



433 Teams

ORTHOPEDICS

OSCE

Peripheral Nerve Examination

Learning Objectives:

By the end of the teaching session, Students should be able to identify normality and abnormality by of the peripheral nerve by performing a proper physical examination.

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- 1- Introduce yourself to the patient.
- 2- Confirm identity of the patient.
- 3- Explain and Obtain permission.
- 4- Wash your hands and Ensure privacy.
- 5- Exposure: chest and arms, from umbilicus downward.
- 6- Position: standing\sitting

- Follow same rule with U.L and L.L:

Look	Scars, ecchymosis, Muscle wasting/atrophy, dry cold skin, loss of hair, deformities. “Observe from front and behind”
Feel	Temperature, tenderness, Dermatome (pinprick\fine touch: Ask the patient to close his eyes and tell you if he felt your fine touch). “Check the dermatome next page”
Move	Active, Passive (motor power test against gravity and resistance). “Check the myotome next page”
Special test	Pulse, Capillary refill, Allen test “radial and ulnar arteries”

1st: Upper Limbs C4-T2

	Radial .n (C5-T1)	Median .n (C5-T1)	Ulnar .n (C8-T1)
Sensory	Lateral 3 ½ dorsum of the hand. 1 st web space	3 1\2 lateral palm of the hand. “test volar aspect of index finger”	Medial 1 ½ fingers. “test volar aspect of little finger”
Motor	Wrist Dorsiflexion. Metacarpal joints extension.	Thumb Opposition “thumb to little finger” Thumb Abduction.	Hypothenar muscles. Abduction& Abduction of the fingers.
Defect	Wrist Drop Loss of sensory of dorsum of the hand and muscle wasting.	Ape hand. Weak OK sign. Loss of sensory. Thenar muscle wasting.	Claw hand. Forment’s sign. Hypothenar muscle wasting

Note: Radial .n injury differ according to:

- **Injury above the elbow/bifurcation** > Complete wrist drop and fingers extension.
- **Injury below the elbow “posterior interosseal .n”** > Weak wrist dorsiflexion and unable to extend the fingers.

Reflexes:

- **Brachialis “Biceps”:** C5 C6 elbow flexion
- **Brachioradialis:** C6

Triceps: C7: elbow extension

o Examine the **Median nerve** by:



1- look :

- Redness , scars
- Deformity: Ape hand deformity

2- feel (sensory) :

Ask the patient to close his eyes and tell you if he felt your fine touch in:

The volar aspect of index finger .

3-move (motor) :

Ask the patient to do the following :

Thumb opposition to little finger (not to index for OK sign)

4-power (test the power of opposition by asking him to resist your attempt to

o Examine the **Ulnar nerve** by:

1- look :

- Redness , scars.
- Muscles wasting : hypothenar muscle.
- Deformities : claw hand.

2- feel (sensory) :

Ask the patient to close his eyes and tell you if he felt your fine touch in:

☐ The volar aspect of little finger .

3- move (motor) :

☐ Fingers abduction.

4-power (test the power of abduction by asking him to resist your attempt to adduct his fingers) .

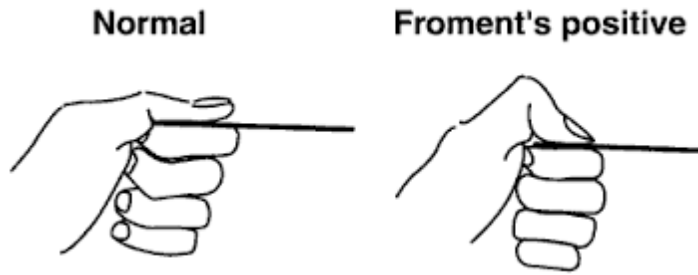
5- special test :

Forment's sign

Ask the patient to hold a paper firmly between their thumb and index then you try to pull the paper , normally he will be able to maintain a hold on the paper without having to flex his thumb .

However, with ulnar nerve palsy, the patient will experience difficulty maintaining a hold and will compensate by flexing the (flexor pollicis longus) of the thumb to maintain grip pressure causing a pinching effect.

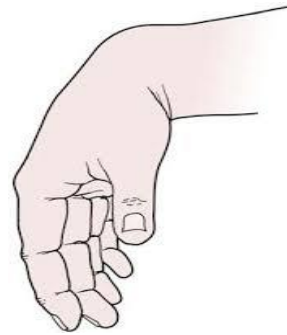




- Examine the [Radial nerve](#):

1- look :

- Redness , scars.
- Muscles wasting .
- Drop rest sign.



2- feel (sensory) :

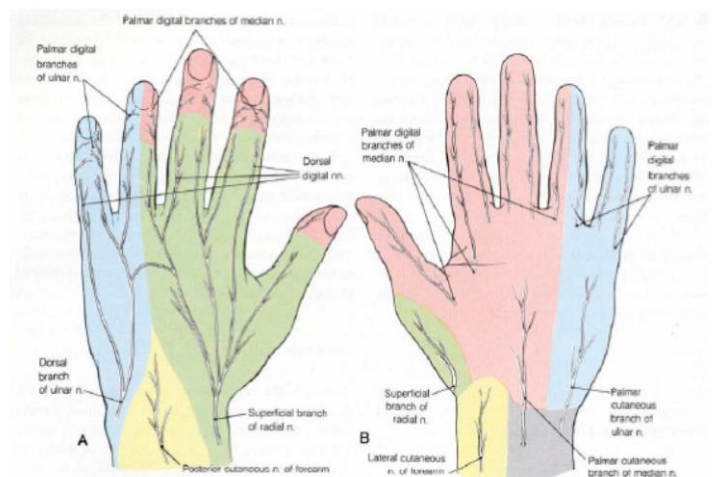
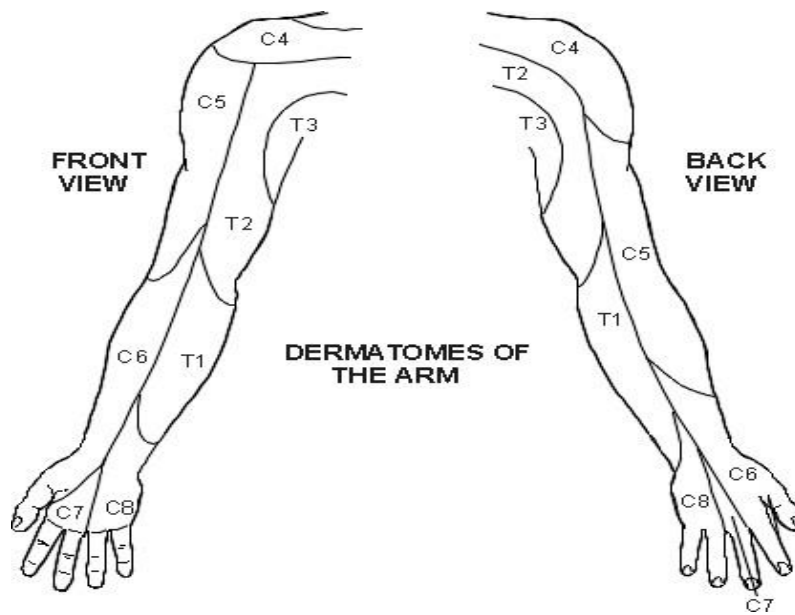
Ask the patient to close his eyes and tell you if he felt your fine touch in:
 The dorsal aspect of the first web-space .

3- move (motor) :

Wrist extension + metacarpal joint extension.

- 4- power** (test the power of extension by asking him to resist your attempt to flex his wrist).

Dermatome:



- Ulnar n.
- Radial n.
- Median n.

3-110 The cutaneous innervation of the dorsal (A) and palmar (B) surfaces of the hand.

Upper Limb Myotomes

Shoulder abduction	C5
Elbow Flexion	C5,6
Elbow Extension	C7
Wrist Extension	C7
Wrist Flexion	C8
Finger Extension	C7
Finger Flexion	C8
Finger Abduction	T1



Let the patient perform the active movement. In case of weakness or pain. Do them passively against resistance
 "Motor power test out of 5":

- 0: no strength at all
- 1: very minimal movement.
- 2: you can see it clearly
- 3: can lift against gravity
- 4: against gravity + added weight
- 5: complete strength

2nd Lower Limbs:

	Femoral .n (L2-L4)	Sciatic .n (L4-5 & S1-2)
look	<ul style="list-style-type: none"> Redness , scars Muscles wasting : quadriceps muscles. 	
Sensory	Medial compartment of the Legs and feet “saphenous .n”	Posterior compartment of thighs, legs and sole of the feet
Motor	Knee extension	Hip extension Feet Dorsiflexion feet planter flex
power	asking him to resist your attempt to flex the knee.	asking him to resist motor movement
Defect	Unable to extend the knees Absent Tendon Knee reflex. Muscle wasting of quadriceps femoris.	Difficult walking on tip toes

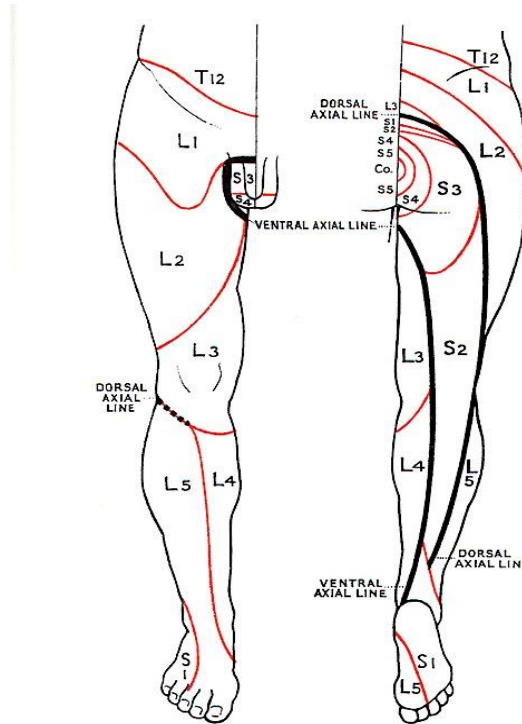


	Common Peroneal .n	Tibial .n
look	<ul style="list-style-type: none"> Redness , scars Muscles wasting :Anterior leg muscles Deformities : Drop foot = common peroneal nerve 	<ul style="list-style-type: none"> Redness , scars Muscles wasting :Calf muscles Deformities
Sensory	Dorsum of the feet.	Sole of the feet.
Motor	Ankle Dorsiflexion. (Anterolateral muscles of the legs).	Ankle Planter flexes: tip toes walking. (Calf muscles)
power	resist your attempt to push his ankle down (bring it back to neutral position)	resist your attempt to push his ankle up ,bring it back to neutral position
Defect	<ul style="list-style-type: none"> Muscles wasting of Anteolateral compartment of the legs. Foot drop. Loss of sensory over dorsum of feet. 	<ul style="list-style-type: none"> Muscles wasting of posterior compartment of the legs. Loss of sensory over sole of the foot. Absent Achilles tendon reflex.

Reflexes:

- **Tendon Knee jerk:** L3 L4 slight knee extension
- **Achilles Tendon:** S1 slight Planter flex of feet

Dermatome:



Myotome:

Lower Limb Myotomes

Hip Flexion	L1,2
Hip Extension	L5, S1
Knee Flexion	L5, S1
Knee Extension	L3,4
Ankle Dorsiflexion	L4
Ankle Plantarflexion	S1,2
1 st Metatarsal Extension	L5

✓ Lastly conclude your assessment with **vascular examination:**

1. **Look:** Thin, shiny, hairless skin. Ulcers. Pallor.
2. **Feel:** temperature.
3. **Special tests:**
 Capillary refill (normal is <2 seconds).
 Pulses: posterior tibialis and dorsalis pedis. And radial pulse of U.L.

Done By:

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References:	432 - 431 teamwork Doctor's notes

