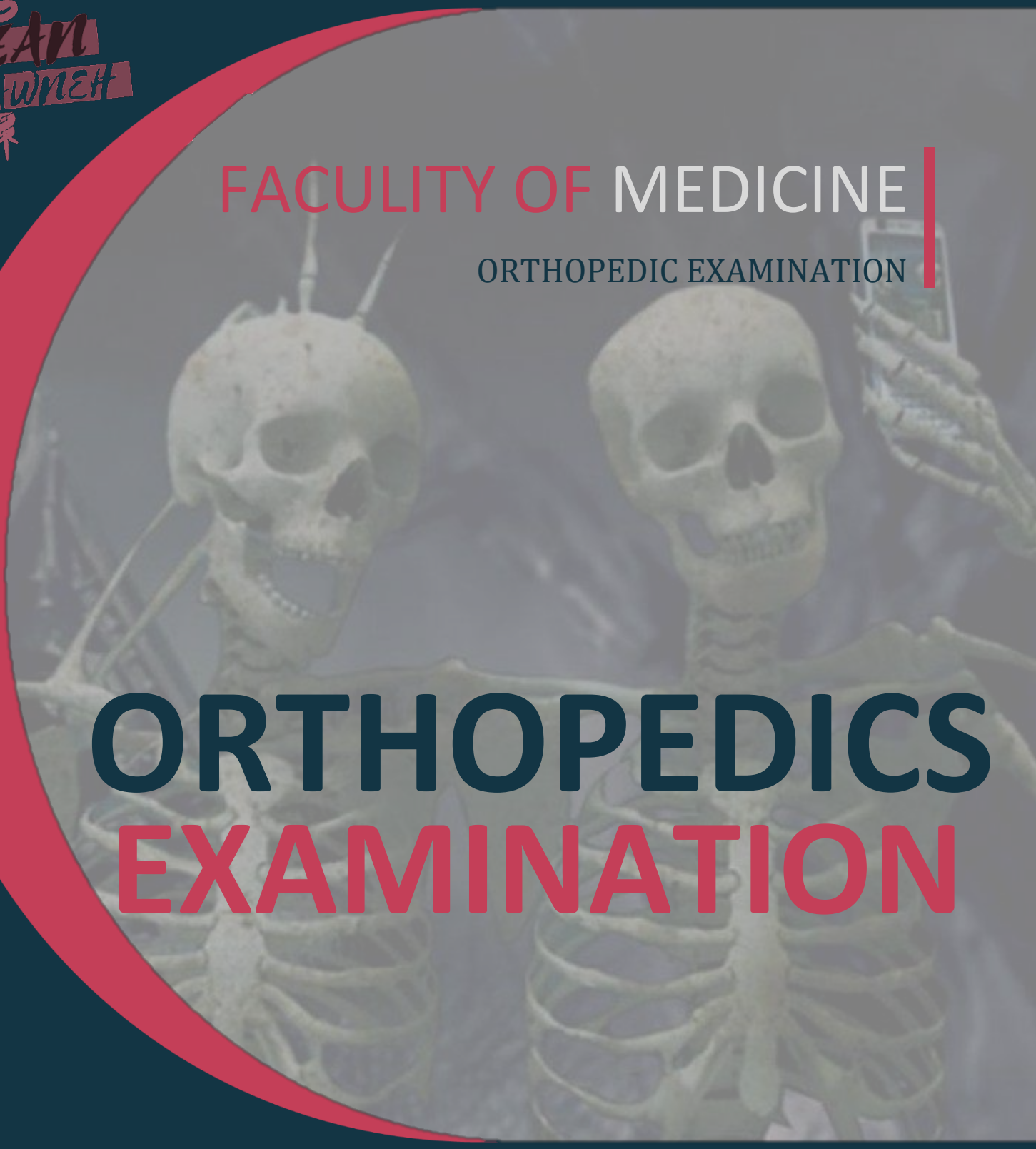
YAZAN ALAWNEH

FACULITY OF MEDICINE

ORTHOPEDIC EXAMINATION



ORTHOPEDICS EXAMINATION

DONE BY:

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Orthopedics – Examination

Contents

Shoulder Examination

Shoulder Examination Video: https://youtu.be/HtLxvrJcYLM

At Start		• Introduce yourself and hand hygiene. • Permission and chaperon. • Wash hands. • Proper Exposure: Above umbilicus. • Sequence: Look, Feel, Move, Special Tests.
Inspection	*In General*	• You must look from the *anterior*, *lateral*, *posterior* aspect and from *above.* • On ***each side*** look for: a. Scars, skin discoloration/changes b. Deformities: (Asymmetry, Scoliosis, Arthritis, Trauma & Clavicle Deformities). mass, dislocation, fracture c. Muscle Wasting: a. Deltoid: due to axillary nerve injury – Lateral view. b. Supraspinatus OR infraspinatus: prominent scapula – Posterior view.
	Lateral	• Alignment of the shoulder girdle. • Deltoid wasting.
	Posterior	• Ask the pt to look to the wall and inspect him from behind. • Scapula ~~S~~winging: due to long thoracic nerve injury. • Inspect if the scapula is prominent: supraspinatus injury/infraspinatous injury
	Above	• Swelling of the shoulder. • Clavicle deformities. • Asymmetry of the supraclavicular fossa.
Palpation	*Temperature*	• From medial to lateral.
	Palpation	• From medial to lateral following the anatomical position: 1. Sternoclavicular joint. (check for tenderness, crepitus, masses, if one side more prominent than the other indicates dislocation on OA) 2. Clavicle. (check for tenderness/prominence) 3. Acromioclavicular joint: from anterior to posterior "to check for tenderness or swelling" (same) 4. Acromion. 5. Coracoid process "Short head of biceps". 6. Head of humerus, shaft and the greater tuberosity via the axilla.

		7. Spine of the scapula. L / above / below it for any abnormal structure 8. Palpate the muscle tendons: a. Supraspinatus: extend the ~~arm~~ shoulder and palpate (tendon) (check for tenderness) anteriolaterally in the subacromial area. b. Long head of biceps: roll over the lateral side between the greater and lesser tuberosities "feels like a cord". (check for tenderness or if it moves from it's place) (ext rot shoulder w/o abd)
Movement " Always start with the active then passive movement"	*Flexion*	Normal range from 0° to ~~150° – 170°~~. 180°
	Extension	Normal range from 0° to ~~40° – 60°~~. 50 - 70°
	Abduction	• Normal range from 0° to 160°-180° & consist of 3 phases: 1. 0° – 60° by glenohumeral joint. 2. 60° – 120° by glenohumeral joint & scapulothoracic joint. 3. 120° – 180° by scapulothoracic joint (scapula goes up). • Note: Initiation and maintaining by supraspinatus (around 15° of abduction), The remaining is done by the deltoid.
	Adduction	Normal range from 0° – 40°. 45°
	External Rotation	Normal range from 0° – 70°. (best tested w elbow fix 90°)
	Internal Rotation	Normal if the patient can place his hand behind his back.
	Circumduction	All movements.

Special Tests	**Impingement Tests**		
	1	*Painful arch* "actively" https://youtu.be/engHP9OA92U (impingement sign)	• Abduction from 60° – 120°, Due to rotator cuff syndrome. (supraspinatus tendinitis) • Ask the patient to abduct his arm then ask him if there is any pain and at any angle exactly, then ask him to complete the abduction, also know at any angle the pain disappears exactly. • If the pain is between 60° - 120° then it is sign of rotator cuff syndrome.
1. Stabilize the scapula 2. Grasp forearm 3. Arm int rot & thumb down 4. Fix the shoulder over head 5. +ve pain	2	① Kennedy hawkins ② Neer's *Impingement sign*	• Empty can sign. (Neer) (shoulder 90° abduction, slight internal rotation) (+ elbow flx to make it easier) • Impingement position is flexion, abduction & internal rotation. • Put the arm of the patient in impingement position, in this position supraspinatus is in the narrowest position. If there is pain, then the patient has supraspinatus tendinitis. (pain relieved by ext rot)
	3	*Impingement test*	• Apply local anesthesia inside shoulder joint then do impingement position. (intra articular)

↳ if pain relieved then supraspinatus tendinitis
↳ if pain not relieved AC joint arthritis or cervical spine abnormality

		• If there is pain then there is an Acromioclavicular joint problem. E.g. Arthritis, If there is no pain then there is a supraspinatus tendinitis.
4	*External rotation against resistance* "infraspinatus tendinitus" & teres minor tendinitis	• Elbow flexed at 90°, Shoulder flexed at 30° • Ask the patient to externally rotate his shoulder while you apply light resistance. • If there is pain then there is an Infraspinatus / teres minor tendinitis. • If there is loss of power then there is a Torn Infraspinatus / teres minor tendon.
5	*Lift off test* → "Subscapularis tendinitis"	• Ask the patient to put the dorsum of his hand on their lower back then apply light resistant against his hand (by your finger) and ask him to move it away from his back. +ve → pain • If he is unable to do this, then there is a damage in the subscapularis muscle.
6	*Stress lift off test*	• Ask the pt to put his hand in the position of "Lift off test" but apply pressure against his hand, If there is pain then it's subscapularis tendinitis. "w resistance"
	"rotator cuff tear" *Drop arm sign* https://youtu.be/JXqRBeqToik	• Do passive abduction to the patient then at 90° of abduction ask the patient to stay in this position by holding his hand. •If his arm dropped then there is a Supraspinatus complete tear.
	Stability Tests	
1	*Apprehensive test* repeat dislocation moves https://youtu.be/hy7zgoEsbzQ	• In setting or supine position, do abduction, extension & external rotation to the patients' arm. • the test is positive when If the patient is afraid, had a vasovagal attack or resist you.
2	if +ve do this *Relocation test* https://youtu.be/YX1uJhjhwWg	• In setting or supine position do the apprehensive test but with your hand fixing his shoulder joint from front. • If the fear disappears & the patient is stable then the test is positive supporting apprehensive test.
3	if -ve do this *Fulcrum test*	• Used if the apprehensive test is negative. • In Supine position, do abduction and extension of the patient arm, with your hand being at the back of the shoulder joint.

infraspinatus (add + ext rot)

teres minor (abd + ext rot)

• partial or total?
1. inj anesthetic
2. Ask to actively abd
3. if no abd → complete
if active abd → partial

abd
ext
ext rot

		• If you feel that the head of the humerus coming out more than normal then the test is positive.
4	*Anterior drawer test* https://youtu.be/XVebMNqLEGE	• Do abduction, stabilize the shoulder of the patient by putting your hand on Acromion process, then by your other hand move the head of the humerus anteriorly and posteriorly. • If there is prominent movement of the head then there is Instability – multidirectional instability.
5	*Sulcus sign* https://youtu.be/vV7u2JtdYWI	• In Standing position, hold the hand of the patient and push it down, then feel the subacromial space. • If the space is increased then the test is positive.
6	*Scarf sign* https://youtu.be/0yGCRQpE2sw	• Ask the patient to put his hand on the other shoulder, put your hand on his elbow and push his elbow (Passive adduction of the shoulder). • If there is pain then there is an acromioclavicular joint pathology. E.g. Arthritis.
Examination of the bicep's tendinitis		
1	*Speed's test* https://youtu.be/gbG_O9Gv8aQ	• Ask the patient to flex his shoulder to 90°, fully extend his elbow & supine his forearm, then apply resistant on his hand and ask him to ask him to flex his shoulder. • If there is pain then the test is positive test and the patient has biceps tendinitis.
2	*Yergason test* https://www.youtube.com/watch?v=_Cjahul5yuI	• Ask the patient to flex his elbow to 90° near his trunk in pronation position of the hand (To avoid external rotation of the shoulder), then ask him to supinate his hand against resistance. • If there is pain then the test is positive.

Elbow Examination

stability
→ tendinitis
→ ulnar n

Elbow Examination Video – Scientific Team: https://youtu.be/kv0d_PfTrwc
Elbow Examination Video – Geeky Medics: https://youtu.be/_Hy3t2Y9HUM

At Start
- Same Sequence
- Proper Exposure: the entire upper limbs – bilateral / above umbilicus
- Sequence: Look, Feel, Move, Special Tests

Inspection
- Scars, Swelling, Symmetry, Skin lesions
- Deformities:
- Cubitus Valgus: Non-union of the lateral condyle ⊕ fracture ⊕ dislocation
- Cubitus Varus: Malunion of medial supracondyle
- Carrying angle: normally around 15°: it is used as a clinical measurement of varus-valgus angulations of the arm with the elbow fully extended and the forearm fully supinated

sequence of palpation:
biceps tendon → brachial art → M epicondyle → ulnar n → to bw the tip of olecranon & the two epicondyles → 1-1.5cm below L. epicondyle → Radio-capit. joint line → radial head → around olecranon

Palpation
- Temperature (Bilaterally), Tenderness, Crepitus
- Brachial pulse (medial to biceps tendon, locate it by sup + flx of elbow)
- Bony prominence: Medial and lateral epicondyle & olecranon
- In full extension: the 3 bony prominences are in one line
- In flexion: the 3 bony prominences make an Equilateral triangle
- Radial head: under the midpoint between lateral epicondyle & olecranon
- Ulnar nerve: behind the medial condyle, with the elbow being flexes
- Biceps tendon: flex the elbow with maintained supination "Brachial artery & median nerve are medial to the tendon"

Movement

Flexion	Anatomical range 140°, Functional range ~~30~~ 150° – 130°	
Extension	0°, functional 30°	
Supination	90°	With the arm close to the trunk and the elbow is flexed to eliminate the shoulder rotation
Pronation	90°	
Extension lag	Inability to fully extend the arm "measure the angle that the patient stopped at", doesn't bridge after passive movement	
Flexion contracture	When the patient can't extend his elbow anymore, try to extend it then measure the new angle, bridges after passive movement	

Special Tests

examine valgus & varus in 1. full ext 2. semi flx

Stability Tests (Done with full extension and semi-flexion "twice")

1	*Varus Stress*	• Varus Stress Test: For the Lateral Collateral: https://youtu.be/5zl8GsG3hR4 • From the lateral side of the elbow: try to make varus to the patient

1. fully ext elbow
2. palpate the collaterals (medial/lateral)
3. hold forearm & applying varus (add) & valgus (abd)
4. Repeat w arm in semi flx

2	*Valgus Stress*	• Valgus Stress Test: For the Medial Collateral: https://youtu.be/3xF9_5fbJ8A • From the medial side of the elbow: try to make valgus to the patient
	Tendinitis Tests	
1	*Lateral Epicondylitis "Tennis Elbow"*	• Lateral Epicondylitis Test: Tennis Elbow Test: https://youtu.be/r_A84ox9JRM • In pronation position and fist clenching • Local tenderness over the lateral epicondyle. • Resistant extension of the wrist. • Resistant extension of the middle finger.
2	*Medial Epicondylitis "Golfer Elbow"*	• Medial Epicondylitis Test: Golfer Elbow Test: https://youtu.be/u5H9iG8QhYA • In supination position and fist clenching • Local tenderness over the medial epicondyle • Resistant flexion of the wrist. • Resistant flexion of the fingers.
	Ulnar Nerve Examination (Cubital Tunnel Syndrome)	
1	*Tinel Test*	• Tinel Sign: https://youtu.be/ASRatLbu8i0 • Percussion on the ulnar nerve, positive sign is tingling & numbness over the ulnar nerve distribution.
2	*Flexion test of the elbow*	• Elbow Flexion Test: https://youtu.be/brN-VLUETVU • Full flexion of elbow then press on the ulnar nerve for 20 sec, positive sign is numbness & tingling over one half of the fingers.

3 Subluxation of ulnar nerve

1. pal finger behind M epicondyle & try to palpate ulnar nerve
2. Ask pt to flx & ext at elbow
3. Assess if nerve rolling during flx

→ more prone for cubital tunnel syn

Wrist Examination

Wrist Examination Video: https://youtu.be/KJcHQbsBT_M

At Start	• Same Sequence • Proper Exposure: the entire upper limbs – bilateral • Sequence: Look, Feel, Move, Special Tests
Inspection	• Scars, Swelling, change in color, Nail and skin changes • Deformities: Dinner fork, Garden spade, Ganglion cyst (the mc cyst),.. • Wrist drop: occurs in radial nerve injury • Fasciculations, Tremors • Muscle wasting: thenar and hypothenar eminence
Palpation	• From medial to lateral dorsally, then ventrally "Circumflex movement" • Radial pulse • Radial styloid "Tip": - First dorsal extensor compartment (Abductor policis longus, eternal policis brevis) - This area is the most common site for De Quervain's disease • Snuff box: 1st and 3rd dorsal extensor compartment - Scaphoid in the floor: tenderness on the snuff box: scaphoid fracture • Lesser tubercle: works as a fulcrum: - 1 cm distal to it > Wrist joint > 1cm lateral to wrist joint > Scapho-lunate ligament > 1cm lateral > Lunate (Tenderness is sign of Kienböck's disease) > 1cm lateral > Lunate-triquetrum ligament > 1cm lateral > Triquetrum then trapezoid. • Head of ulna: extensor carpiulnaris (Tendonitis) • Now ventrally: - Flexor carpiulnaris - Flexor carpiradialis - Palmaris longus - Metacarpophalangeal joint, interphalangeal joint
Movement	• Extension is more important than flexion, because in wrist we need strong grip and grip strength depends on Extension. • Flexion, Extension • Radial & ulnar deviation. • Supination & pronation.

Special Tests

Carpal Instability		
1	*Watson Test* "DISI" scapholunate instability https://youtu.be/xBBUwsVi2-o	• Stability between Scaphoid & Lunate • Thumb on Scaphoid tubercle ventrally, and the index is on the Scaphoid dorsally, then press it from ventral to dorsal and from radial side to ulnar side. • If there is clunk with pain > Instability. • If there is simple clunk > Ligamentous hyperlaxity.
2	*Sheer Test "Scaphoid-Lunate Ballottement"*	• Move them in relation to each other.
3	*Luno-Triquetrum Ballottement* "VISI" push lunate down & on triquetral above	• L-T Shear Test: https://youtu.be/9cvRan23qtY • Move them in relation to each other.
Distal Radio-Ulnar Joint		
1	*Piano-key sign* "instability of distal radioulnar joint"	• Piano-key test: https://youtu.be/xz_RwbJb88Q Dislocation of ulnar because of dorsal and ventral ulnar ligament. 1. pron 2. press on ulnar head
2	*Stability of ulnar head*	• Hold the hand of the patient and do supination and pronation. >5mm • If the ulna moves in the mid pronation position then the head is unstable. • If the ulna moves ventrally in full supination and don't move dorsally in full pronation then the head is unstable. • The head don't move dorsally in full pronation because ligaments become tight.
3	*Full range of motion*	• Active full pronation and supination.
De Quervain's Disease "Finkelstein test"		

• Finkelstein Test: https://youtu.be/8WBVXBx34W0
• Local tenderness over radial styloid process.
• Finkelstein test is diagnostic: ask the patient to hold his thumb inside the palm > Pain.
• Ulnar deviation is positive if there is a disease.

pain over radial styloid → de quervains
pain 5cm prox to radial styloid → intersection syn

Hand Examination

Hand Examination Video: https://youtu.be/3LHPq9rseGg

At Start			• Same Sequence • Proper Exposure: the upper limbs • Sequence: Look, Feel, Move, Special Tests
Inspection, Palpation & Movement			• Same as the wrist
Special Tests	**Vascular Tests**		
	1	*Capillary Refill*	• Normally is less than 2 sec.
	2	"ganglion cyst vascular injury" *Allen's Test* https://youtu.be/D1tJO0RW9UM => to know which artery is dominant in case of injury	• Palpate radial & ulnar pulses. → how to locate it? by ulnar deviating the wrist, locate the carpi ulnaris, L to it is ulnar art • Radial pulse: Against radial bone. • Ulnar pulse: Against the ulna lateral to flexor carpi ulnaris. first occlude both them each individually • Then occlude the radial artery first by applying pressure to it and ask the patient to open and close his hand until it becomes pale, then remove your hand and notice the refill. Repeat on the ulnar.
	Flexor Tendons Tests "https://youtu.be/xBfZLFkCvjQ "		
	1	*Flexor Digitorum Superficialis "Flexion of PIP"*	• Hold all the patient fingers except the ring finger then ask him to flex it. "To exclude profundus"
	2	*Flexor Digitorum Profundus "Flexion of DIP"*	• Hold the PIP joints and ask the patient to flex his DIP. do it for all fingers
	3	*Lumbricals "Flexion of MCP"*	• Ask the patient to flex his fingers from the MCP joint with extended PIP & DIP.

Hip Examination

Hip Examination Video: https://youtu.be/EboUcF17w10

At Start
- Same Sequence
- Proper Exposure: Xiphisternum to the knees (or umbilicus to midthigh)
- Sequence: Look, Feel, Move, Special Tests

Inspection
1. Anteriorrally
2. Posteriorrally
3. Laterally

- Scars, Swelling, Change in color, Masses, erythema
- Asymmetry: length, position & rotation
- Wasting: Quadriceps, Gluteal, Hamstrings,..)
- Gait: Pathological gait: waddling, antalgic, scissoring, in toeing, limbing discrepancy) high steppage (foot drop)
- Deformities: Unilateral is pathological, bilateral is congenital

. Rotational: ext or int rot
. Positional: flx, ext, abd...

If there is external rotation > Intertrochanteric, femur neck or shaft fractures., fracture of knee due to thrusting force
If there is internal rotation, short, adducted & slightly flexed > Posterior hip dislocation. (dashboard injury)
Look If there is fixed flexed Hip. (there might be ↑ lumbar lordosis commonly due to OA)
Adduction.
*Foot deformities:
From side > Look for lumbar lordosis.
From behind > Scoliosis, Gluteal wasting.

Screening tests before moving:
1. Rolling test (stiffness & tone) ⇒ for F range of rotation
2. SLR (dx of P hip patho, as in piriformis sgn) ⇒ for testing flx, +ve if pain in back or paresthesia at sciatic distribution

- ***Leg Discrepancy***: the patient is in supine position:
- Apparently one leg is shorter than the other, this may be true or false.
- False if the patient has pelvic tilt.
- Also if the two legs are equal in length this may be false and they appear equal by compensatory mechanism.
- There are two types of Discrepancy **APPARANT & TRUE LENGTH**.

1) *Apparent*:
- From the same point & for both legs.
- Compared with the Umbilicus or Xiphisternum. to medial malleolus
- If equal > apparently same length.

if not equal: problem outside limb (e.g. scoliosis)

2) *True length*:
- Each leg is compared with reference point (ASIS) to medial malleolus
- If they are not equal > there is shortening.

if not equal problem in limb w a compensatory mechanism ⇒ do galleazzi test

if both not equal → uncompensated

1. 90° flx of knees
2. heels at the same level
3. look from above → tibia shortening
4. look from below → femur shortening

- Now to know if the shortening is from the femur or tibia, we do ***Geliazzi test*** which is done by: 45° of flexion on knee joint, the hip and feet is on same level. If the *patellas* are not at the same level > *Tibial* shortening. If the *tibial tuberosities* are not at the same level > *Femur* shortening.

Palpation

- Palpate the tissues overlying the hip joint for tenderness or warmth > Infection or inflammation.
- Palpate greater trochanter for tenderness > Bursitis.
- Palpate lateral side of the hip > Infection or fracture.
- Posterior hip tenderness > Labrum tear, Posterior hip fracture or piriformis tendinitis. ⊕ peripheral pulses

Movement

Sagittal	*Flexion*	• Normal range from 0° - 120° A / 90° F → SLR: flx knee & then hip fully
	Hyper-Extension	• Normal range from 0° - 10° • With the patient in prone position, place your hand on the pelvis to assess for movement then lift one leg at a time to assess the range of extension.
coronal	*Abduction*	• Normal range 45° A / 30° F • While stabilizing the contralateral iliac (ASIS) crest abduct the hip until you feel the pelvis begins to tilt.
	Adduction	• Normal range from 30° A / 15° F • While stabilizing the contralateral iliac (ASIS) crest adduct the leg across the midline as far as possible.
axial	*External Rotation*	• Normal range from 45° A / 15° F • Hip and knee flexed & rotate medially. → "تربيعات" varus
	Internal Rotation	• Normal range 45° A / 30° F • Hip and knee flexed and rotate laterally. → Valgus
	Femoral Stretch Test	• Femoral Stretch Test: https://youtu.be/w6bqDypQJ-w • The patient in prone position, Knee is passively flexed to the thigh & the hip is passively extended. • The test is positive if there is anterior thigh pain.

Special Tests

1	*Thomas Test*	• Thomas (5:37): https://youtu.be/EboUcF17w10 • Place your hand under the patients' spine, and then passively flex both legs by as far as you can and ensure that the curve of lumbar lordosis has been flattened by your hand, finally ask the patient to fully extend his hip. • If he can do full extension > No deformity. • If he is unable to fully extend his hip > Fixed flexion deformity. (10-15°)

1. put hand under lumbar spine, check for lordosis
2. if +ve → fully flx to other hip
3. if the ext leg raises to flx this is +ve

↳ due to iliopsoas ms contracture → as compensation → hyperlordosis in OA

2	*Trendelenburg's Test*	• Trendelenburg's Test: Standing a) https://youtu.be/0rcczDEWDqU b) https://youtu.be/wHVMPD45IFo • Place your hands on the iliac crests on both sides of the pelvis and ask the patient to stand on one leg for 30 sec. Observe your hands to see which moves up or down. • If the pelvis falls on the side that the foot off the ground > Positive test. • Suggest weak hip abductors on the contralateral side of the pelvis"

Yazan Omar Alawneh

Knee Examination

Knee Examination Video:

a) Scientific Team: https://youtu.be/5D6nQc0mUuA

b) Geeky Medics: https://youtu.be/17ZKya9yR2Y

c) Oxford Medical Education: https://youtu.be/wlLfNls75RY

At Start

- Same Sequence
- Proper Exposure: Mid-thigh to below
- Position: Flat hip and spine and knee's in semi-setting position / Supine
- Sequence: Look, Feel, Move, Special Tests

Inspection

"Standing position"

- Scars: Midline scar (universal), Arthroscopy scar, Cut wounds.
- Swelling: Localized (Anterior, superior, suprapatellar), Diffused (Intra-articular causes) , erythema, lacerations, effusion (absence of medial dimple)
  1. Anteriorally
  2. Posteriorally
  3. Laterally
- Deformities, Gait
- Alignment (normally slight valgus 5° - 7°)
  - Varus (tibia deviates medially)
  - Valgus (tibia deviates laterally)
- Position of the patella (Should be upward)
- Skin problems: Psoriasis, Dermatitis, Nodules, Change in color,…)
- Muscle wasting:

- First muscle to be wasted is vastus medialis because it acts last 15° of extension & any knee problem the patient will lose this action.

Measured by taking fixed point (eg. 10 cm above the patella > compare for symmetry)

Palpation

Use dorsum of hand

- Temperature: Normally the joint is cold, if not > Inflammation.
- Knee, wrist and elbow are superficial joints, so any mild change in temperature swelling will appear.
- Tenderness:

- Start from the tibial tuberosity then go medially, feel the medial condyle of tibia then feel above it you'll find a depression called tibial plateau, then move down and posteriorly according to the joint line to detect any pain here, which indicates meniscal problems, feel medial femoral condyle& adductor tuberosity.

From tibial tuberosity, and after detecting joint line, move laterally to detect fibular head and neck (Where common peroneal nerve is located)

- Patellar tendon: (Above tibial tuberosity)

- Feel patellar tendon in flexion position.
- Feel the Fats pad in extension position.

- palpate :
  tibial tuberosity → medially to it is SGS insertion → medial tibial condyle → joint line → medial femoral condyle → adod tubercle
- laterally same but check fibular head

→ the centered area should palpated while *flx* then palpate patella & patellar lig, then *ext* knee push patella M & L to feel articular surface

Movement	*Flexion*	• Normal range from 140°– 160°
	Extension	• Put your hand under the knee. (on popliteal fossa) • If the knee touch hard > Full extension. • If the foot raise > Hyper extension
	Flexion Contracture	• Shortening in posterior elements (Muscles, Tendons or capsule) • No passive or active contraction "Flexion"
	Extension Lag	• Full extension passively & no extension actively.
Special Tests	**Effusion Tests**	
	1 *Juxtrapatellar hallow test*	• Flex the knee joint 900, normally there is a groove medially and laterally to the patella, if there was effusion these grooves will not be apparent. "Fullness"
	2 *Patellar tap* *"Ballottement"*	• Ballottement Test: https://youtu.be/r18O50lzMGw • Push the patella downward from the thigh to the knee "Squeezing" then tap on it, then check if there is effusion.
	3 *Milking test* "cross fluctuation test"	• Milking Test: https://youtu.be/LHOmmWB_PFo • Sensitive for mild effusion • Squeeze the patella medially then tap on the lateral side of it, if there is effusion you'll feel bulging.
	Q Angle	

• Q Angle: https://youtu.be/m8XH30DiNeQ

• Q angle is between quadriceps & patellar ligaments, normally it is 15° &:
- Increased in females "Wide pelvis and shorter patients"
- Increased in valgus deformity.
- Increased in internal femoral torsion.
- Increased in external tibial torsion.

• Patella normally slides from proximal to distal, and because of Q angle it will have movement on X direction & Y direction. So, patella hits lateral femoral condyle as the Q angle increases > Patellar dislocation & chondromalacia crepitus.

• Q angle increasing can be treated by physiotherapy to Vastus medialis. "Increase strength"

causes of ↑Q angle: Wide pelvis, Short stature, geno-valgus ext tibial torsion, patella alta

Patella Examination

Inspection	• Q angle and Scars → measured by goniometer	
Palpation	• Patellar tendon "Flexion" • Patella under surface & patella • Tibial Tuberosity	• Ext by SLR test Move
Movement	• Gliding: move the patella proximally and distally > pain = crepitus. • Grinding: squeeze & fix the patella distally & ask the patient to contract quadriceps > Pain = positive test. by exacerbating chondromalacia & crepitation	

Collateral ligament

⊕ Apprehension test:
1. push the patella L & fix
2. +ve if pt contracts quadriceps

1	*Stress Test* +ve if joint line opens & ↑ in joint space	• Valgus Stress Test: For the Medial Collateral: https://youtu.be/GSFbttpxCuQ • Varus Stress Test: For the Lateral Collateral: https://youtu.be/sg1gk6QKARw • Fix the foot of the patient under your axilla, then full extend the patients' knee & palpate the joint line, then stress varus (Lateral collateral ligament) & stress valgus (Medial collateral ligament) then do the same with the knee flexed at 30°. • Flexion 30° is due to MCL & LCL ligaments only. • Full extension is due to CLs, Cruciate ligaments & capsule.
2	1. flx, abd, ext rot the affected knee & put it above the knee (dist. femur) *Figure of 4 test* *" Faber Test"* 2. push the knee down while holding ASIS	**Special Tests** • Faber Test: a. https://youtu.be/X6trjwpyjdM b. https://youtu.be/89Qiht82zmg • Varus cause tear of the LCL. • Performance of the "figure of 4" test is performed by having the patient place the foot of the affected extremity on the contralateral knee. For a right knee, this resembles the number "4". Pain = positive test.

Cruciate Ligaments "Intra-articular – Extra-capsular"

"Hamstring muscle help cruciate ligament. So, to treat tear of this ligament we strengthen this muscle"

1	*always start w this* *Posterior sagging of tibia test*	• Posterior Sag Sign: For the Posterior Cruciate: https://youtu.be/7vgTMnfP4fs • Flex both knees & detect both tibial tuberosities. 90° • Should be at the same level, if not, then there is a Posterior Cruciate Ligament tear.

↑ move suggests cruciate laxity or rupture	2	1. 90° flx knee & sit on foot 2. relax hamstrings *Drawers Test* 3. put hand on tibial tubero. & pull tibia A & P	• Anterior Drawer Test: For the Anterior Cruciate: https://youtu.be/IdnBKv38EEQ • Posterior Drawer Test: For the Posterior Cruciate: https://youtu.be/wDIGll5wzZs • Start with sagging test to be sure that there is no PCL tear & Relax hamstring to avoid false positive. • Do anterior pulling to check ACL.
1. 30° flx 2. immobalize femur 3. A translation	3	* Most sensitive * *Lachman Test*	• Lachman Test: https://youtu.be/JFkbKNNa7xQ • Flex the knee 30 then pull tibia upward. • Normal > Hard lock. ↳ for ACL • Abnormal > Soft lock "Gradual resistance if force can move.

Meniscus "McMorray's Test"

- McMurray Test: https://youtu.be/lwDFPAyGGgI
- Full flexion then palpate the joint line.
- Internal rotation > Varus + Extension (Lateral meniscus)
- External rotation > Valgus + Extension (Medial meniscus)
- Positive: if you hear a click (Pop sound), It is palpable move then heard.

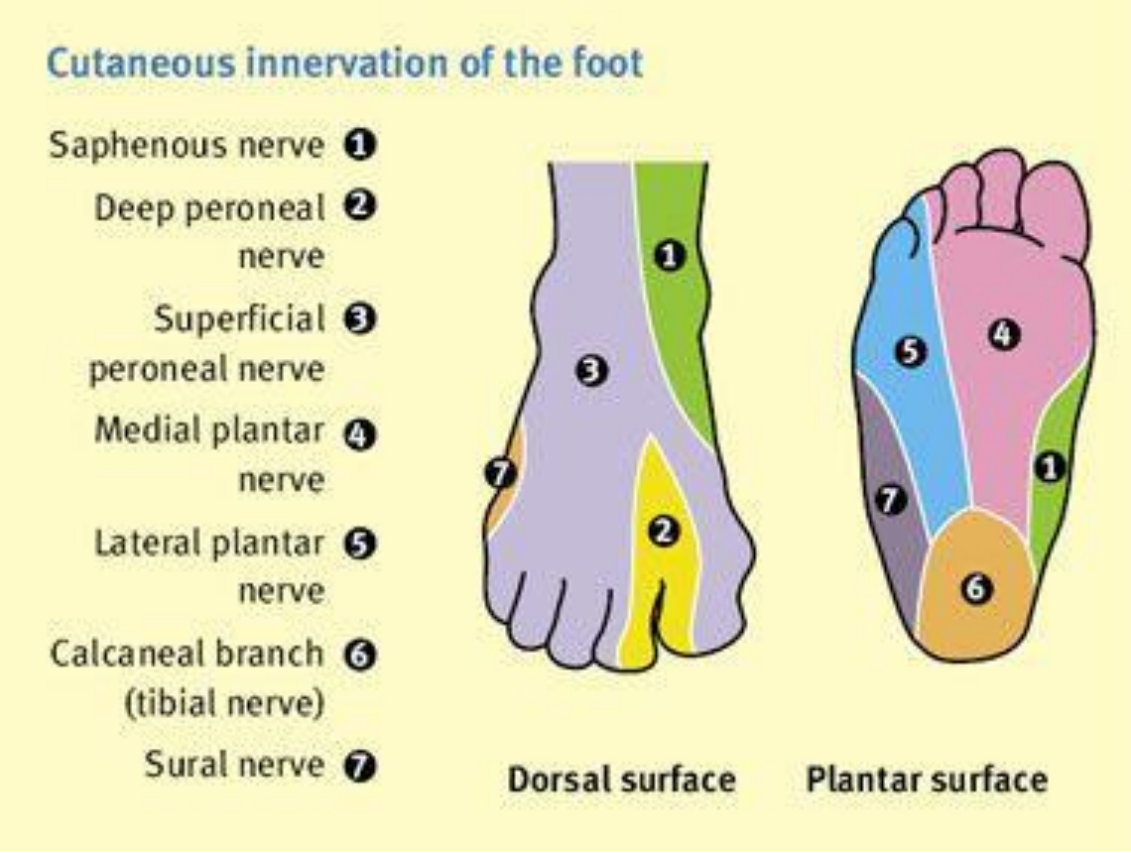
⇒ if pain or crepitation → OA

Sensory Foot Examination

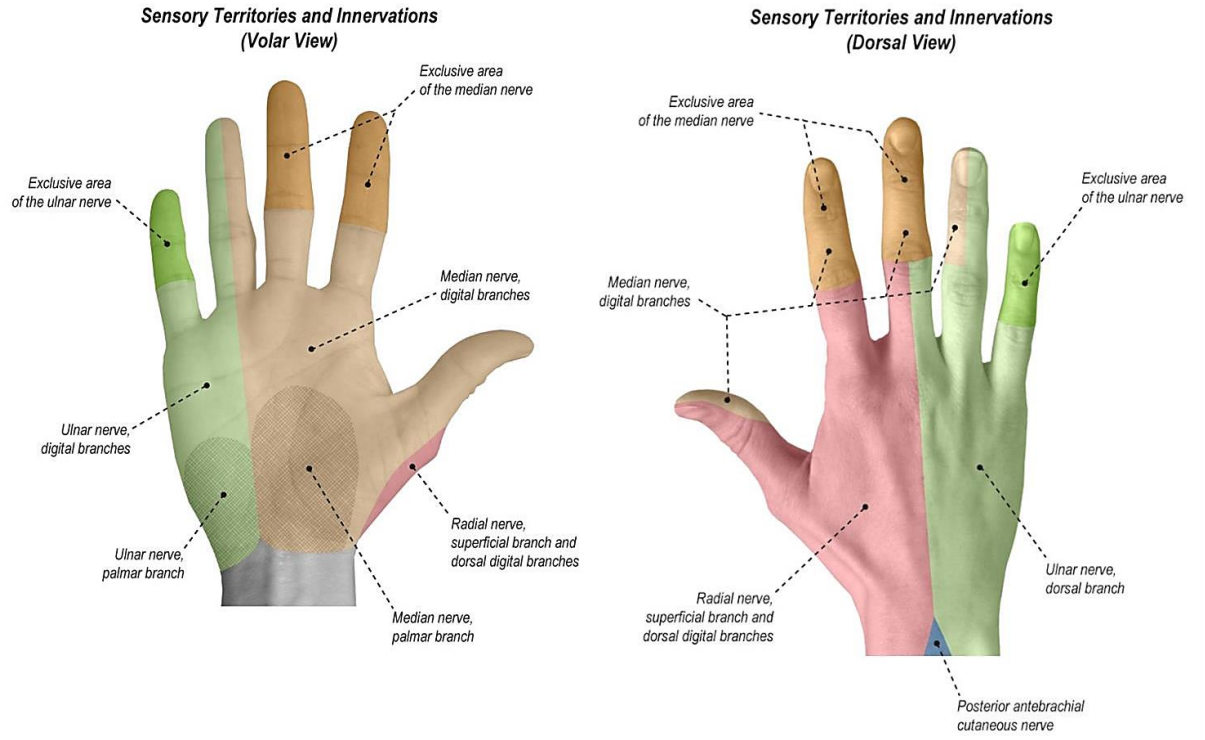
Sensory Foot Examination Video: https://youtu.be/cpOTXT_Zd0g

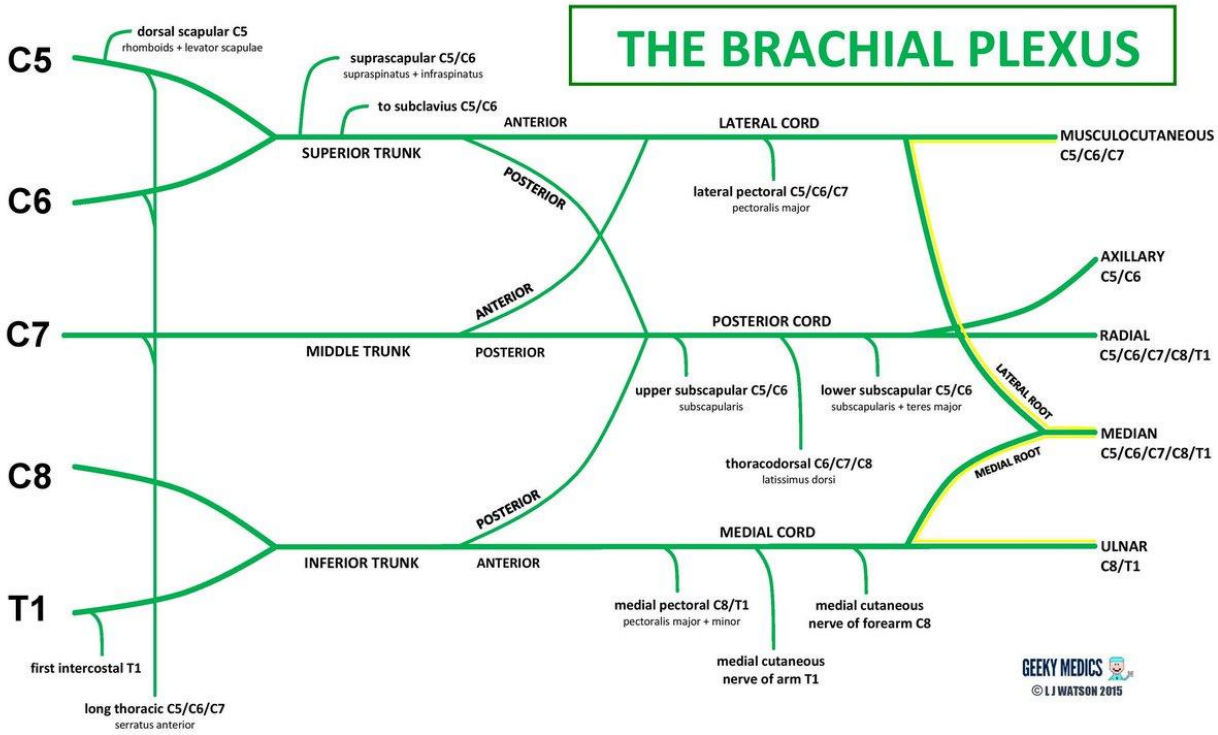
* You only need to know the distribution of nerve supply of the feet

Lateral Aspect of the foot	Sural Nerve
Dorsum of the foot	Superficial Peroneal Nerve
Medial Aspect of the foot	Saphenous Nerve
Sole of the foot	Medial and Lateral Planter Branches of the Tibial Nerve
First Web Space	Deep Peroneal Nerve



Nerves of the Hand





Median Nerve Examination

Median Nerve Examination: https://youtu.be/sypBEG9F6uU

Info	• It's a branch of the lateral and medial cord of brachial plexus • Couse: Medial to brachial artery in the cubital fossa • Gives off these branches: 1. Anterior interosseous: supplies all flexors except flexor carpi ulnaris 2. Palmer Branch: supply volar side of the 1st 3 & half fingers. Dorsally, it supplies the tip of these fingers to PIP joints 3. Recurrent branch: starts after the carpal tunnel, for the thenar muscles and the lateral 2 lumbricals
At Start	• Same Sequence • Proper Exposure: Entire upper limbs • Sequence: Look, Feel, Move, Special Tests
Inspection	• Ape like deformity "Adducted thumb & Pointed index" • Thenar wasting • Forearm atrophy • Trophic ulcers • Partial weakness of middle finger • Skin changes and dryness
Palpation	• Feel the 3 and half fingers supplied by the nerve by 2-point discrimination "not less than 5 mm", if more than 5 mm, for example 10 mm there is partial weakness and so on
Movement	• We examine the muscles responsible for movement and not supplied by any other nerve • Thumb abduction against resistance • Examine abductor policis brevis which is innervated by the median nerve • Abductor policis longus don't work without abductor policis brevis
Special Tests	**Ok sign** • Ask the patient to do Ok sign then try to move fingers away. Normally you cannot move his fingers.

Anterior interosseous branch	
Info	Anterior Interosseous Nerve: https://youtu.be/R15I0JzYIDc Anterior interosseous branch supply: 1. Flexor digitorum profundus.

	2. Flexor polices longus. 3. Pronator quadrates. → pron while flx (pron teres relaxed)	
1	Ok sign	
2	Flexion of the PIP joint of the thumb -ve	
3	Flexion of DIP of middle & Index fingers	
Carpal tunnel syndrome "https://www.youtube.com/watch?v=6bOYvEADHyU "		
1	*Phalen's sign*	• Phalen's Test: https://youtu.be/rQJNrkq7tIs • Reverse prayer sign for 1 min. (flx of wrist) • If pain & Carpal tunnel symptoms > Positive test.
2	*Tinel's sign*	• Tinel's Test: https://youtu.be/U8cPjPeZgFw • Tapping of median nerve at its course in wrist. at CT • Test is positive when the Tingling worsen.

Durkens • direct compression of CT

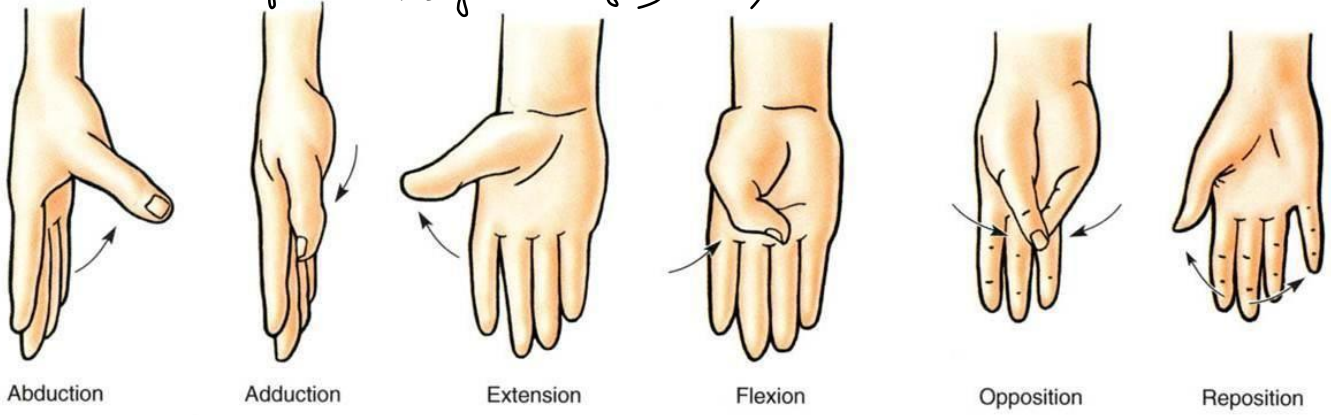
Mnemonic: DR.CUMA

Drop
Radial
Claw
Ulna
Median
Ape

Radial Nerve Examination

Radial Nerve Examination: https://youtu.be/oeYHwybp5Yc

Info	• It's a branch of the posterior cord of the brachial plexus • Course: Anterior in the cubital fossa • Branches: 1. Superficial branch: Sensory supply for the radial 3 and half fingers excluding the finger tips "Above PIP" 2. Posterior interosseous branch: supplies all the extensors except: a. Extensor carpi radialis longus b. Extensor carpi radialis brevis c. Brachio-radialis Which are supplied by the radial nerve before division
At Start	• Same Sequence • Proper Exposure: Entire upper limbs • Sequence: Look, Feel, and movement. **There is no Special Tests here**
Inspection	• Deformities: - Wrist drop: due to high injury to the radial nerve before division - Finger drop: due to low injury to posterior interosseous branch • Muscle Atrophy
Palpation	• Sensory by sharp pin "Crude sensation" • With the palm facing down check the snuff box "compare both sides"
Movement	• Extension of fingers against resistance • Extension of thumb against resistance

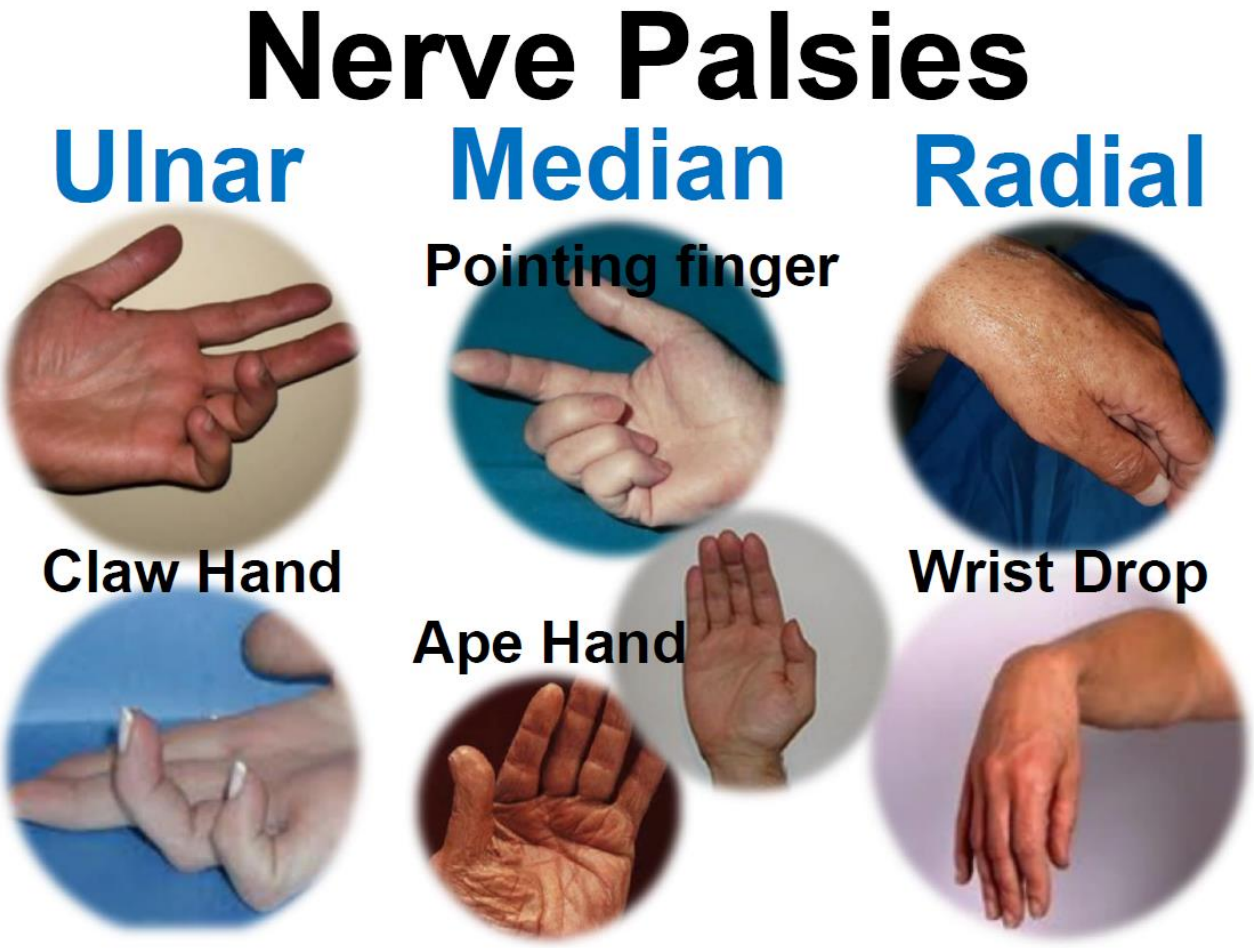


Ulnar Nerve Examination

Ulnar Nerve Examination: https://youtu.be/PTpUzXdBvpo

Info	• It's a continuation of the median cord of brachial plexus • Course: at the wrist it passes anterior to flexor retinaculum & lateral to pisiform bone, medial to hamate then it divides into: 1.Superficial (sensory) branch: supply medial half & 1 finger. "Volar part" 2. Deep terminal (motor) branch: supply all intrinsic muscles of the hand except; Thenar and 2 lumbricals. • Before division it supplies flexor carpi ulnaris & medial half of flexor digitorum profundus. • Dorsal cutaneous branch: Dorsal side of the medial one and half fingers. • Intrinsic muscles supplied by ulnar nerve: • Adductor policis longus of the thumb. • 3rd and 4th lumbricals. "Flex MCP joints & Extend IP joints" • Palmar interossei. "Adduct fingers" • Dorsal interossei. "Abduct fingers"
At Start	• Same Sequence • Proper Exposure: Entire upper limbs • Sequence: Look, Feel, Move, Special Tests
Inspection	• Deformities: Claw hand "Flexion of DIP & Hyper-extension of PIP" • Atrophy: Hypothenar & 1st dorsal interosseous "Flat or concave hand" • Trophic ulcers over the little finger
Palpation	• Sensory by Sharp pin "Two-point discrimination"
Movement	• Adduction of fingers using a paper • Abduction of fingers against resistance
Special Tests	**Froment Test** "Adductor policis longus" • Froment's Test: a. https://youtu.be/yJTIhm1VfSI b. https://youtu.be/1_I_djZaX9M • Paper between the thumb and index, then ask the patient to hold it. If he ABDUCT his finger to hold it > Positive. **Resistant abduction of the little finger** "Abductor digiti minimi" • If collapse to the affected side > Positive test.

Cubital Tunnel Syndrome (Mentioned in the elbow examination)		
1	*Tinel Test*	Tinel Sign: https://youtu.be/ASRatLbu8i0 Percussion on the ulnar nerve > Tingling & numbness over the ulnar nerve distribution.
2	*Flexion test of the elbow*	Elbow Flexion Test: https://youtu.be/brN-VLUETVU Full flexion of elbow > press on the ulnar nerve for 20 sec > Numbness & tingling over one half of the fingers.



BEST WISHES

DONE BY:

YAZAN OMAR ALAWNEH