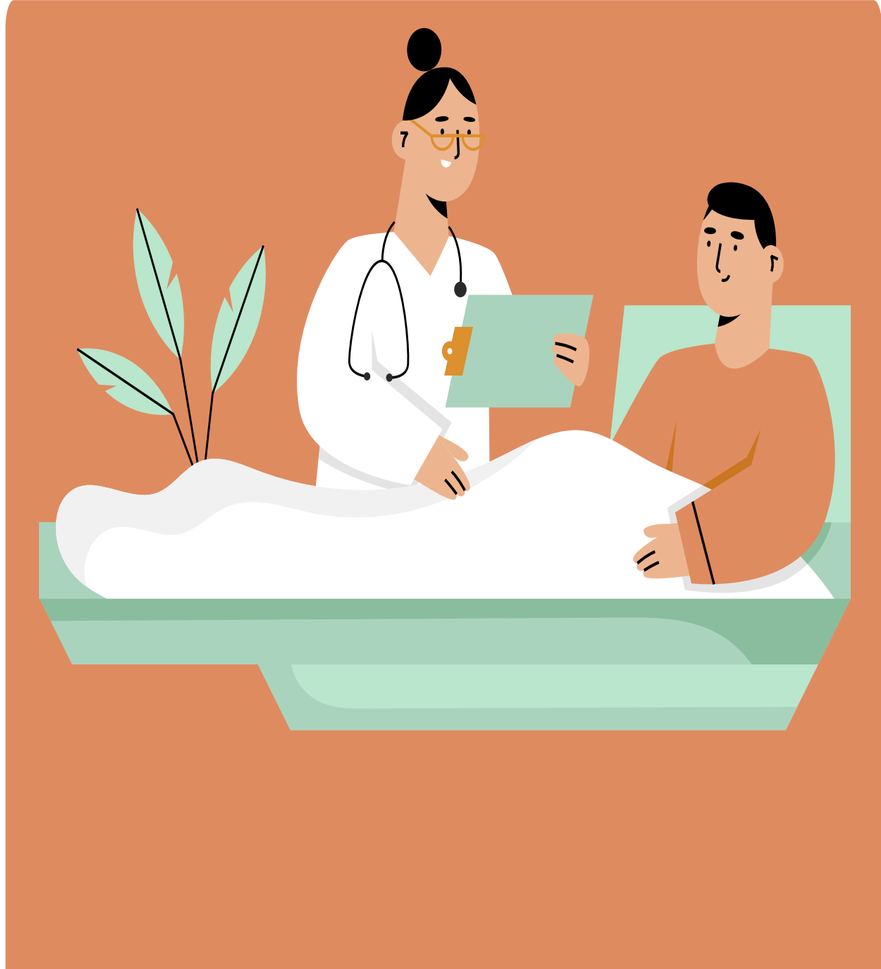
MED437
KING SAUD UNIVERSITY

SURGERY TEAM 437



Peripheral Nerves Injury

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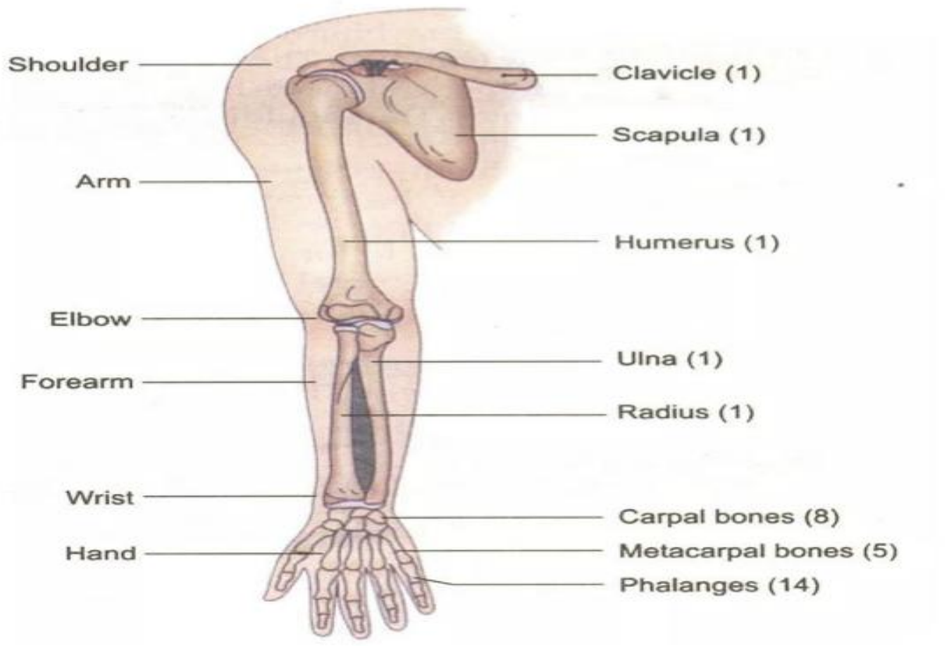
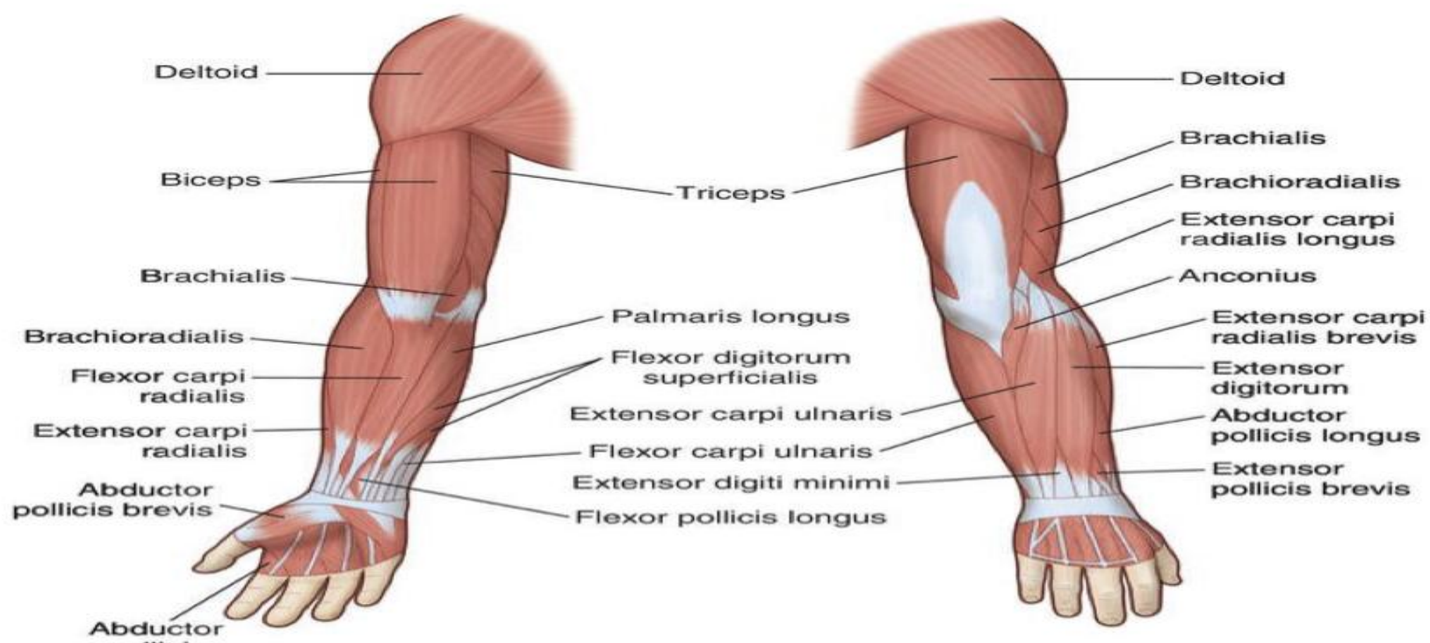
Editing File / Feedback

Basics Review EXTRA

The upper limb is divided into shoulder, arm, forearm, wrist, hand each with its own set of muscles and nerves. To review the terminology of the muscles click here





Arm:

The arm can be divided into 2 compartments:

- Anterior (flexor) compartment: biceps brachii, coracobrachialis, and brachialis
- Posterior (extensor) compartment: triceps brachii

Forearm:

The forearm can also be divided into 2 compartments: flexor and extensor compartments.

The forearm is supplied mainly by 2 nerves: radial (supplies all the posterior compartment muscles) and the median nerve (supplies almost all anterior compartment except 1 ½ by ulnar)

Shoulder:

- The muscles of the shoulder are: deltoid, supraspinatus, infraspinatus, teres minor, teres major, and subscapularis.
- The shoulder joint is synovial and multiaxial (ball and socket), and the movements include: flexion, extension, adduction, abduction, external and internal rotation. (see image)

	Superficial Group		Deep Group
Anterior (Flexor)	1. Pronator teres 2. Palmaris longus 3. Flexor carpi radialis	4. Flexor carpi ulnaris 5. Flexor digitorum superficialis	1. Flexor digitorum profundus 2. Flexor pollicis longus 3. Pronator quadratus
Posterior (Extensor)	1. Brachioradialis 2. Extensor carpi radialis longus & brevis 3. Extensor carpi ulnaris	4. Extensor digitorum 5. Extensor digiti minimi 6. Anconeus	1. Abductor pollicis longus 2. Extensor pollicis longus & brevis 3. Extensor indicis 4. Supinator

- The bones of the hand are: carpals (8), metacarpals(5), and phalanges(14): proximal, middle, and distal.
- Between two bones there is a joints: carpometacarpal, metacarpophalangeal, and interphalangeal (distal and proximal) ⟶ look at the picture above for better understanding.
- The main nerve supply of the hand is the ulnar nerve except some muscles supplied by the median nerve(will be discussed later).

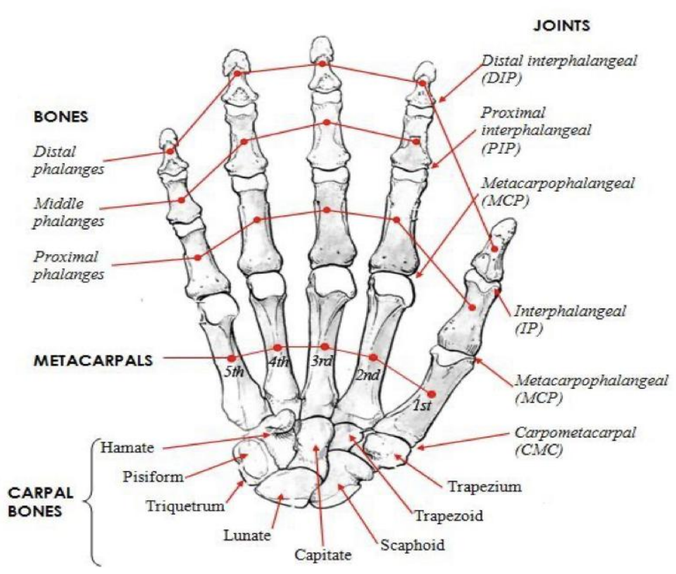
*So if the muscle is injured & these movements are lost we have ⟶ MP extension & IP flexion (CLAW HAND)

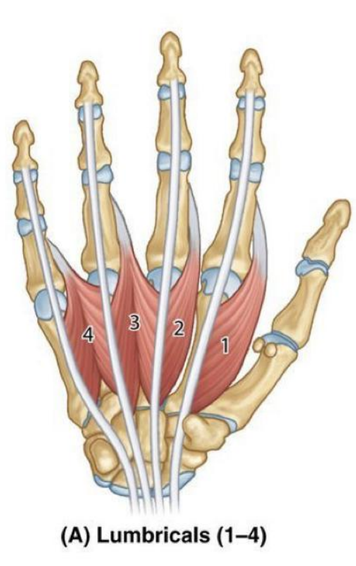
- The muscles of the hand can be divided into 4 groups:

Hypothenar (3 ms)	1. abductor digiti minimi 2. opponens digiti minimi 3. flexor digiti minimi **Action:** abduction + opposition of little finger
Thenar (3 ms)	1. abductor pollicis brevis 2. opponens pollicis 3. flexor pollicis brevis **Action:** opposition + abduction of the thumb 4. Adductor pollicis (also inserts into the thumb but not part of the thenar ms)
Interossei (4 palmar and 4 dorsal)	**Action:** abduction and adduction of the fingers (except for little finger abduction)
Lumbricals + Interossei	**Action:** MP flexion + IP extension (anti-claw position).

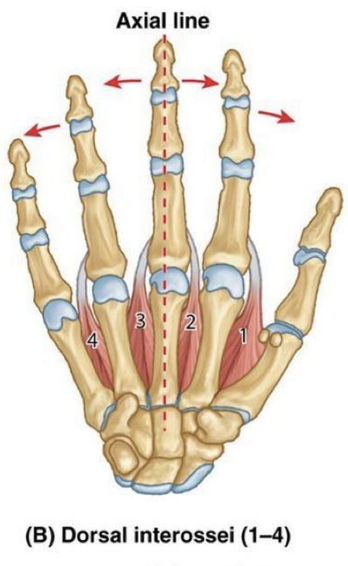
Basics Review EXTRA

Hand:

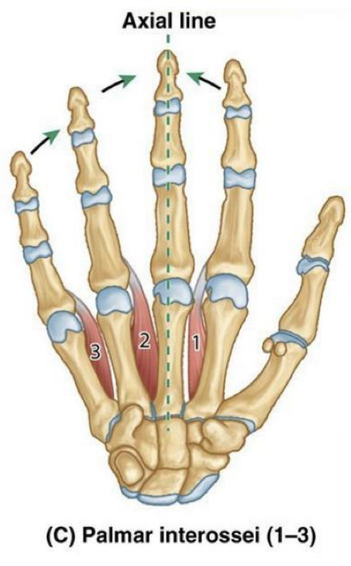




(A) Lumbricals (1–4)



(B) Dorsal interossei (1–4)



(C) Palmar interossei (1–3)

Fingers:

- We have 1 thumb and 4 fingers (from medial to lateral): little, ring, middle, and index. (see image) you have to understand these for when you get a case scenario in the MCQ!
- Note we can say medial & lateral or ulnar (instead of medial) and radial (instead of lateral) side!
- The flexor digitorum superficialis and profundus insert into the middle and distal phalanx, respectively.
- There are 2 main joints involved in movement of the fingers:

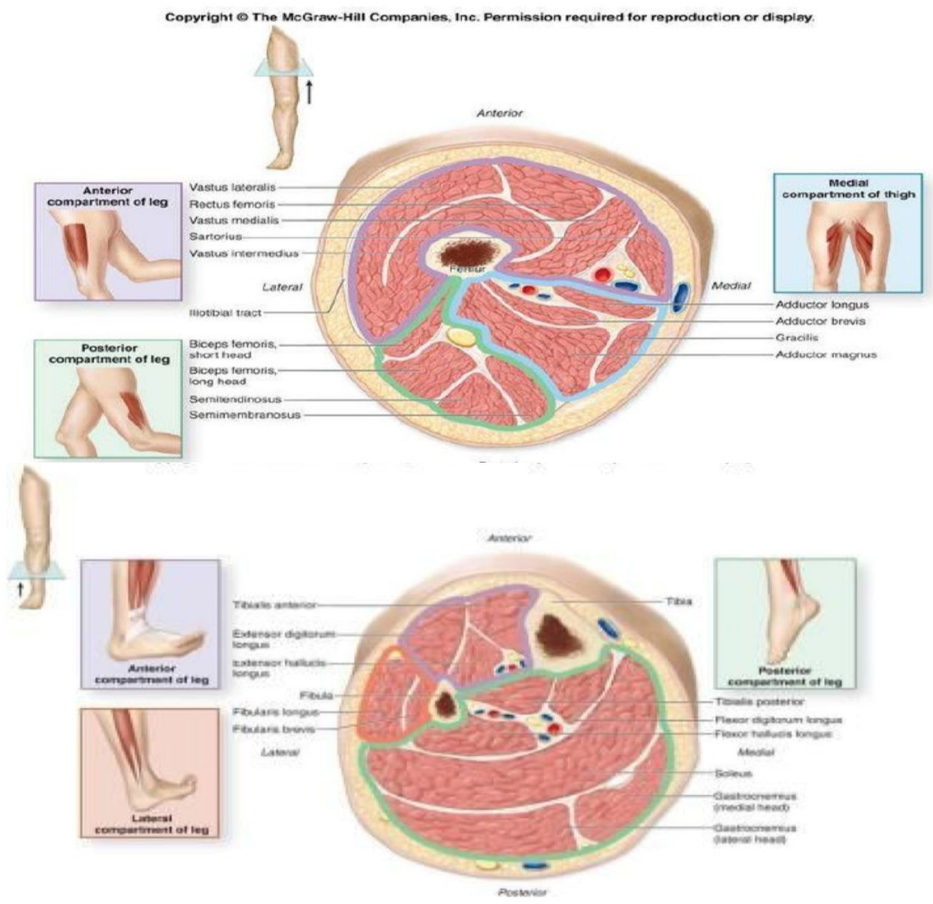
Metacarpophalangeal (MP) joints	Interphalangeal (IP) joints "distal & proximal"
• Extension ⟶ Extensor digitorum (radial nerve). • Flexion ⟶ Interossei and Lumbricals (ulnar and median nerves).	• Extension ⟶ Interossei and Lumbricals (ulnar and median nerves). • Flexion ⟶ flexor digitorum superficialis & profundus (median and ulnar nerves)

Lower limbs

- The lower limb is divided into thigh, leg, and foot.

- The thigh is divided into 3 compartments:
  - Anterior group "knee extension" ⟶ quadriceps
  - Posterior group "knee flexion" ⟶ hamstrings
  - Medial group "adductors"

- The leg is also divided into 3 compartments:
  - Anterior group ⟶ dorsiflexion + inversion
  - Posterior group ⟶ plantarflexion + inversion
  - Lateral group ⟶ eversion



- The main movements of the ankle are: plantar flexion, dorsiflexion, inversion, and eversion.
- **Lesions of the peripheral nerves can be classified as: traumatic, compressive, metabolic (Like diabetes), inflammatory, autoimmune (Like Guillain-Barré Syndrome), neoplastic and genetic.**

- **Upper Limbs Neurological injuries**

1. Brachial Plexus
2. Axillary Nerve
3. Musculocutaneous Nerve
4. Radial Nerve
5. Median Nerve
6. Ulnar Nerve

- **Lower Limbs Neurological injuries**

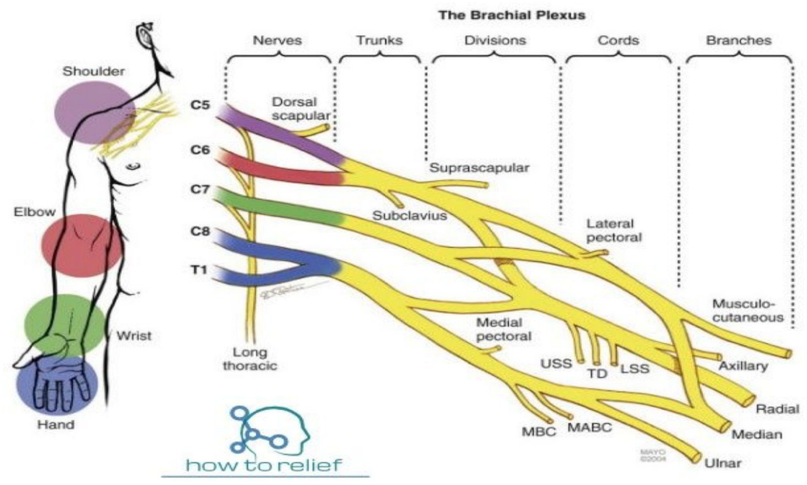
7. Femoral nerve
8. Sciatic nerve

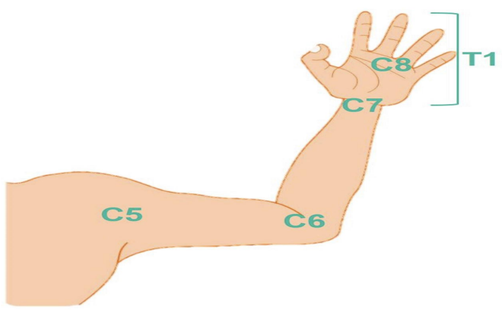
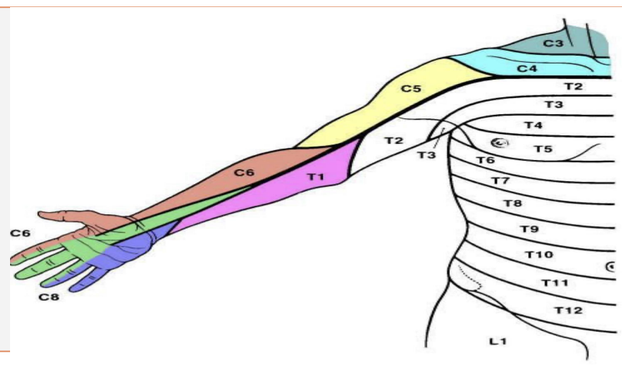
Be careful, whenever you encounter an injury you have to ask yourself Is it a root injury (Like in Brachial or Lumbar plexus) or it's Nerve injury (like Ulnar or Femoral nerves) Bc the manifestations differ

1. Brachial Plexus

ANATOMY:

- Brachial Plexus is formed by the union of anterior rami of 5th,6th,7th,8th cervical and 1st thoracic nerves.
- The parts of the brachial plexus are: roots, trunks, divisions, cords, and terminal branches.
- Roots are examined by examining dermatomes (sensation) and myotomes (movements).



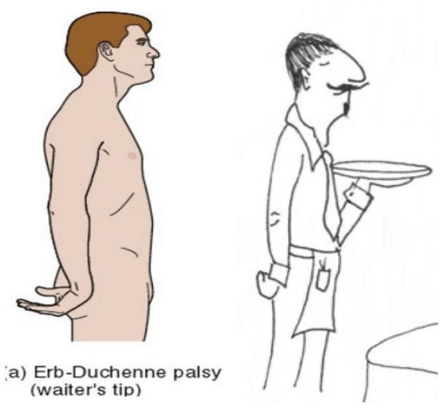
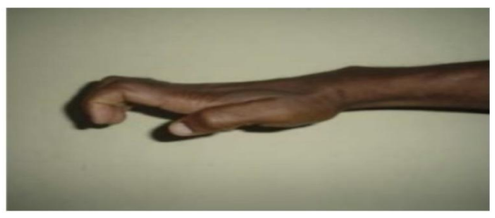
Root	Myotomes Examination (Motor Function)	Dermatomes Examination (Sensory Function)
C5	Shoulder abduction + External Rotation	Shoulder tip + Lateral arm
C6	Elbow Flexion	Lateral forearm + Thumb and index finger.
C7	Wrist extension	Middle finger
C8	Making a fist	Ring and little finger + Lower medial forearm
T1	Finger crossing "intrinsics of the hand"	Upper medial forearm + Entire medial arm
		

INJURIES OF THE BRACHIAL PLEXUS:

	Upper Brachial Plexus Lesion	Lower Brachial Plexus Lesion	Total Palsy
	"Erb-Duchenne Palsy"	"Klumpke's palsy"	
Root injured	C5, C6, C7	C8, T1	All roots C5, C6, C7, C8, T1
Causes	1) difficult delivery 2) a car accident	Trauma (car accident), traction injuries	
Sensory exam (Dermatome)	Loss of sensation over: C5: Shoulder tip + lateral arm. C6: lateral forearm, thumb, index. C7: middle finger.	Loss of sensation over: C8: Ring and little finger + lower medial forearm. T1: Upper medial forearm + medial arm.	Loss of the sensation in the whole limb
Motor exam (Myotome)	Because of injury of each root the opposite action will happen: C5: shoulder adduction + internal rotation. C6: Elbow extension. C7: Wrist flexion. **NO CLAW T1 is intact.**	Shoulder, elbow and wrist are normal. C8: cannot make a fist. T1: cannot cross fingers or use intrinsics.	The patient is unable to move entire limb; flail limb

1. Brachial Plexus

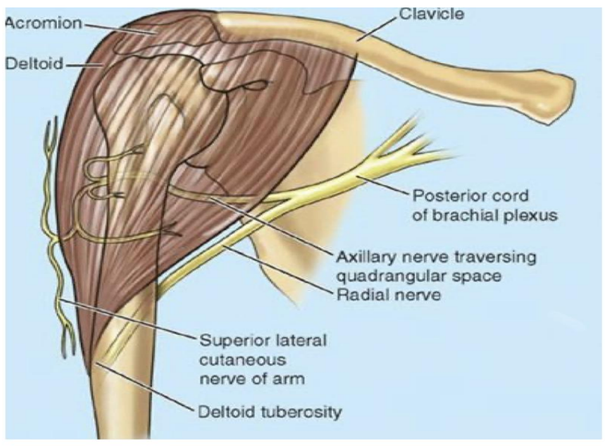
INJURIES OF THE BRACHIAL PLEXUS:

	Upper Brachial Plexus Lesion	Lower Brachial Plexus Lesion	Total Palsy
	"Erb-Duchenne Palsy"	"Klumpke's palsy"	
	Waiter's tip posture. (because shoulder ABDUCTION & EXTERNAL rotation (C5) is lost so, shoulder ADDUCTION & INTERNAL rotation will take place.)	Ape's Hand (No intrinsic hand muscles > (Clawing of all fingers)	
Special sign	 (a) Erb-Duchenne palsy (waiter's tip)	 c) Ape's hand  b) Horner's syndrome	
Associated injuries	• Erb-Duchenne may also be associated with Phrenic nerve injury (C4): because the root of the nerve is close to C4 which is next to C5. • Phrenic nerve injury results in paralysis of hemidiaphragm. • Can klumpke have phrenic nerve injury? NO because it is too far away.	• Klumpke may also be associated with Horner Syndrome (T1): • Sympathetic nerves come to the face from a branch of T1. • If T1 is injured → loss of sympathetic supply to the face on one side "Ipsilateral" and will lead to Horner's syndrome: 1. Ptosis (drooping of upper eyelid) 2. Miosis (Constricted pupil). 3. Anhidrosis (inability to sweat).	Can pts with total palsy develop horner's syndrome or phrenic nerve injury? YES he can develop both or one or none.

2. Axillary Nerve

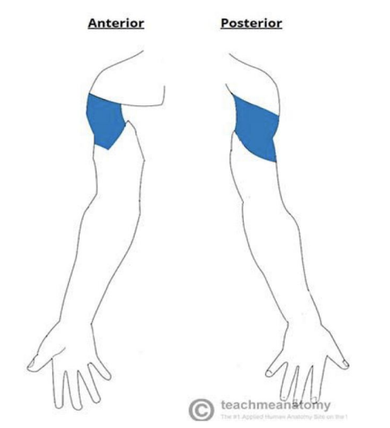
COURSE (EXTRA):

➔ It passes inferolaterally along the posterior wall of the axilla.
➔ Then, it passes posteriorly (through a quadrangular space) and passes around the surgical neck of the humerus.



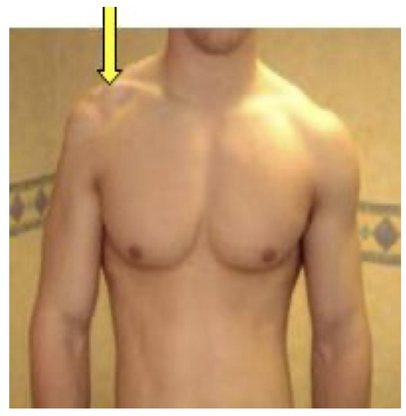
SUPPLY:

- Motor → Deltoid (shoulder abduction) and Teres minor muscle (external rotation)
- Sensory → skin over deltoid & upper lateral part of arm



INJURY:

Cause	Very common due to shoulder surgery, shoulder dislocation, or trauma.
Sensory exam	Loss of sensation over deltoid & lateral upper arm.
Motor exam	Limitation of shoulder **abduction only** (patient can still initiate abduction by supraspinatus)
Special sign	No specific sign

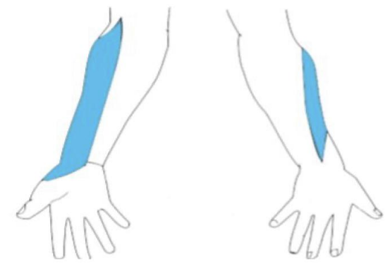


In axillary nerve injury can the pt extremely rotate his shoulder? YES (supraspinatus and infraspinatus are working) while in C5 injury both abduction and external rotation are lost.

3. Musculocutaneous Nerve

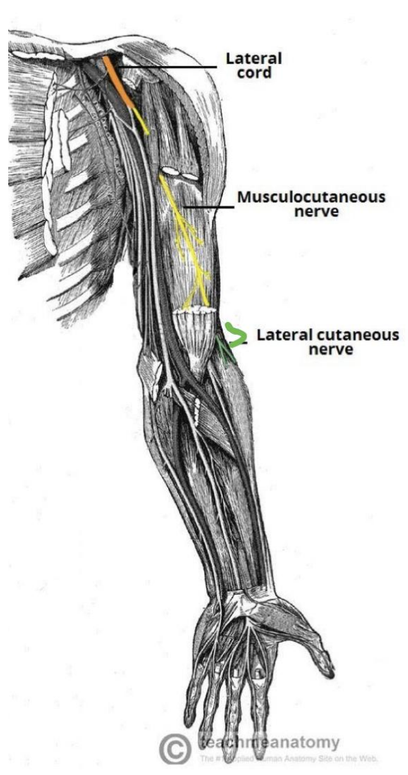
COURSE (EXTRA):

➔ Leaves the axilla → pierces the coracobrachialis muscle. → passes down the flexor compartment of the upper arm.
➔ Then pierces the deep fascia → emerge lateral to biceps tendon and brachioradialis→ continues into the forearm as the lateral cutaneous nerve.
All the brachial plexus branches go to the axilla **except** the musculocutaneous because it must go to the biceps



SUPPLY:

- Motor → biceps, coracobrachialis, and brachialis muscles.
- Sensory → lateral aspect of the forearm.



INJURY:

Cause	Usually injured by **stab wounds near axilla.**
Sensory exam	Loss of sensation over the lateral forearm.
Motor exam	Loss of function of biceps: limitation of felbow exion, and weak supination (b/c supinator can compensate).
Special sign	No specific sign

Keep in mind → in case of musculocutaneous injury only lateral forearm will be lost, while in C6 root: biceps, lateral forearm, thumb & index will be lost.

The most common nerve injured

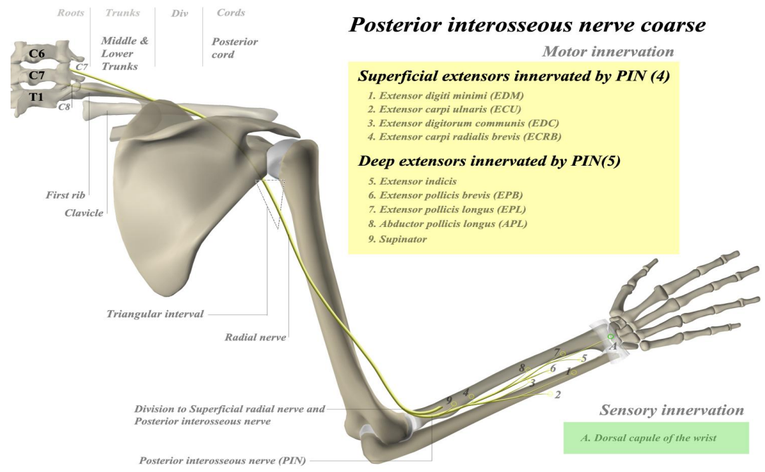
4. Radial Nerve

Radial = Posterior = Extensors

COURSE (EXTRA):

➔ It arises in the axilla, exiting inferiorly ⟶ descends down the arm, wraps around the humerus laterally supplies triceps (elbow extension). ➔ Then goes into spiral (radial) groove of the humerus ⟶ then supplies wrist extensors, then divides into two branches: ○ pure sensory (dorsal 3 ½ fingers) and ○ pure motor around the head of the radius "posterior interosseous nerve" supplies finger and thumb extension.

Extra



SUPPLY: *three motor + one sensory

- Motor ⟶ **all extensors**: elbow extension (triceps brachii), wrist extensors (extensor carpi radialis longus), and finger & thumb extensors.
- Sensory ⟶ most of posterior side of forearm, dorsal lateral side of the palm, and dorsal surface of the lateral 3 ½ digits.

INJURY: can present in one of three ways:

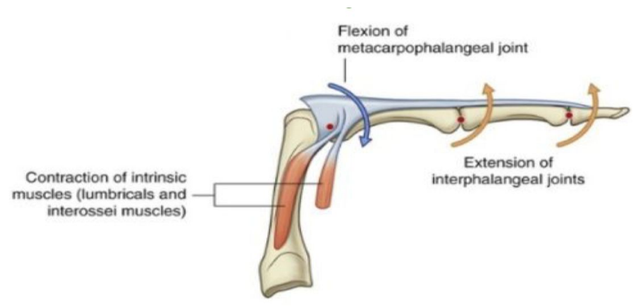
	Scenario 1	Scenario 2	Scenario 3
Cause	Compression of the nerve in axilla leading to "crutch palsy" or "Saturday night palsy" 	Fracture of humerus at the spiral groove (more common) due to RTA. 	"Posterior interosseous nerve injury" very common due to: radial head dislocation, fracture or surgery 
Always put in your mind, anything distal to the injury will be affected & anything proximal to the injury will be intact			
Sensory exam	x Loss of sensation over the dorsal 3 ½ lateral fingers	x Loss of sensation over the dorsal 3 ½ lateral ngers.	✓ Normal sensation, i.e, NO sensory loss
Motor exam	x No elbow extension x No wrist extension = wrist drop. x No thumb or finger extension.	✓ Normal elbow extension x No wrist extension = wrist drop. x No thumb or finger extension.	✓ Normal elbow extension ✓ Normal wrist extension = NO wrist drop. x No thumb or finger extension.
Special sign	Wrist drop with elbow flexion.	Wrist drop with normally extended elbow	

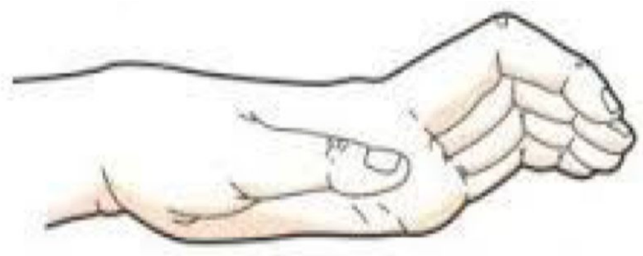
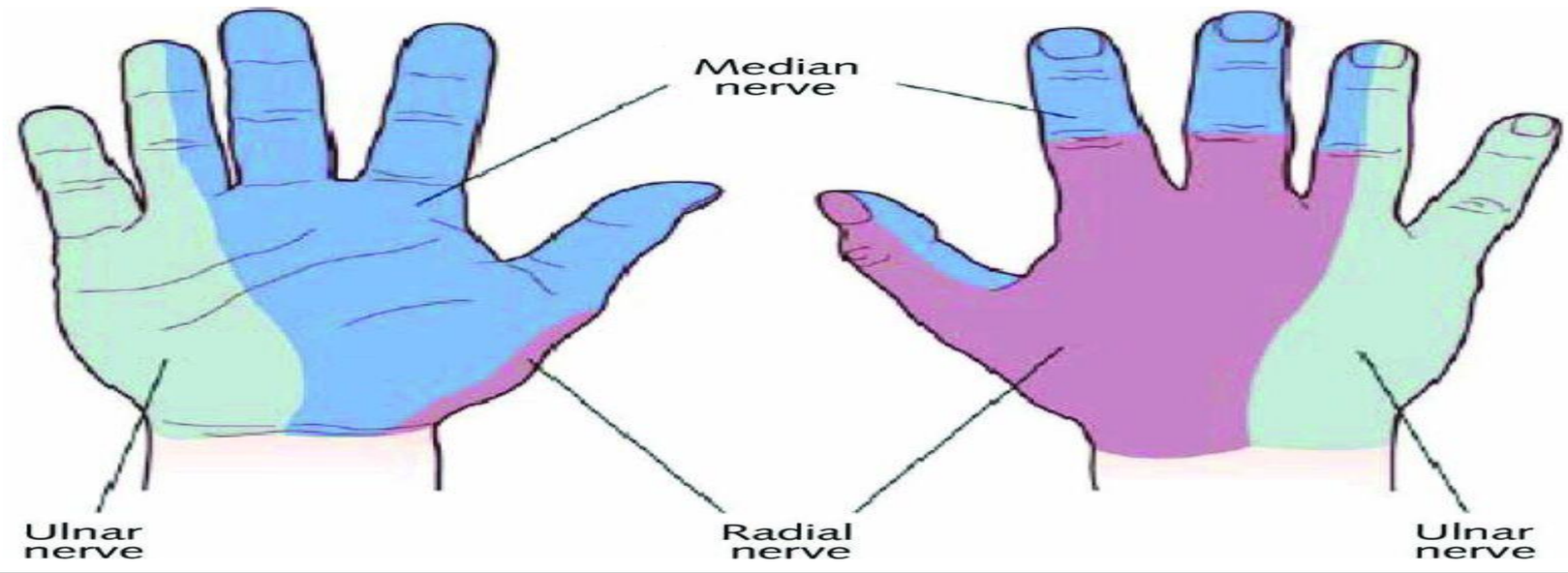
Saturday Night Palsy: Only compression: the nerve is NOT cut! Crutch palsy happens when a pt uses crutches for a long time (more common in KSA) another reason, which is common in the west, is when a person is drunk and falls asleep with his arm leaning over the chair

General Rules:

★ **Posterior and extension → radial nerve, while anterior and flexion → median and ulnar nerves.**
★ **Median nerve is the master of forearm and ulnar nerve is the master of intrinsic hand muscles.**

The median and ulnar nerve are a bit more complex because they overlap so let's review some anatomy before we study each nerve

<table>
<tr><th colspan="2">Nerve</th><th>Median</th><th>Ulnar</th></tr>
<tr><td rowspan="3">Muscle</td><td>Forearm</td><td>• 4 muscles of superficial flexor group (Pronator teres, Palmaris longus, Flexor carpi radialis, Flexor digitorum superficialis)
• 2 ½ muscles of deep flexor group (pronator quadratus, flexor pollicis longus, half "2 lateral heads" of flexor digitorum profundus)</td><td>• 1 muscle of superficial flexor group (Flexor carpi ulnaris)
• ½ a muscle of deep flexor group ("2 medial heads" of flexor digitorum profundus)</td></tr>
<tr><td>Hand</td><td colspan="2">There are 3 groups of muscles in the hand and each group has 2 functions (so 6 functions in total)
• Hypothenar → little finger abduction and opposition.
• Thenar → thumb opposition (تسبيح (and abduction.*
• Interossei & lumbricals:
- together they flex MP joint and extend IP joint which results in anti-claw position (keep in mind when BOTH the lumbricals and interossei are injured the action is reversed so the pt will have extended MP and flexed IP → CLAW HAND)**.
- Interossei only => abduction and adduction of the fingers
 

  </td></tr>
<tr><td colspan="2">• 3 thenar muscles
• 2 lateral lumbricals (middle & index finger)</td><td>• 3 hypothenar muscles
• 2 medial lumbricals (ring & little finger)
• All interossei</td></tr>
<tr><td>Sensory</td><td colspan="3">Palmar (or volar) lateral 3 ½ fingers | Medial 1 ½ fingers (palmar & dorsal)
 
</td></tr>
</table>

* The thumb has a third function: ADDuction but it is not part of the thenar muscle! It is by adductor pollicis which is supplied by the ulnar nerve → When thumb adduction is lost → FROMENT'S SIGN
** VERY VERY IMP TO REMEMBER: To get claw you have to have lose of both Interossei & lumbricals, meaning if you have any finger lost Interossei but intact lumbricals will you get a claw? No!

The doctor mentioned a case about a young give who did a suicidal attempt trying to cut her Radial and Ulnar arteries but instead she cut her Median N. and he asked about the manifestation when the nerve get cut at this level

5- Median Nerve

Anterior interosseous nerve = Median
Posterior interosseous nerve = **R**adial

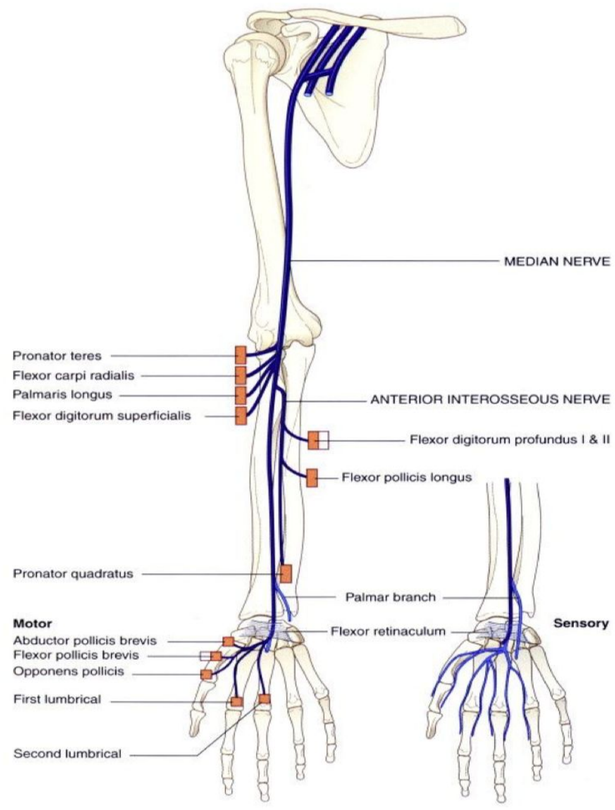
COURSE & SUPPLY:

➔ Originates from brachial plexus in axilla⟶ descends down the arn ⟶ enters anterior compartment of forearm via the cubital fossa and divides into 2 major branches:

- Deep branch "anterior interosseous nerve" which is pure motor and supplies all deep flexors (except half flexor digitorum profundus).
- Superficial branch ⟶ supplies all superficial flexor group (except flexor carpi ulnaris)

➔ Enters the hand via the carpal tunnel and supplies the thenar muscles and lateral 2 lumbricals.

➔ It gives sensory supply to lateral 3 and half fingers on the palma side.



INJURY:

	Injury to the median nerve	Anterior interosseous nerve injury
Cause	At the wrist level: laceration, carpal tunnel syndrome*, suicide attempt (typically in teenager girl)	At the elbow region due to supracondylar fracture of the humerus
Sensory exam	x Loss of lateral 3½ fingers on the palmar side	✓ Normal sensation, i.e, NO sensory loss
Motor exam	x Loss of thumb opposition and abduction. x Loss of radial 2 lumbricals BUT NO CLAW because interossei muscles are intact.	X Loss of deep 2 and half muscles (half of flexor digitorum profundus, flexor pollicis longus and pronator quadratus) BUT pronation is not lost because of pronator teres)
Special sign	No specific sign.	"Can not make a perfect O ⟶ "O sign" 

*Median nerve enters forearm through the carpal tunnel, this is very common sight of compression

Carpal Tunnel Syndrome is very important in OSCE exam.

- Risk factors: Patients with myxedema (and anything that causes swelling), hypothyroidism, pregnancy (swelling), diabetes (the most common, diabetic patients have a larger median nerve), hematoma, fractures, rheumatoid arthritis (or any form of arthritis because they get synovitis and when the synovium of flexor tendons is bigger the space will be limited so that compress on the nerve) and trauma.
- Symptoms: Numbness & pain in the median nerve area which is three & a half fingers (thumb, index, middle, ring). Worse at night (Bc when we sleep we turn into the fetal position); they frequently wake up at night shaking their hand to relieve the numbness because when most people sleep in fetal position (flexed knee, back. Elbow and wrist) which will increase the pressure.
- Signs: Tinel's Sign (Tapping over the nerve in the carpal tunnel may elicit paraesthesia in the median nerve distribution), Phalen's test (acutely flexing the wrist and holding it in this position ⟶ precipitate paraesthesia or numbness and is abnormal if it occurs within one minute).
- Investigation: nerve conduction study
- Management: Splinting the wrist or injections of steroid into the carpal tunnel provide relief in a third of cases. If this fails, the transverse carpal ligament can be divided surgically, and in many cases this can be performed as a day case under local anaesthetic. ⟶ We cut the ligament that forms the roof of the tunnel. This increases the size of the tunnel and decreases pressure on the median nerve.

6- Ulnar Nerve

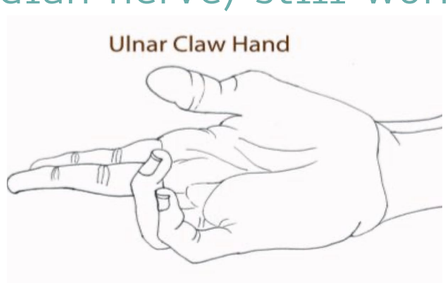
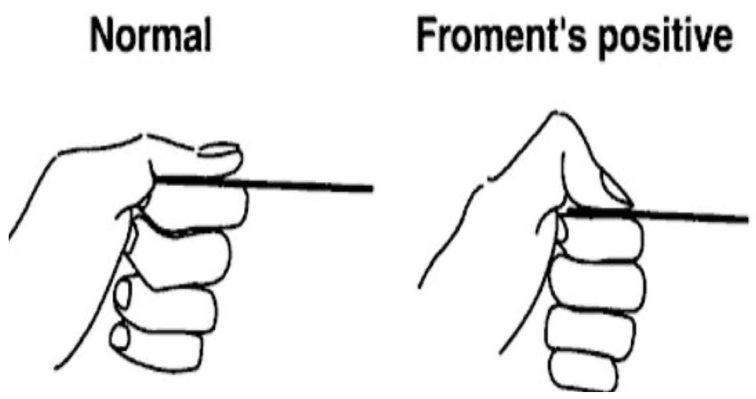
COURSE (EXTRA):

➔ The ulnar nerve descends down the medial aspect of the upper arm. At the elbow, the ulnar nerve is palpable and vulnerable to injury at the medial epicondyle.
➔ The nerve travels down the forearm and at the wrist, the ulnar nerve travels superficially to the flexor retinaculum, and enters the hand via the ulnar canal.v

SUPPLY:

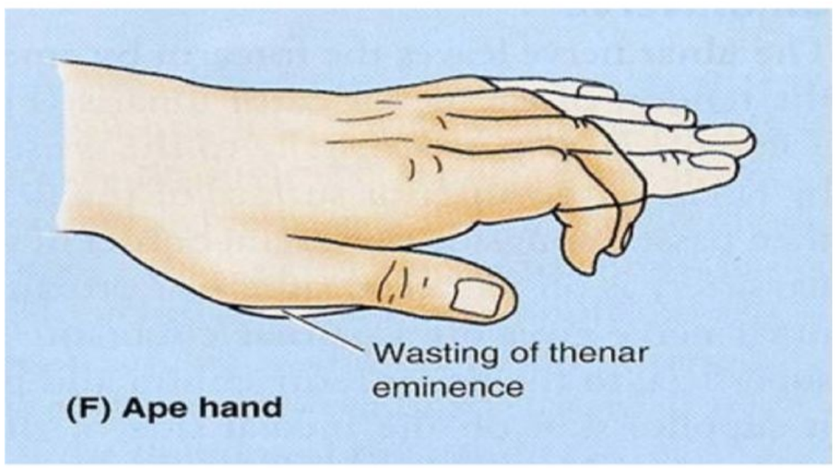
- Motor:
  - Forearm: flexor carpi ulnaris (superficial), and medial half of flexor digitorum profundus (deep).
  - Hand: medial 2 lumbricals + all interossei + hypothenar + adductor pollicis.
- Sensory ⟶ medial 1 and a half fingers (both palmar and dorsal surface).

INJURY:

	At the elbow level	At the wrist
Cause	e.g. isolated medial epicondyle dislocation or fracture, or compression by aponeurosis	Lacerations to the anterior wrist.
Sensory exam	x Loss of sensation in medial 1 ½ fingers (front and back) palmar and dorsal.	
Motor exam	x Loss of flexor carpi ulnaris and half of flexor digitorum profundus (Loss of flexion of ring and little finger) x Loss (+atrophy) of hypothenar ms (cannot oppose or abduct little finger) x Loss interossei and medial 2 lumbricals ⟶ cannot adduct or abduct fingers.	✓ Normal flexor carpi ulnaris and half of flexor digitorum profundus x Loss of hypothenar ms (cannot oppose or abduct little finger) x Loss interossei and medial 2 lumbricals ⟶ cannot adduct or abduct fingers. x Loss adductor pollicis ⟶ cannot adduct thumb = froment's sign.
Special sign	"Ulnar claw hand" Pt will NOT have complete claw because there are 2 lumbricals (innervated by the median nerve) still working. 	Froment's sign. 

Median and Ulnar Nerve Injury At The Wrist :

- Loss of all intrinsic hand muscles
- Loss of sensation (except radial nerve distribution)
- Clawing of ALL FINGERS = Ape hand (simian hand)



Lower limbs nerves injuries are much less common than upper limbs
Why? Bc they are well protected by the muscles except the Common peroneal nerve it's superficial

7. Femoral Nerve

COURSE (EXTRA):

➔ It arises from the lumbar plexus and passes underneath the inguinal ligament to enter the femoral triangle.
➔ The terminal branch of the femoral nerve is the saphenous nerve

SUPPLY:

- Motor ⟶ Quadriceps (responsible for knee extension)
- Sensory ⟶ anteromedial thigh and medial side of leg and foot.

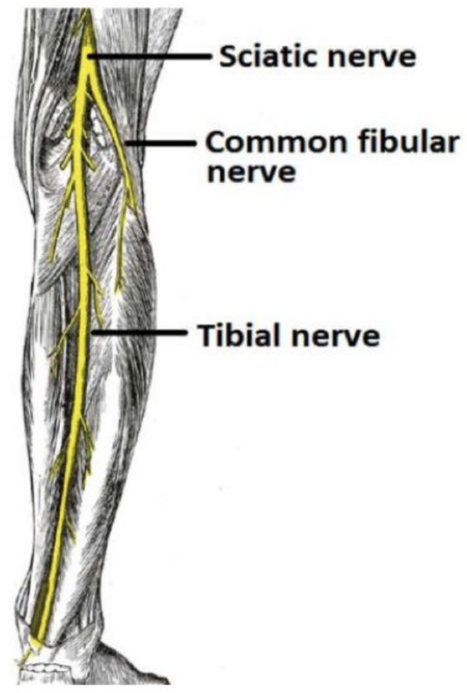
INJURY:

Cause	Femoral nerve injury is related to psoas muscle, so in case of psoas abscess, we may cut the nerve while draining the pus.
Sensory exam	x Loss of sensation in anterior thigh and inner thigh.
Motor exam	x Loss of quadriceps muscles "knee extension" ⟶ patient can't walk

8. Sciatic Nerve

COURSE:

➔ The sciatic nerve is the main nerve of the lower limb and is in fact the largest nerve in the body.
➔ It emerges from the lumbosacral plexus, travels in the posterior thigh, then when reaches the popliteal fossa & divides into tibial and common peroneal nerves.
➔ The common peroneal (also called common fibular nerve) then divides into superficial and deep peroneal "also called anterior tibial"



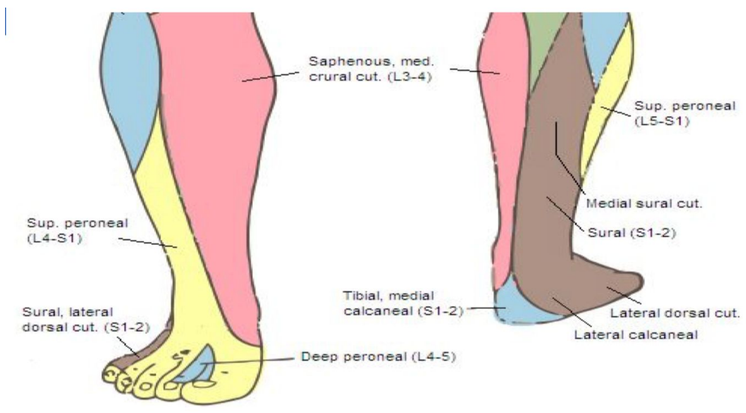
SUPPLY (EXTRA):

Nerve	Sciatic "directly"	"Posterior" Tibial	Common peroneal	
			Superficial peroneal	Deep peroneal "anterior tibial"
Motor supply	Posterior thigh compartment	Posterior leg compartment + some intrinsic foot muscles	Anterior leg compartment + lateral leg compartment + remaining intrinsic foot muscles.	
Sensory supply	-	Sole of foot + posterolateral and anterolateral leg	Lateral leg	
			Dorsum of foot except first web	First web on dorsum of foot

8. Sciatic Nerve Cont.

INJURY:

	Complete sciatic nerve injury	Posterior tibial nerve injury	Common fibular (Peroneal) nerve injury
Cause	Commonly injured in two cases: Posterior dislocation of the hip & gluteal injections.	Rarely injured alone behind the medial malleolus	It is the most common injury of the nerve in the lower limb. It is very superficial at the neck of fibula. So, any injury or fracture there, will affect the nerve
Sensory exam	x Loss of sensation in all of foot and foot (except area supplied by femoral)	✓ Normal sensation of dorsal foot. x Loss of sensation in sole of foot	x Loss of sensation of dorsal foot. ✓ Normal sensation in sole of foot
Motor exam	x Loss of knee flexion (hamstrings) x Loss of all foot movements.	✓ Normal knee flexion x Loss of ankle flexion (plantar flexion) and toe flexion. ✓ Normal ankle and toe extension.	✓ Normal knee flexion. ✓ Normal ankle and toe flexion. x Loss of ankle extension (dorsiflexion) and toe extension.
Special Sign	Stamping gait + foot drop	Clawing of the toes	Drop foot

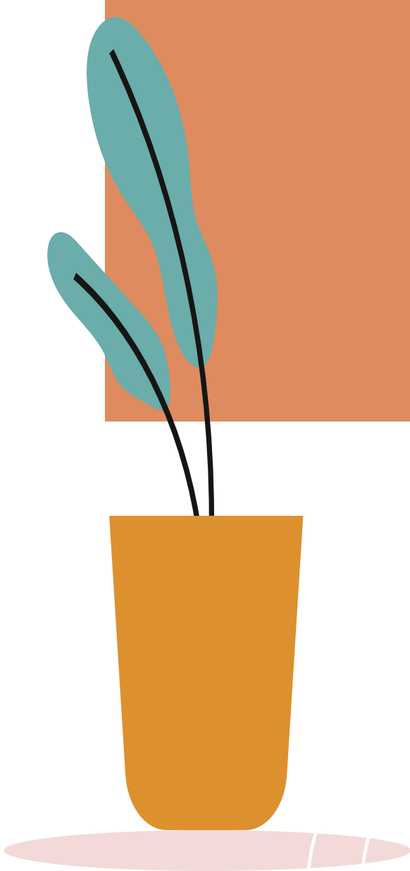


Quick review (questions mentioned by the doctor in the lecture):

- ★ The patient who had shoulder dislocation. Examination showed loss of shoulder abduction & loss of sensation of the lateral part of the arm. What nerve is this? Axillary
- ★ Somebody tried to kill himself by slashing his wrist, he cut both the median nerve and ulnar nerve. What will he have? Sensory loss; 1 ½ for ulnar and 3 ½ for median. Motor EXAMINATION; Thenar (loss of thumb opposition and abduction remember: he will also lose thumb adduction because the ulnar is injured) hypothenar (loss of abduction and opposition of little) lumbrical and interossei (he will have claw of all fingers)
- ★ Patient with waiters tip name the lesion? Erb-duchenne. What are the roots involved? C5 C6 C7.
- ★ A patient was stabbed in the axilla which nerve is most likely affected? Musculocutaneous.
- ★ A patient has fracture of the head of radius, which nerve is affected? Posterior interosseous (branch of radial nerve). What are the manifestations? MOTOR: loss of finger and thumb extension and NO sensory loss.
- ★ What is the most commonly injured nerve in the lower limb? Common peroneal nerve. How is it injured? Neck of fibula fracture. What is the manifestation? Loss of sensation in dorsum of the foot and foot drop.

Summary

Nerve	Lesion
Upper brachial plexus “Erb’s duchenne”	Waiter’s tip + phrenic nerve injury
Lower brachial plexus “klumpke’s palsy”	Ape’s hand + horner syndrome
Axillary	Loss of deltoid
Musculocutaneous	No elbow flexion
Radial (saturday night)	Wrist drop + elbow flexion
Radial (humerus fracture)	Wrist drop + normal elbow extension
Median (ant. interosseous)	Can’t make O sign
Ulnar (at elbow)	Claw hand
Ulnar (at wrist)	Froment’s sign
Median + ulnar (at wrist)	Ape’s hand
Femoral	Can’t extend knees
Sciatic	Can’t flex knees
Common peroneal	Foot drop



Quiz

1- Erb's palsy:
A. C5 and C6
B. C7 alone
C. C8 and T1
D. total palsy

2- the abductor pollicis longus muscle is supplied by:
A. median nerve
B. Ulnar nerve
C. Anterior interosseous nerve
D. Radial nerve

3-A 40-year old male comes to the clinic with history of weakness in the hand, inability to adduct and abduct the fingers and loss of sensation on the little and part of the ring fingers. Which of the following muscles will most likely show evidence of wasting?
A. Thenar
B. First lumbrical
C. First dorsal interossei
D. Abductor pollicis brevis

4- klumpke's palsy has all the following characteristics except:

A. Can result from motorcycle injury
B. Anhidrosis
C. Loss of dermatomes
D. Phrenic nerve palsy

5- a patient with posterior interosseous nerve palsy:

A. Unable to extend his wrist
B. Can extend the IPJs of the fingers
C. Can extend the MPJs of the fingers
D. None of the above

6- lateral cutaneous nerve of the forearm is a branch of which nerve:

A. Axillary
B. Radial
C. Musculocutaneous
D. Ulnar

7- in a patient with anterior interosseous nerve palsy, what is false:

A. Can pronate the forearm
B. Can flex the PIP of the index
C. Have a positive O sign
D. Can flex the IPJ of the thumb

1 - A
2 - D
3 - C
4 - D
5 - B
6 - C
7 - D