

Introduction (WIIPPPE)

- *Wash your hands
- *Introduce yourself (name and position)
- *Identity of patient (confirm name and date of birth)
- *Permission (consent and explain examination: "I'm going to examine your hands now, is that OK?")
- *Pain?
- *Position
- *Rest the patient's arms on a pillow placed across their lap
- *Expose
 - You should be able to see both arms from fingers up to and including the elbow
 - Ask them to remove any watches or bracelets

In the hand examination, as in any musculoskeletal examination think in terms of:

- ▶ Inspection (“look”)
- ▶ Palpation (“feel”)
- ▶ Manipulation (“move”) which comprises:
 - *Active movement
 - *Passive movement
 - *Special tests

► Inspection (“look”)

Begin by examining the hands as they rest on the pillow on the patient's lap

- *Start with the dorsal aspect

- *Ask patient to reveal the palmar surface and compare subtle differences that go undetected

- *Ask the patient to show you their elbows

For all three positions, systematically consider the components of the hand: skin, soft tissue and bone



► Skin

Scars

Scars over joints can indicate previous surgery on arthritic joints

Inspect the anterior aspect of the hand for surgical scars from decompression of the carpal tunnel Carpal tunnel syndrome may be secondary rheumatoid arthritis

Skin quality

Skin quality can be affected by disease processes

Systemic sclerosis (SS) causes tight and thickened skin tapered over the fingertips

Psoriasis (in psoriatic arthritis) give scaly silver plaques on extensor surfaces, particularly the elbows

Color changes

Redness may reflect underlying inflammation

Raynaud's phenomenon

White (ischemia); blue (cyanosis); red (reactive hyperemia)

It is important to establish the presence of Raynaud's phenomenon if considering a diagnosis of SS, as its absence makes such a diagnosis highly unlikely (over 95% of patients with SS have Raynaud's phenomenon)

Long lasting blanching of the knuckles on clenching the fists is a pointer to Raynaud's phenomenon even in a warm room

Specific signs

Gottron's papules; Roughened red papules on the extensor surfaces of the fingers occur in dermatomyositis

Telangiectasia ;Especially if situated on palms and in nail folds are characteristic of systemic sclerosis

Mechanics hands; This is a sign of thick, cracked skin over the tips and sides of the fingers and can be found in dermatomyositis





Soft tissue

Nails

Psoriatic arthritis (PsA): 90% of patients with PsA will have typical nail changes including:

- *Onycholysis (lifting from the nail bed)
- *Pitting
- *Longitudinal ridging

Systemic sclerosis and dermatomyositis

Dilated nail fold capillaries

Other vasculitis

Nails may reveal the nail fold infarcts of vasculitis

Subcutaneous deposits

- *Calcification in the pulp of the fingers is a feature of limited cutaneous systemic sclerosis

Previously called CREST syndrome (Calcinosis, Raynaud's phenomenon, Esophageal dysmotility, Sclerodactyly, Telangiectasia)

- *White subcutaneous deposits located asymmetrically around joints are more likely to be tophi associated with gout

Soft tissue swelling

Generalized puffiness is a common, non-specific sign in the early stages of connective tissue diseases.

Synovial hypertrophy occurs in RA and noting the site of the inflammation is important for diagnosing complications. Diffuse cylindrical swelling of one or two digits (dactylitis), can be due to swelling specifically of the flexor tendon, as occurs in PsA

Nodules

May be apparent on inspection of the extensor surface of the elbows or other areas subject to external pressure, and suggest RA

Muscle wasting

May be caused by lower motor neuron lesions or reduced movement of damaged joints.





Clinical Presentation of Moderate to Severe Fingernail Psoriasis

Nail Matrix Features



Pitting



Leukonychia



Crumbling

Nail Bed Features



Subungual
hyperkeratosis



Onycholysis



Splinter
hemorrhages

Bone:

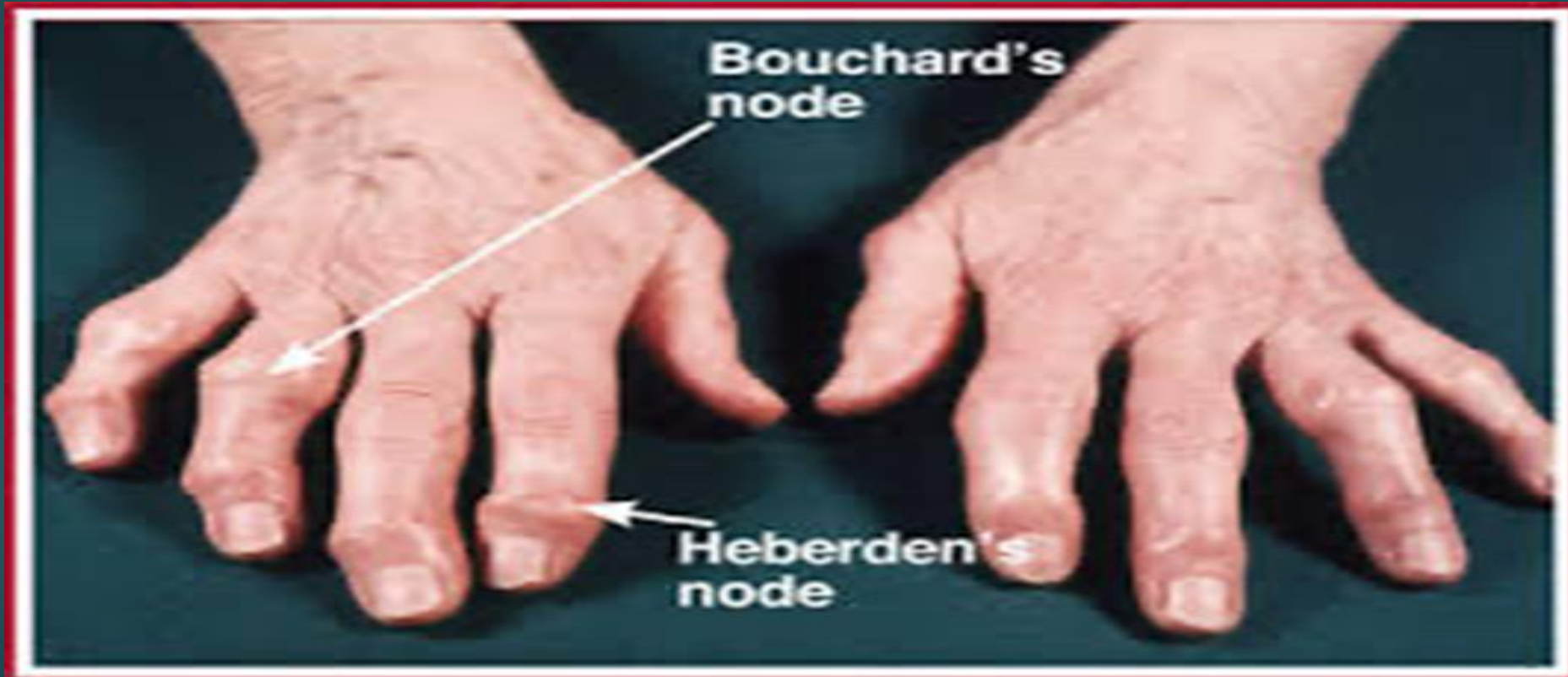
Hand posture

- ▶ Swan neck deformity: occurs at the distal interphalangeal joint (DIPJ) with clinical features including DIPJ flexion with PIPJ hyperextension. Swan neck deformity is typically associated with rheumatoid arthritis.
- ▶ Boutonnières deformity: PIPJ flexion with DIPJ hyperextension associated with rheumatoid arthritis
- ▶ Z-thumb: hyperextension of the interphalangeal joint, in addition to fixed flexion and subluxation of the metacarpophalangeal joint (MCPJ). Z-thumb is associated with rheumatoid arthritis.
- ▶ Ulnar deviation: at their metacarpophalangeal joints
- ▶ Duputryens contracture: is a condition that affects the fascia—the fibrous layer of tissue that lies underneath the skin in the palm and fingers
- ▶ Mallet finger due to trauma
- ▶ Mutilans deformity





- ▶ **Bouchard's nodes**: occur at the proximal interphalangeal joints (PIPJ) and are associated with osteoarthritis.
- ▶ **Heberden's nodes**: occur at the distal interphalangeal joints (DIPJ) and are associated with osteoarthritis.



► Palpation "feel"

Palms up

Temperature: **Assess** and compare the temperature of the joints of the hand and elbow using the back of your hands.

Increased temperature of a joint, particularly if also associated with swelling and tenderness may indicate septic arthritis or inflammatory arthritis.

Radial and ulnar pulse: **Palpate** the radial and ulnar pulse to confirm adequate blood supply to the hand.

Thenar and hypothenar eminence bulk: **Palpate** the muscle bulk of the thenar and hypothenar eminences: wasting can be caused by disuse atrophy as well as lower motor neuron lesions (e.g. ulnar and median nerve).

Palmar thickening: **Support** the patient's hand and palpate the palm to detect the typical bands of thickened palmar fascia associated with Dupuytren's contracture.

Median and ulnar nerve sensation:

1. Assess median nerve sensation over the thenar eminence and index finger.
2. Assess ulnar nerve sensation over the hypothenar eminence and little finger

Palms down (dorsum)

Radial nerve sensation: Assess radial nerve sensation over the first dorsal web space.

Temperature: Assess and compare the temperature of the joints on the dorsal aspect of the hand (e.g. metacarpophalangeal joints) and elbow using the back of your hands.

Metacarpophalangeal joint squeeze: Gently squeeze across the metacarpophalangeal (MCP) joints and observe for verbal and non-verbal signs of discomfort. Tenderness is suggestive of active inflammatory arthropathy.

Bimanual joint palpation: Bimanually palpate the joints of the hand, assessing and comparing for tenderness, irregularities and warmth:

Metacarpophalangeal joint (MCPJ)

Proximal interphalangeal joint (PIPJ)

Distal interphalangeal joint (DIPJ)

Carpometacarpal joint (CMCJ) of the thumb (squaring of the joint is associated with OA)

Bimanual wrist palpation: Palpate the wrists for evidence of joint line irregularities or tenderness.

Anatomical snuffbox: Palpate the anatomical snuffbox for tenderness which is suggestive of a scaphoid fracture.





► Move

The joints of the hand and wrist should be assessed and compared.

Active movement

Active movement refers to a movement performed independently by the patient. As the patient performs each movement, note any restrictions in the range of the joint's movement and also look for signs of discomfort.

Finger extension: Instructions: "Open your fist and splay your fingers."

Finger flexion: Instructions: "Make a fist."

Wrist extension: Instructions: "Put the palms of your hands together and extend your wrists fully."

Wrist flexion: Instructions: "Put the backs of your hands together and flex your wrists fully."

Passive movement

Passive movement refers to a movement of the patient, controlled by the examiner. This involves the patient relaxing and allowing you to move the joint freely to assess the full range of joint movement. It's important to feel for crepitus as you move the joint (which can be associated with osteoarthritis) and observe any discomfort or restriction in the joint's range of movement.

If abnormalities are noted on active movements (e.g. restricted range of movement), assess joint movements passively.

Repeat the above movements passively, feeling for any crepitus during the movement of the joint.

Motor assessment

The following screening test will allow you to quickly assess the motor function of the radial, ulnar and median nerve.

Wrist and finger extension against resistance

Nerve assessed: radial nerve

Muscles assessed: extensors of the wrist and fingers

Instructions: Extend your fingers out in front of you, cock your wrists back and don't let me pull them downwards."

Index finger Abduction against resistance

Nerve assessed: ulnar nerve

Muscles assessed: first dorsal interosseous (FDI)

Instructions: Splay your fingers outwards and don't let me push them together."

Thumb Abduction against resistance

nerve assessed: median nerve

muscle assessed: abductor pollicis brevis

Instructions: Point your thumbs to the ceiling and don't let me push them down.

**FINGER EXTENSION
AGAINST RESISTANCE**
RADIAL NERVE



**FINGER ABDUCTION
AGAINST RESISTANCE**
ULNAR NERVE



**THUMB ABDUCTION
AGAINST RESISTANCE**
MEDIAN NERVE



"Peace sign" against resistance	Ulnar nerve	
"Hitchhiker" / Thumbs up	Radial nerve	
"Power to the people"	Median nerve	
OK sign	Median nerve (anterior interosseous)	



► Function

Assess the patient's hand function using the fine motor screening tests below.

Power grip

Instructions: "Squeeze my fingers with your hands."

Pincer grip

Instructions: "Squeeze my finger between your thumb and index finger."



► Special tests

Tinel's test

Tinel's test is used to identify median nerve compression and can be useful in the diagnosis of carpal tunnel syndrome.

To perform the test, simply tap over the carpal tunnel with your finger.

Interpretation: If the patient develops tingling in the thumb and radial two and a half fingers this is suggestive of median nerve compression

Phalen's test

If the history or examination findings are suggestive of carpal tunnel syndrome, Phalen's test may be used to further support the diagnosis.

Ask the patient to hold their wrist in maximum forced flexion (pushing the dorsal surfaces of both hands together) for 60 seconds.

Interpretation: If the patient's symptoms of carpal tunnel syndrome are reproduced then the test is positive (e.g burning, tingling or numb sensation in the thumb, index, middle and ring fingers).



► Test for prayer sign

A positive "prayer sign" can be elicited on examination with the patient unable to approximate the palmar surfaces of the phalangeal joints while pressing their hands together.

Seen in diabetes and SSL



► Locking test

-To differentiate trigger finger and Dupuytren's contracture

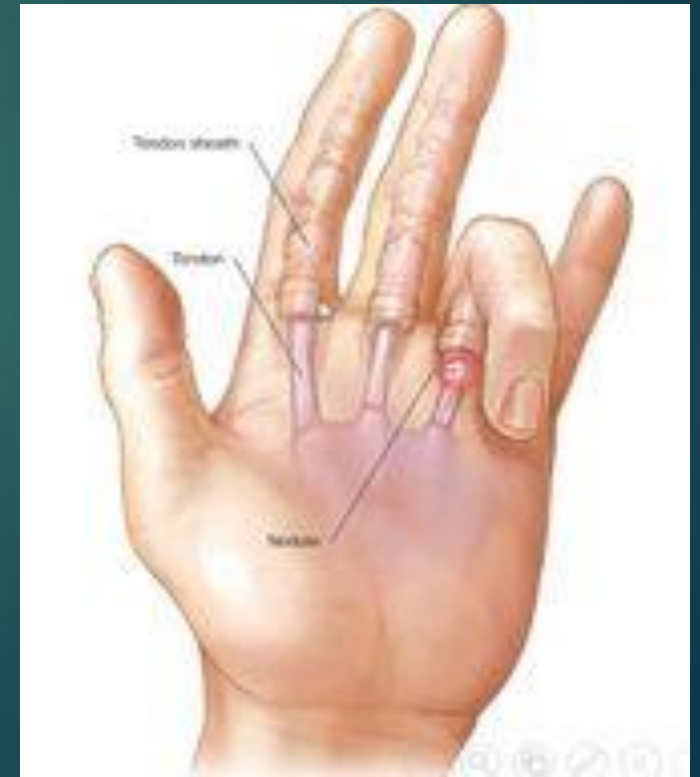
- Trigger finger : It is a Stenosing tenosynovitis caused by inflammation of the flexor tendon sheath

- Mechanism

- caused by entrapment of the flexor tendons at the level of entrance to its sheath.

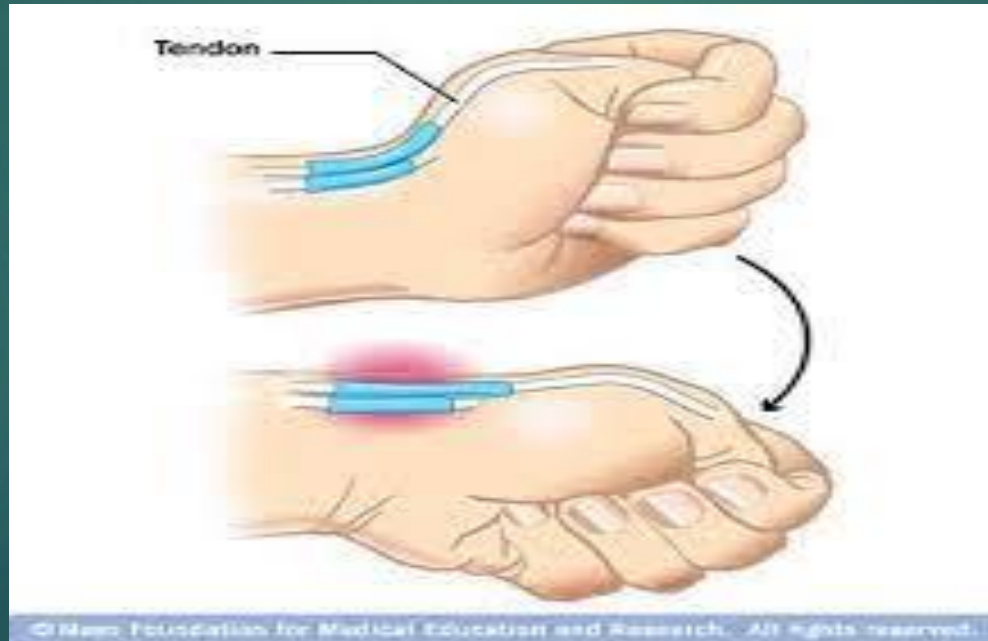
- Associated conditions

- diabetes mellitus - rheumatoid arthritis - amyloidosis



► Finkelstein test

You may be asked to perform a Finkelstein test, in which you bend your thumb across the palm of your hand and bend your fingers down over your thumb. Then you bend your wrist toward your little finger. If this causes pain on the thumb side of your wrist, you likely have de Quervain



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*look, Feel, Move

► Look: 1-EARS 2-Swellings+ Deformities 3-Nail changes

1-EARS- E:Erythema, A:Atrophy, R: Rashes, S:Scars

2-Swellings: 1-joint swelling 'synovitis, Bouchard nodules, Heberdon nodules'

2-Swelling of the palmar sheath' Trigger finger, Dupuytren's contracture'

3-Nodular swelling of skin' Rheumatoid nodules, Tophi, Calcific deposit'

3-Nail changes 'pitting, leukonychia, onycholysis, splinter hemorrhage'

► Feel: 1-Hotness 2-Tenderness 3-Swelling

1-Hotness compare bilateral

2- Tenderness: over the joints, over the snuffbox may be due to scaphoid

3-swelling: 1-swelling of the joint: hard or spongy

2-swelling of the palmar sheath

3-swelling of subcutaneous nodules

► Move

1-Active movement

- Subluxation, restriction of movement

2. Passive movement

- Crepitus

3. Specific tests

1. Tinel sign of the wrist & Phalen test
 2. Locking test
 3. Test for prayer sign
- +/- Test for De Quervain's tenosynovitis

To complete the examination:

- Neurovascular examination of the hand should be done
- Other joints should be examined
- Other systemic signs of Autoimmune rheumatic diseases should be examined



Thank you