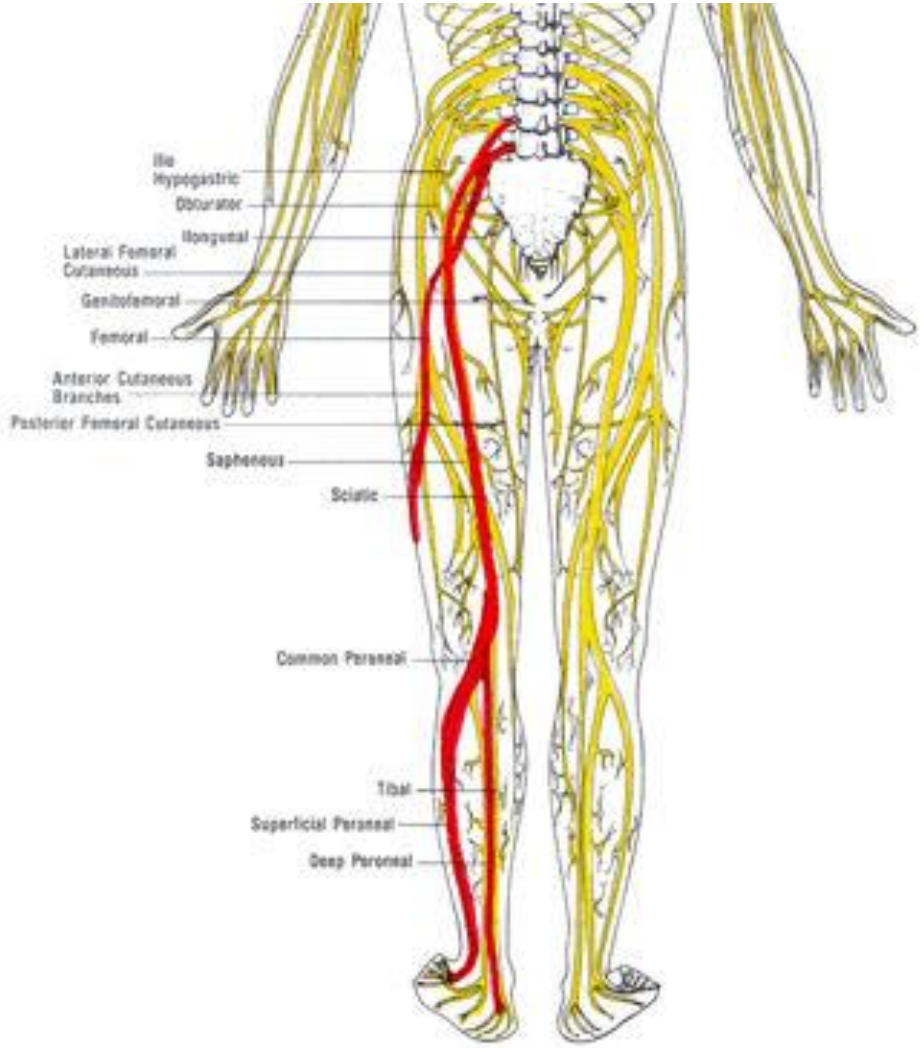
Origin: L4 to S3

Function:

- Motor:

1. All muscles in posterior compartment of thigh
2. Ischial part of adductor magnus
3. All muscles of leg and foot

Branches: in the thigh it divides into tibular and common peroneal nerves. The common peroneal further divides into deep peroneal and superficial peroneal.



Sciatic Nerve Injury

Depending on which part if injured:

Sciatic Nerve (usually injured by badly placed intramuscular injection in the gluteal region or posterior dislocation of hip):

Sensation is lost below the knee

Weak flexion of the knee

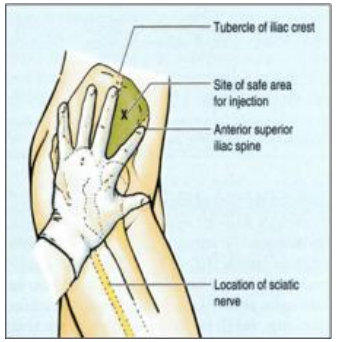
Weak extension of hip

Marked wasting(atrophy) of the muscles below the knee.

All the muscles below the knee are paralyzed

FOOT DROP (the weight of the foot causes it to assume plantarflexion)

Stamping gait.



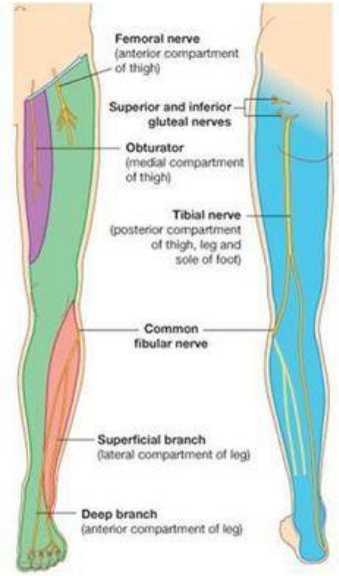
Sciatica

Sciatica describes the condition in which patients have pain along the sensory distribution of the sciatic nerve. Thus the pain is experienced in:

1-the posterior aspect of the thigh
2-the posterior and lateral sides of the leg
3-and the lateral part of the foot.

Causes of Sciatica:

1. Prolapse of an intervertebral disc, with pressure on one or roots of the lower lumbar and sacral spinal nerves
2. Pressure on the sacral plexus or sciatic nerve by an intrapelvic tumor
3. Inflammation of the sciatic nerve or its terminal branches.



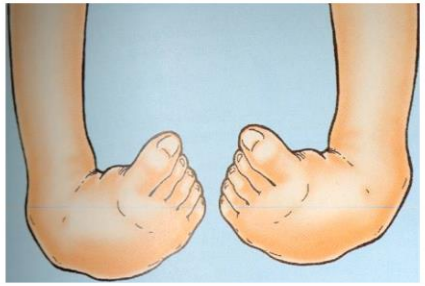
Sciatic Nerve Injury

Branches

<u>Common peroneal nerve</u>(winds around neck of the fibula so it is exposed and is injured by fractures of the neck or by pressure from casts):

The muscles of the anterior and lateral compartments of the leg are paralyzed

Plantar Flexed **(Foot Drop)**



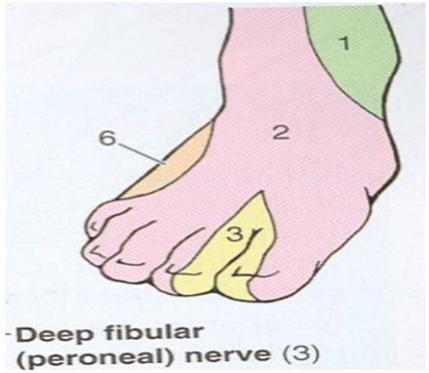
Equinovarus (foot is inverted)

Sensation is lost between the first and second toes

Dorsum of the foot and toes

Medial side of the big toe

Lateral side of the leg



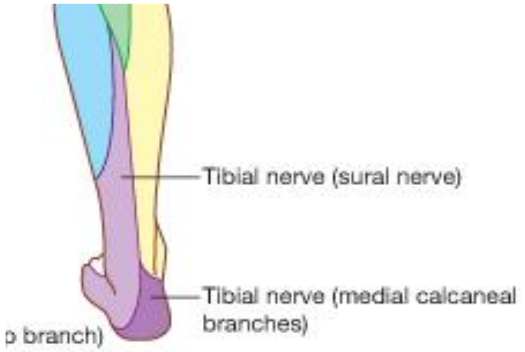
Branches

<u>Tibial Nerve</u>(Because of its deep and protected position, the tibial nerve is rarely injured):

All the muscles in the back of the leg and the sole of the foot are paralyzed

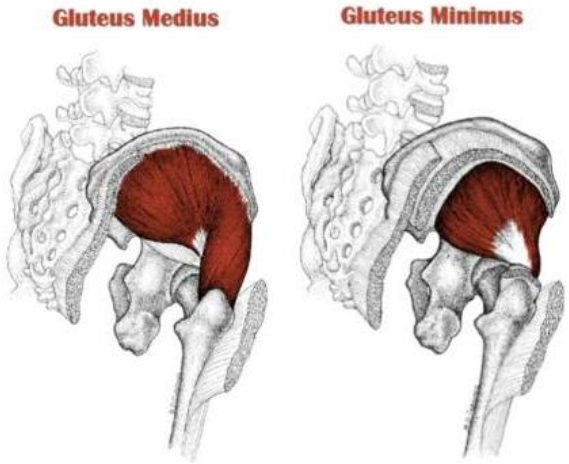
Dorsiflexion + eversion = Calcaneovalgus

Sensation is lost in the sole & on the Lateral side of the leg and foot



Superior gluteal nerve

From: sacral plexus



Function:

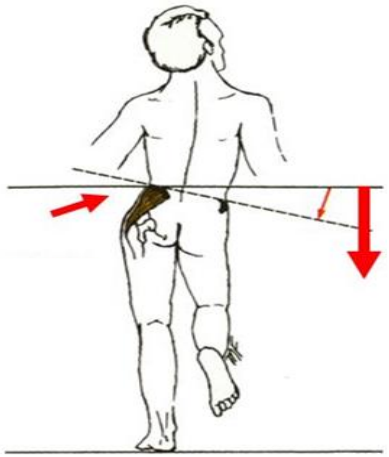
- Motor:

1. Gluteus medius
2. Gluteus minimus

- Injury:

Gluteal gait

Positive Trendelenburg sign



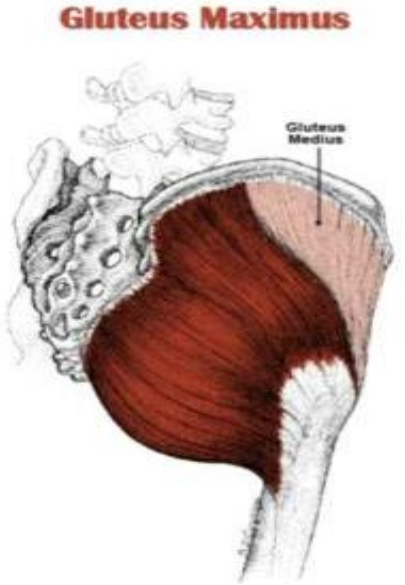
Inferior gluteal nerve

From: sacral plexus

Function:

- Motor:

1. Gluteus maximus



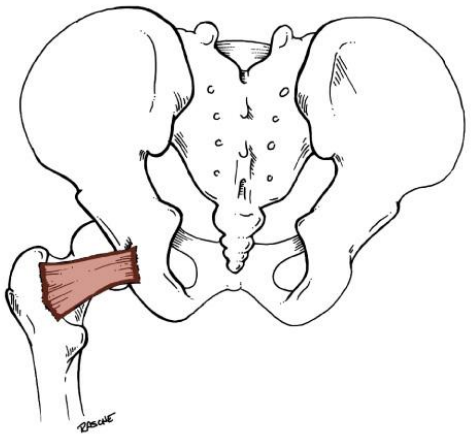
Nerve to quadratus femoris

From: sacral plexus

Function:

- Motor:

1. Quardtaus femoris
2. Inferior gemellus



Nerve to obturator internus

From: sacral plexus

Function:

- Motor:

1. Obturator internus
2. Superior gemellus

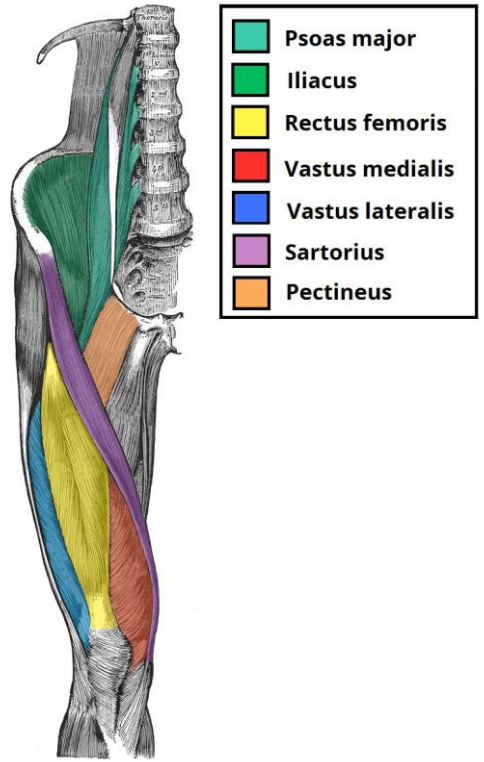
Femoral Nerve

From: lumbar plexus

Function:

- Motor:

1. All muscles in anterior compartment of thigh



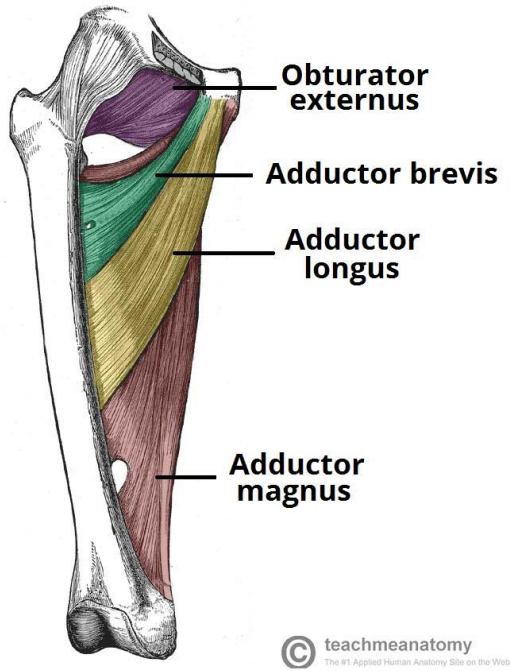
Obturator Nerve

From: lumbar plexus

Function:

- Motor:

1. All muscles in medial compartment of thigh



Good Luck!