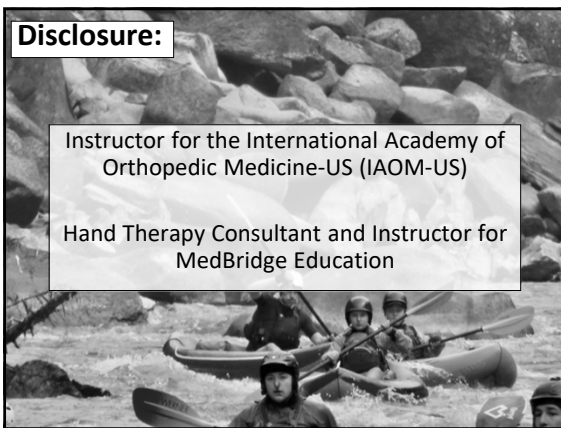


**Clinical Manual Assessment
of the Wrist**

By Ann Porretto-Loehrke, PT, DPT, CHT, COMT, CMTPT
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Disclosure:



Instructor for the International Academy of
Orthopedic Medicine-US (IAOM-US)

Hand Therapy Consultant and Instructor for
MedBridge Education


2

Objectives:

- Describe the capsular pattern of the wrist and what it means with regard to progression of the plan of care.
- Perform a physical examination to determine a tenosynovitis from a tendinopathy.
- Understand when stability testing is needed for the SL interval, LT interval, midcarpal joint, and distal radioulnar joint.

3

Based on the article:



Clinical manual assessment of the wrist
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 Mike Szekeres PhD(c), OT Reg (Ont), CHT³

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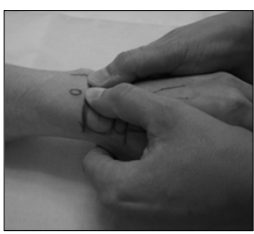
ABSTRACT
 Although hand therapists often evaluate patients with wrist pain, novice and experienced clinicians alike would benefit from a systematic assessment to efficiently identify the source of dysfunction and initiate an appropriate treatment plan. This article proposes a systematic approach for clinical evaluation of the wrist by describing the basic clinical examination (BCE) process and interpreting the findings in terms of common pathology. The BCE will enable the hand therapist to identify conditions that are contraindicated for conservative care and require further physician intervention, determine a working diagnosis for most musculoskeletal problems, and determine the appropriate extra tests to confirm the working diagnosis and/or rule out differential diagnoses. By combining findings from the patient's history, BCE, and special testing, hand therapists can efficiently determine the underlying pathology and provide appropriate treatment that can optimize clinical outcomes.

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Examination

History

Who?
 What?
 When?
 Where?
 Why?
 To what extent?



"Every patient contains a truth. He/she will proffer the data on which diagnosis rests." James Cyriax

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Assessment of the Wrist

Examination is an exercise in understanding pain.

First challenge:
 Pain is always a Subjective Experience.


Second challenge:
 Pain is always felt in some particular part of the body. The localization of the pain very often lacks precision and is often experienced at some distance from its source- "Referred pain".

Ombregt L. A system of orthopaedic medicine, 3rd ed. 2013. Churchill Livingstone Elsevier Ltd.

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Assessment of the Wrist

Very little reference of pain in the wrist
 “Prime real estate”



7

Assessment of the Wrist

Order of Testing...
 Allows us to be consistent and systematic!

- Observation/Inspection
- Active Range of Motion
- Passive Range of Motion
- Resisted testing
- Special tests
- Palpation

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Assessment of the Wrist

Observation

- Swelling (Local versus diffuse)
- Redness/erythema
- Atrophy
- Trophic changes
- Other
 - Carpal drop/prominent distal ulna
 - First CMC subluxation

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Assessment of the Wrist

Active Range of Motion

- Willingness to move/guarding
- Pattern of movements/compensatory strategies
- Neuromuscular control
- Neurological condition
- Tendon disruption

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Assessment of the Wrist

Passive Range of Motion

- To examine inert tissues
- To assess pain
- To determine range
- To characterize end-feel

Note: Structures tested may be stretched or compressed with passive testing

Always compare to the uninvolved side

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Assessment of the Wrist

Basic Clinical Exam of the Wrist

<p>Patient's name: _____ Date: _____</p> <p>Subjective complaints: _____</p> <p>History: _____</p> <p>PHYSICAL EXAMINATION:</p> <p>Observation: _____</p> <p>Palpation: _____</p> <p>Range of Motion:</p> <p>Active:</p> <ul style="list-style-type: none"> • Wrist Flexion: _____ • Wrist Extension: _____ • Wrist Radial Deviation: _____ • Wrist Ulnar Deviation: _____ • Wrist Flexion & Extension: _____ • Wrist Flexion & Radial Deviation: _____ • Wrist Flexion & Ulnar Deviation: _____ • Wrist Extension & Radial Deviation: _____ • Wrist Extension & Ulnar Deviation: _____ • Wrist Flexion & Radial Deviation: _____ • Wrist Flexion & Ulnar Deviation: _____ • Wrist Extension & Radial Deviation: _____ • Wrist Extension & Ulnar Deviation: _____ <p>Special Tests:</p> <ul style="list-style-type: none"> • Finkelstein Test: _____ • Tinel Sign: _____ • Phalen Test: _____ • Carpal Tunnel Test: _____ • Wrist Flexion Test: _____ • Wrist Extension Test: _____ • Wrist Radial Deviation Test: _____ • Wrist Ulnar Deviation Test: _____ • Wrist Flexion & Radial Deviation Test: _____ • Wrist Flexion & Ulnar Deviation Test: _____ • Wrist Extension & Radial Deviation Test: _____ • Wrist Extension & Ulnar Deviation Test: _____ <p>Neurological:</p> <ul style="list-style-type: none"> • Sensation: _____ • Reflexes: _____ • Strength: _____

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Clinical Manual Assessment of the Wrist

Patient's name:	Date:
Subjective complaints:	
<i>INSPECTION:</i>	
<i>ACTIVE TESTING:</i>	
Observation:	
<i>PASSIVE TESTING:</i>	
P. Wrist Flexion:	
P. Wrist Extension:	
P. Wrist Radial Deviation:	
<ul style="list-style-type: none"> - in neutral - in slight extension - in slight flexion 	
P. Wrist Ulnar Deviation:	
<ul style="list-style-type: none"> - in neutral - in slight extension - in slight flexion 	
P. Forearm Pronation:	
P. Forearm Supination:	
P. Thumb Retroposition:	
<i>RESISTED TESTING/STRETCHING:</i>	
Ω Wrist Flexion & Radial Deviation (FCR)	
P. Wrist Extension & Ulnar Deviation	
Ω Wrist Flexion & Ulnar Deviation (FCU)	
P. Wrist Extension & Radial Deviation	
Ω Wrist Extension & Radial Deviation (ECRL & ECRB)	
P. Wrist Flexion & Ulnar Deviation	
Ω Wrist Extension & Ulnar Deviation (ECU)	
P. Wrist Flexion & Radial Deviation	
<i>PALPATION:</i>	

Clinical Manual Assessment of the Wrist

What does Passive Testing of the include?

- Wrist flexion
- Wrist extension
- Wrist radial deviation
- Wrist ulnar deviation
- Forearm pronation
- Forearm supination
- Thumb retroposition

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Clinical Manual Assessment of the Wrist

Passive testing for the Wrist!

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Assessment of the Wrist

Questions we ask ourselves...

1. Is there a limit?
2. Is it a capsular pattern or a non-capsular pattern?
3. If there is no limit, is there pain? If yes, where?

Pixabay.com

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Assessment of the Wrist

Questions we ask ourselves...

1. Is there a limit? yes
2. Is it a capsular pattern or a non-capsular pattern?

pixabay.com

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Assessment of the Wrist

What is a Capsular Pattern?

A predictable limitation of motion that occurs due to 1 of 3 things:

1. Trauma
2. Immobilization
3. Systemic Disease
(this one we don't treat as therapists!)

Cyriax JH, Cyriax P. Illustrated Manual of Orthopedic Medicine. London, UK: Butterworths; 1983.
Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Assessment of the Wrist

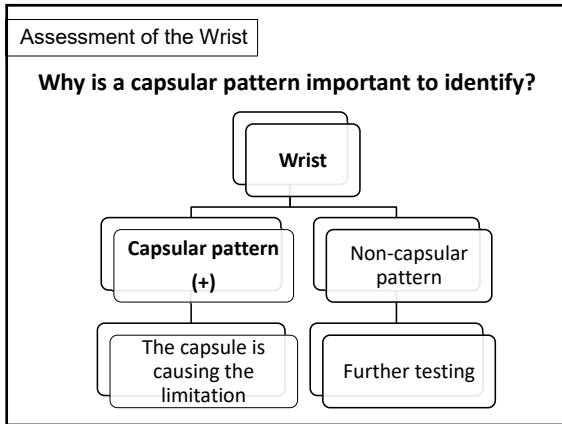
Capsular Pattern at the Wrist...

At the wrist, the capsular pattern is: equal limitation of flexion and extension compared to the uninvolved side

What is a NonCapsular Pattern (NCP)?
Anything other than a capsular pattern

Cyriax JH, Cyriax P. Illustrated Manual of Orthopedic Medicine. London, UK: Butterworths; 1983.
Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a limit?

Identifying a Capsular Pattern at the Wrist
Passive testing into Flexion

- Stabilize proximal to the wrist at the humeral epicondyles.
- Guide wrist through full flexion ROM.
- Apply gentle over-pressure at end range.

Compare with uninvolved side

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a limit?

Identifying a Capsular Pattern at the Wrist
Passive testing into Extension

- Stabilize proximal to the wrist at the humeral epicondyles.
- Guide wrist through full extension ROM.
- Apply gentle over-pressure at end range.

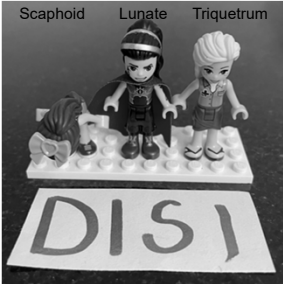
Compare with uninvolved side

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a NCP limit?

Scapholunate (SL) ligament pathology:

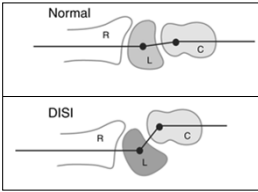


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Clinical Testing Algorithm: is there a NCP limit?

Scapholunate (SL) ligament pathology:

With disruption of the SL ligament, the scaphoid continues to further flex in the volar direction, while the **lunate** assumes an **extended (or dorsal)** position



Dorsal Intercalated Segmental Instability (DISI)

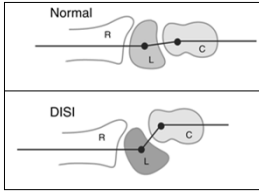
Amarasooriya, M., Jerome, T.J., Tourret, L. Current concepts in scapholunate instability without arthritic changes. Indian J of Orthop. 2023.
Pappou IP, Basel J, Deal DN. Scapholunate ligament injuries: a review of current concepts. HAND. 2013;8:146-156.

23

Clinical Testing Algorithm: is there a limit?

Scapholunate (SL) ligament pathology:

- 75% of intercalated segmental instabilities involve DISI deformities
- (+) Scaphoid shift test (Watson's test) indicates SL dissociation or SL dynamic instability



Dorsal Intercalated Segmental Instability (DISI)

Amarasooriya, M., Jerome, T.J., Tourret, L. Current concepts in scapholunate instability without arthritic changes. Indian J of Orthop. 2023.
Pappou IP, Basel J, Deal DN. Scapholunate ligament injuries: a review of current concepts. HAND. 2013;8:146-156.


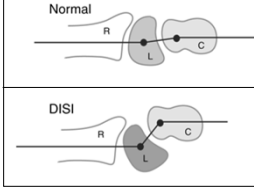
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Clinical Testing Algorithm: is there a limit?

Scapholunate (SL) ligament pathology:

What do you see clinically?

A limit with passive wrist flexion

Dorsal Intercalated Segmental Instability (DISI)

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a limit?

Scapholunate (SL) ligament pathology:

If you find a limit with passive wrist flexion:


- push up on the lunate (in a dorsal direction) and re-test
- if the patient's wrist flexion improves, this increases your suspicion there is an issue with the SL ligament!
- Further testing of the SL ligament will be coming in the *Special Tests* section!

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a NCP limit?

Lunotriquetral (LT) ligament pathology:



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Clinical Testing Algorithm: is there a NCP limit?

Lunotriquetral (LT) ligament pathology:

With disruption of the LT ligament, the **lunate** will flex with the scaphoid, assuming a **flexed** (or volar) position

Volar Intercalated Segmental Instability (VISI)

Stanley K, Trail A. Carpal Instability. Br J Bone and Joint Surg. 1994; 76B: 691-700.

28

Clinical Testing Algorithm: is there a NCP limit?

Lunotriquetral (LT) ligament pathology:

What do you see clinically?

A limit with passive wrist extension

Volar Intercalated Segmental Instability (VISI)

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a NCP limit?

Midcarpal Instability (MCI): VISI:

Scaphoid Lunate Triquetrum

VISI

MCI


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Clinical Testing Algorithm: is there a NCP limit?

Midcarpal Instability (MCI): VISI:

- Because of the laxity in the dorsal radiotriquetral ligaments and volar arcuate ligament (midcarpal ligaments), this causes the proximal row to "sag" in a volar direction causing the **proximal row remains flexed at rest**

What do you see clinically?
A limit with passive wrist extension
(similar to the LT issue)



Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.

Shiga SA, Werner FW, Garcia-Elias M, et al. Biomechanical analysis of palmar midcarpal instability and treatment by partial wrist arthrodesis. J Hand Surg Am. 2018 Apr;43(4):331-338.e2.

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a NCP limit?

LT ligament injury or MCI VISI:

If you find a limit with passive wrist extension:

- Perform a pisiform boost (i.e. push the pisiform/triquetrum in a dorsal direction) and re-test
- if the patient's wrist extension improves, this increases the suspicion there is an issue with either the LT ligament or a Midcarpal VISI!

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a NCP limit?

LT ligament injury or MCI VISI:

So how do you tell the difference between an LT issue and a Midcarpal Instability VISI?

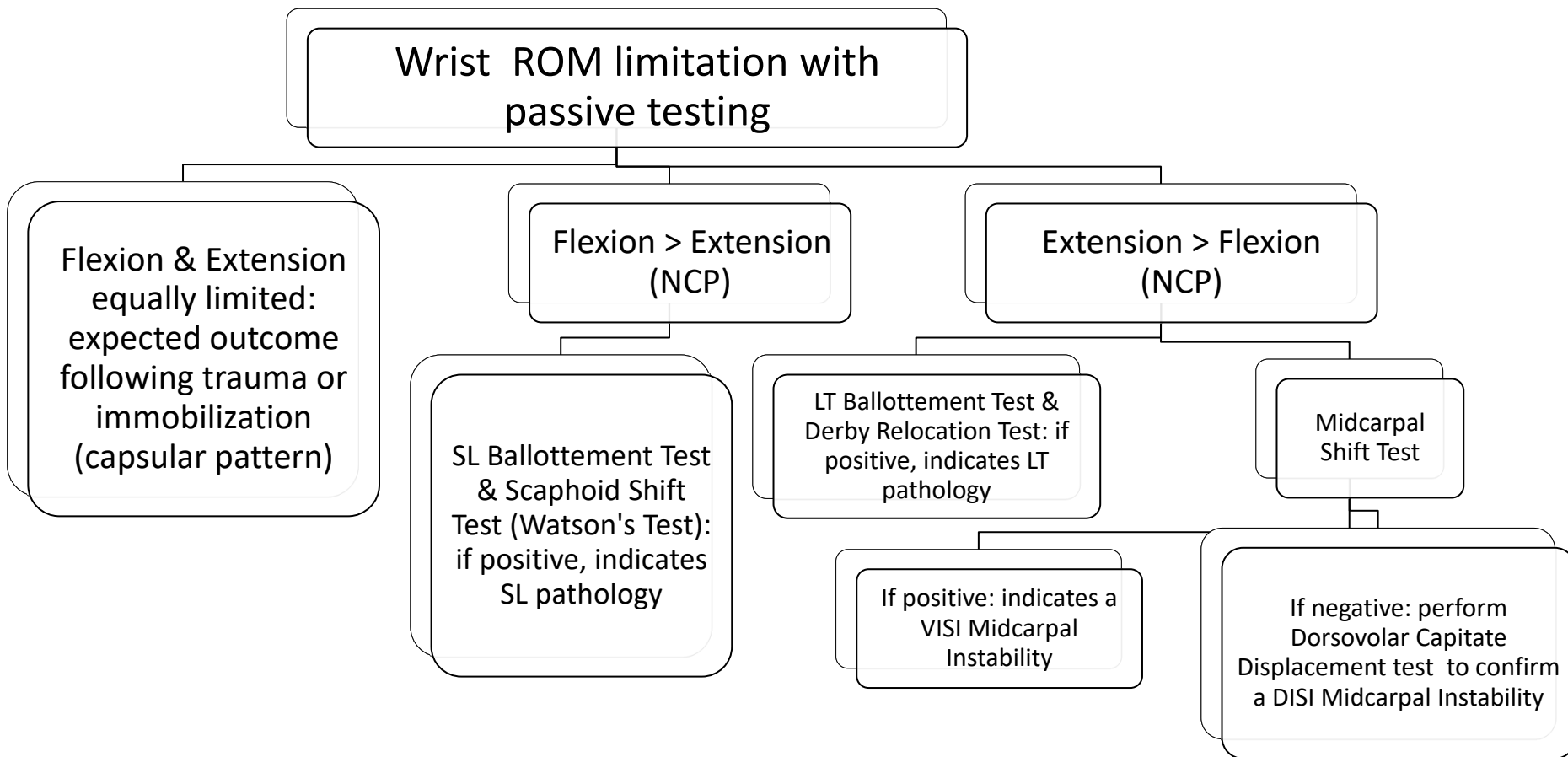
- Further testing of the LT ligament and testing for midcarpal instability (MCI) will be coming in the *Special Tests* section!

Porretto-Loehrke A, Schuh C, Szekeres M. Clinical manual assessment of the wrist. J Hand Ther. 2016;29:123-135.

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Clinical Testing Algorithm: is there a limit?

Passive Wrist Testing: with limitations present



NCP = noncapsular pattern

Clinical Manual Assessment of the Wrist

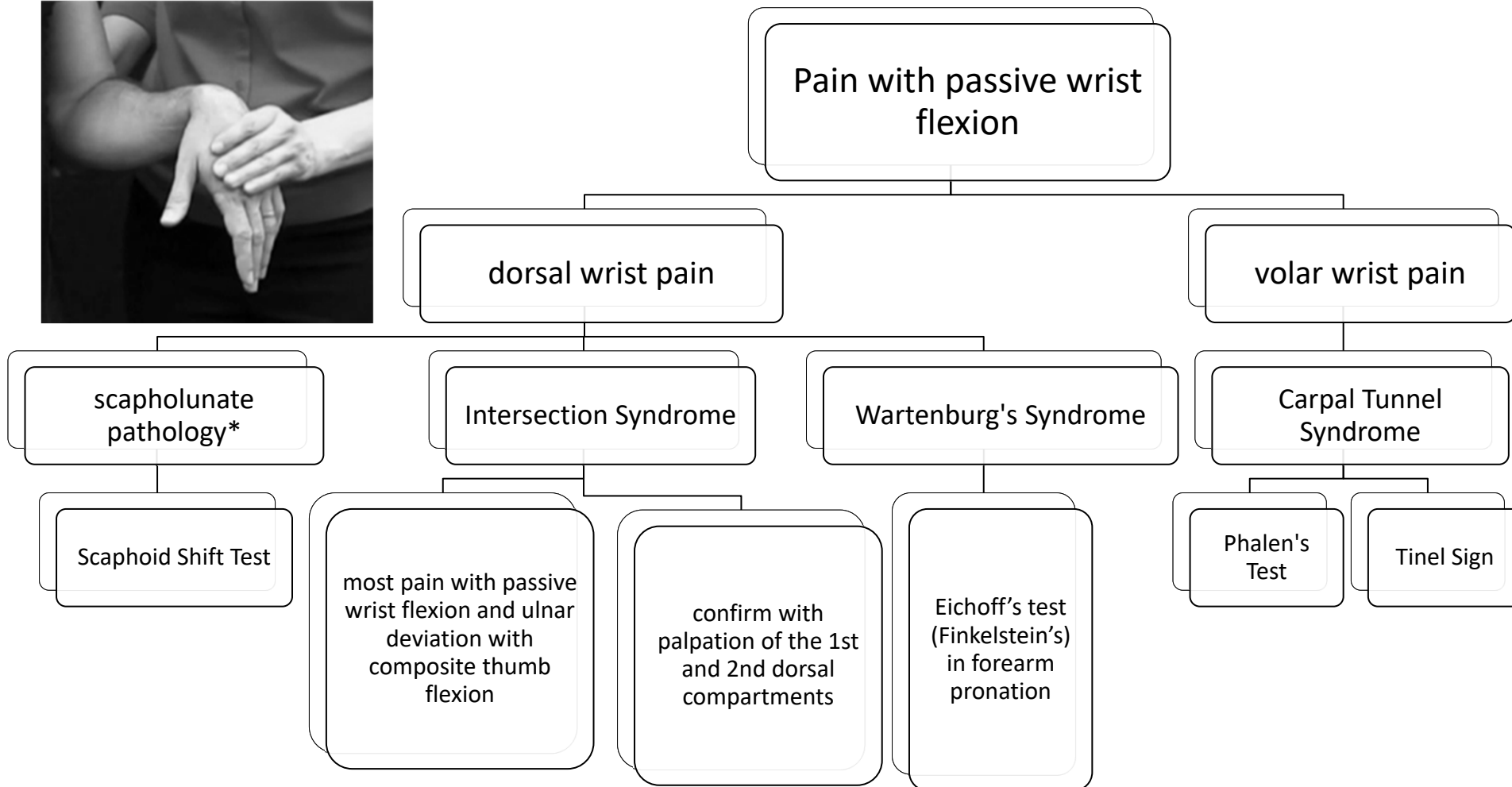
Questions we ask ourselves...

1. Is there a limit? **no**
2. If there is no limit, is there pain? **yes**
3. If there is pain, where?

Pixabay.com

Clinical Testing Algorithm: when there is no limit

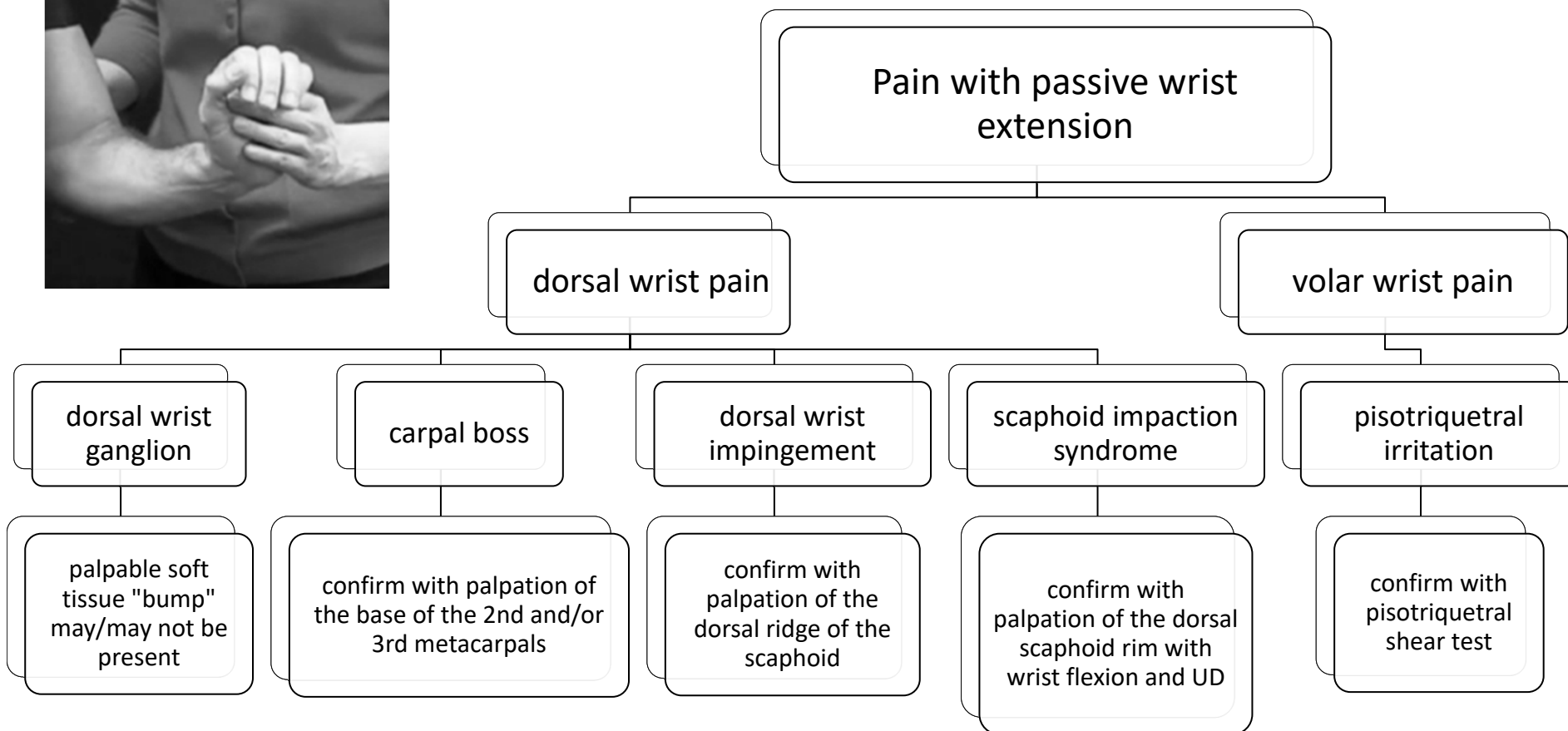
Pain with Passive Wrist Flexion



*Note: scapholunate pathology may produce dorsal or volar wrist pain with passive wrist flexion


Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Extension



Clinical Testing Algorithm: when there is no limit

Passive testing into Radial Deviation




- Stabilize forearm proximal to the radiocarpal joint.
- Guide wrist through full range of passive radial deviation in a neutral plane.
- Apply gentle overpressure at end range.

Compare with uninvolved side

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Radial Deviation




```

    graph TD
      A[Pain with passive wrist radial deviation] --> B[radial wrist pain]
      A --> C[ulnar wrist pain]
      B --> D[Radial Styloid Impaction Syndrome]
      C --> E[Ulnar Collateral Ligament Sprain]
      D --> F[palpate tenderness in the anatomical snuff box to confirm]
      E --> G[palpate tenderness at the ulnar collateral ligament to confirm]
    
```

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Clinical Testing Algorithm: when there is no limit

Passive testing into Ulnar Deviation




- Stabilize forearm proximal to the radiocarpal joint.
- Guide wrist through full range of passive ulnar deviation in a neutral plane.
- Apply gentle overpressure at end range.

Compare with uninvolved side

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Ulnar Deviation



```


    graph TD
      Root[Pain with passive wrist ulnar deviation] --> Radial[radial wrist pain]
      Root --> Ulnar[ulnar wrist pain]
      Radial --> RSL[Radioscaphoid Ligament Sprain]
      Radial --> DQ[De Quervain's tenosynovitis]
      RSL --> RSL_Test[palpable tenderness present along the Radioscaphoid Ligament]
      DQ --> DQ_Test[Eichoffs's Test (Finkelstein's); WHAT test]
      DQ --> DQ_Older[in older patient: consider CMC OA + further testing]
      Ulnar --> UIS[ulnocarpal impaction syndrome]
      UIS --> UIS_Test[Ulnocarpal Stress Test, Ulnar Fovea Sign + other tests]
    
```

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Clinical Testing Algorithm: when there is no limit

Passive testing into Forearm Pronation

- Stabilize the humeral epicondyles to prevent shoulder compensation.
- Guide forearm through full range of passive pronation with a lumbrical grip of the distal forearm.
- Apply gentle overpressure at end range.




Compare with uninvolved side

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Forearm Pronation



```


    graph TD
      A[Pain with passive forearm pronation] --> B[dorsal ulnar wrist pain]
      A --> C[volar ulnar wrist pain]
      B --> D[Superficial Dorsal Radioulnar Ligament Sprain]
      C --> E[Deep Volar Radioulnar Ligament Sprain]
      D --> F[DRUJ Ballottement Test]
      D --> G[DRUJ Ballottement Test]
      E --> H[Deep Volar Radioulnar Ligament Shift Test]
      E --> I[Ulnar Fovea Sign]
    
```

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Clinical Testing Algorithm: when there is no limit

Passive testing into Forearm Supination

- Stabilize the humeral epicondyles to prevent shoulder compensation.
- Guide forearm through full range of passive supination with a lumbrical grip of the distal forearm.
- Apply gentle overpressure at end range.




Compare with uninvolved side

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Forearm Supination



```


    graph TD
      A[Pain with passive forearm supination] --> B[volar ulnar wrist pain]
      A --> C[dorsal ulnar wrist pain]
      B --> D[Superficial Volar Radioulnar Ligament Sprain]
      D --> E[DRUJ Ballottement Test]
      C --> F[Deep Dorsal Radioulnar Ligament Sprain]
      C --> G[ECU tenosynovitis]
      F --> H[DRUJ Ballottement Test]
      F --> I[Deep Dorsal Radioulnar Ligament Shift Test]
      F --> J[Ulnar Fovea Sign]
      G --> K[palpate ECU tendon sheath to confirm]
    
```

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Clinical Testing Algorithm: Passive testing

Passive testing into Thumb Retroposition

- Stabilize ulnar border of the hand and forearm being tested. *(Use a lumbrical grip with the ipsilateral hand)*
- Guide the thumb through full passive retroposition.
- Apply gentle overpressure at end range. *(Be careful not to hyperextend the MP joint)*
- capsular pattern: limited excursion and/or harder end-feel



Compare with uninvolved side

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Clinical Manual Assessment of the Wrist

Our Next Step: Resisted (Ω) Testing

- To assess pain
- To determine muscle strength

Performed:

- isometrically with the joint in neutral position
- with elbow extended to pre-tension muscle-tendon unit

Note: *Stretching the musculotendinous unit in the opposite direction is most sensitive for tenosynovitis*

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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing

- Quality? How strong is it? (Note, this is not a true manual muscle test, but a comparison to the uninvolved side)
- Provocation? Does the test provoke their symptoms?
- Most important question:


Where is the pain?

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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing

- Flexor Carpi Radialis (FCR)
- Flexor Carpi Ulnaris (FCU)
- Extensor Carpi Radialis Longus & Brevis (ECRB/L)
- Extensor Carpi Ulnaris (ECU)

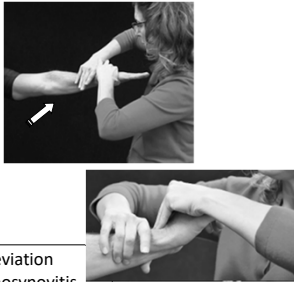


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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing: FCR

- Wrist is held in neutral
- Fingers in extension
- Stabilize the distal forearm in direct opposition with the force applied
- Apply a progressive force on the wrist in a *dorsal ulnar direction*
- (+) test: pain, indicating FCR tendinopathy



- Stretch: Extension and ulnar deviation
- (+) test: pain, indicating FCR tenosynovitis

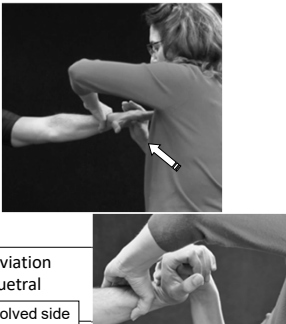
•Compare with uninvolved side
•Look for reproduction of symptoms

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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing: FCU

- Wrist is held in neutral
- Fingers in extension
- Stabilize the distal forearm in direct opposition with the force applied
- Apply a progressive force on the wrist in a *dorsal radial direction*
- (+) test: pain, indicating FCU tendinopathy



- Stretch: Extension and radial deviation
- (+) test: pain, indicating pisotriquetral arthropathy


•Compare with uninvolved side

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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing: ECRB/L

- Wrist is held in neutral
- Fingers in flexion
- Stabilize the distal forearm in direct opposition with the force applied
- Apply a progressive force on the wrist in a *volar ulnar direction*
- (+) test: pain, indicating ECRB/L tendinopathy




- Stretch: Flexion and ulnar deviation
- (+) test: pain, indicating ECRB/L tenosynovitis

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Clinical Manual Assessment of the Wrist

Resisted (Ω) Testing: ECU

- Wrist is held in neutral
- Fingers in flexion
- Stabilize the distal forearm in direct opposition with the force applied
- Apply a progressive force on the wrist in a *volar radial direction*
- (+) test: pain, indicating ECU tendinopathy



- Stretch: Flexion and radial deviation
- (+) test: pain, indicating ECU tenosynovitis

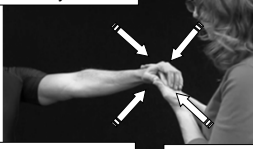
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Clinical Manual Assessment of the Wrist

Let's review resistive testing for the Wrist!!

Extensor Carpi Radialis Brevis/Longus (ECRB/L)
tendinopathy and tenosynovitis

Extensor Carpi Ulnaris (ECU)
tendinopathy and tenosynovitis



Flexor Carpi Radialis (FCR)
tendinopathy and tenosynovitis

Flexor Carpi Ulnaris (FCU)
tendinopathy and pisotriquetral irritation (no tendon sheath on FCU)

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Clinical Manual Assessment of the Wrist

Let's review resistive testing for the Wrist!!



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Clinical Manual Assessment of the Wrist

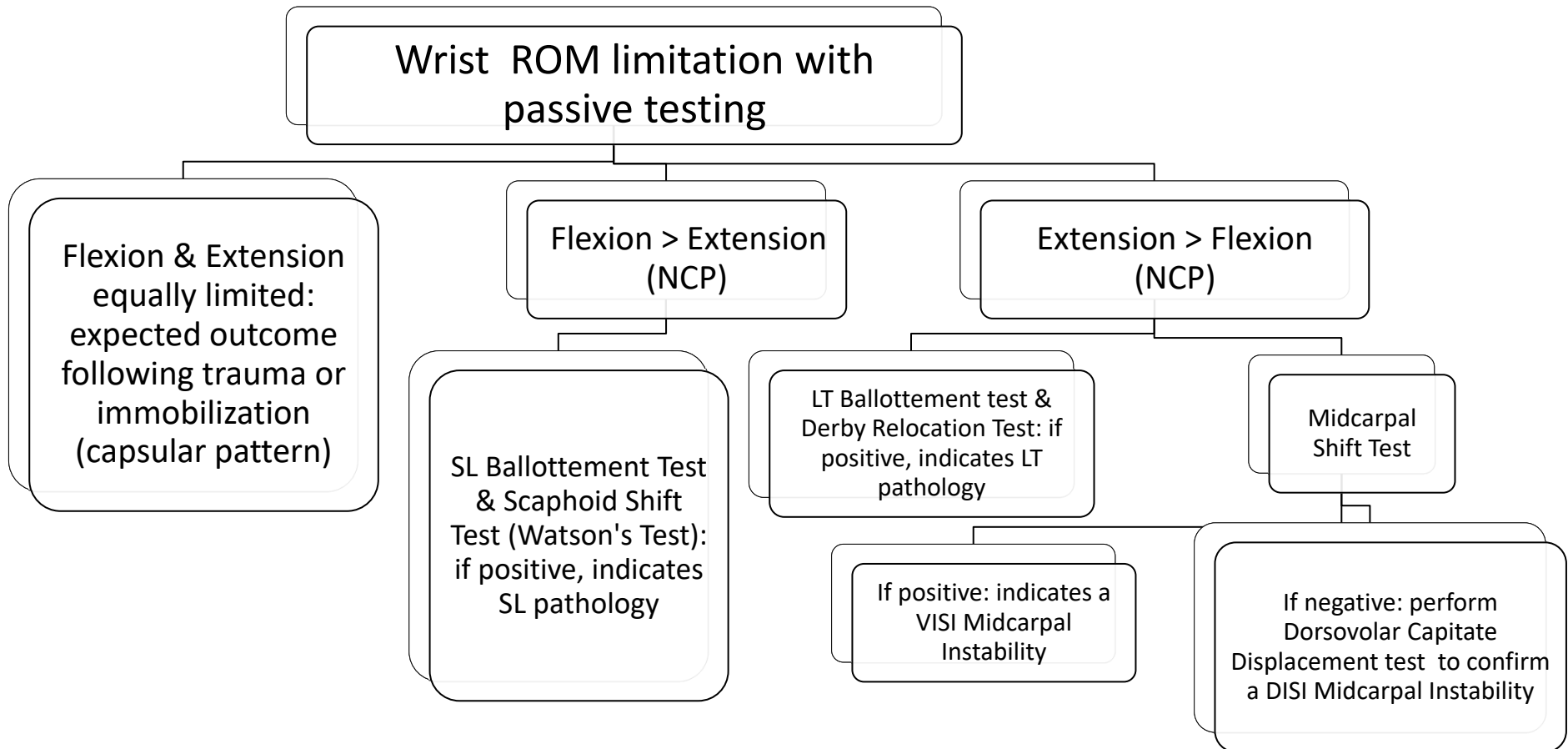
Special Tests to Confirm your Working Diagnosis!

- To differentiate within a group of structures
- To confirm a tentative diagnosis
- To unravel a difficult pattern
- To extend a negative examination
- To make a differential diagnosis
- To understand unusual signs

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Special Tests:

Passive Wrist Testing: with limitations present



NCP = noncapsular pattern

Special Tests: Wrist Flexion Limitation

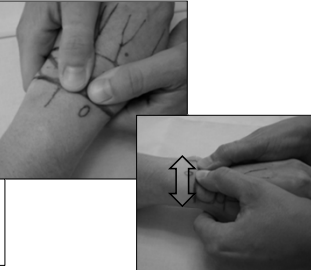
Scapholunate Ballotment Test

STEP #1:

- Stabilize the lunate with the index finger and thumb of one hand.

STEP #2:

- With the other hand, grasp the scaphoid dorsally at the proximal pole and volarly at the scaphoid tubercle. Perform A/P glides




Green DP, Pederson WC, Hotchkiss RN, Wolfe SW. Green's Operative Hand Surgery 6th ed. Elsevier Inc. Philadelphia. 2011.

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Special Tests: Wrist Flexion Limitation

Scapholunate Ballotment Test



(+)test: pain, crepitus, and increased motion (compared to the uninvolved side)

Green DP, Pederson WC, Hotchkiss RN, Wolfe SW. Green's Operative Hand Surgery 6th ed. Elsevier Inc. Philadelphia. 2011.


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Special Tests: Wrist Flexion Limitation

Scaphoid Shift Test

STEP #1:

Start with the patient's wrist passively brought in ulnar deviation, places pressure on the scaphoid tubercle




Schmass D, Pohlmann S, Weinzierl A, et al. Relevance of the scaphoid shift test for investigation of scapholunate ligament injuries. J Clin Med. 2022;Oct 26:11(21):6322.

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Special Tests: Wrist Flexion Limitation

Scaphoid Shift Test

STEP #2:
Bring the patient's wrist passively into radial deviation, while placing pressure on the scaphoid tubercle, preventing flexion




Schmass D, Pohlmann S, Weinzierl A, et al. Relevance of the scaphoid shift test for investigation of scapholunate ligament injuries. J Clin Med. 2022;Oct 26;11(21):6322.

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Special Tests: Wrist Flexion Limitation

Scaphoid Shift Test

If the SL ligament is intact, your thumb will get pushed away due to flexion of the scaphoid tubercle with radial deviation



A positive (+) test: occurs when the therapist "wins" by maintaining the scaphoid in an extended position.

Schmass D, Pohlmann S, Weinzierl A, et al. Relevance of the scaphoid shift test for investigation of scapholunate ligament injuries. J Clin Med. 2022;Oct 26;11(21):6322.

62

Special Tests: Wrist Flexion Limitation

Scaphoid Shift Test

- This test has low specificity
- Comparison to the other side is important
- This indicates a **DISI**, as the scaphoid and lunate are no longer "bound" together with arthrokinematics motion
- Positive likelihood ratio (+LR) 2.76
- Negative likelihood ratio (-LR) 0.25

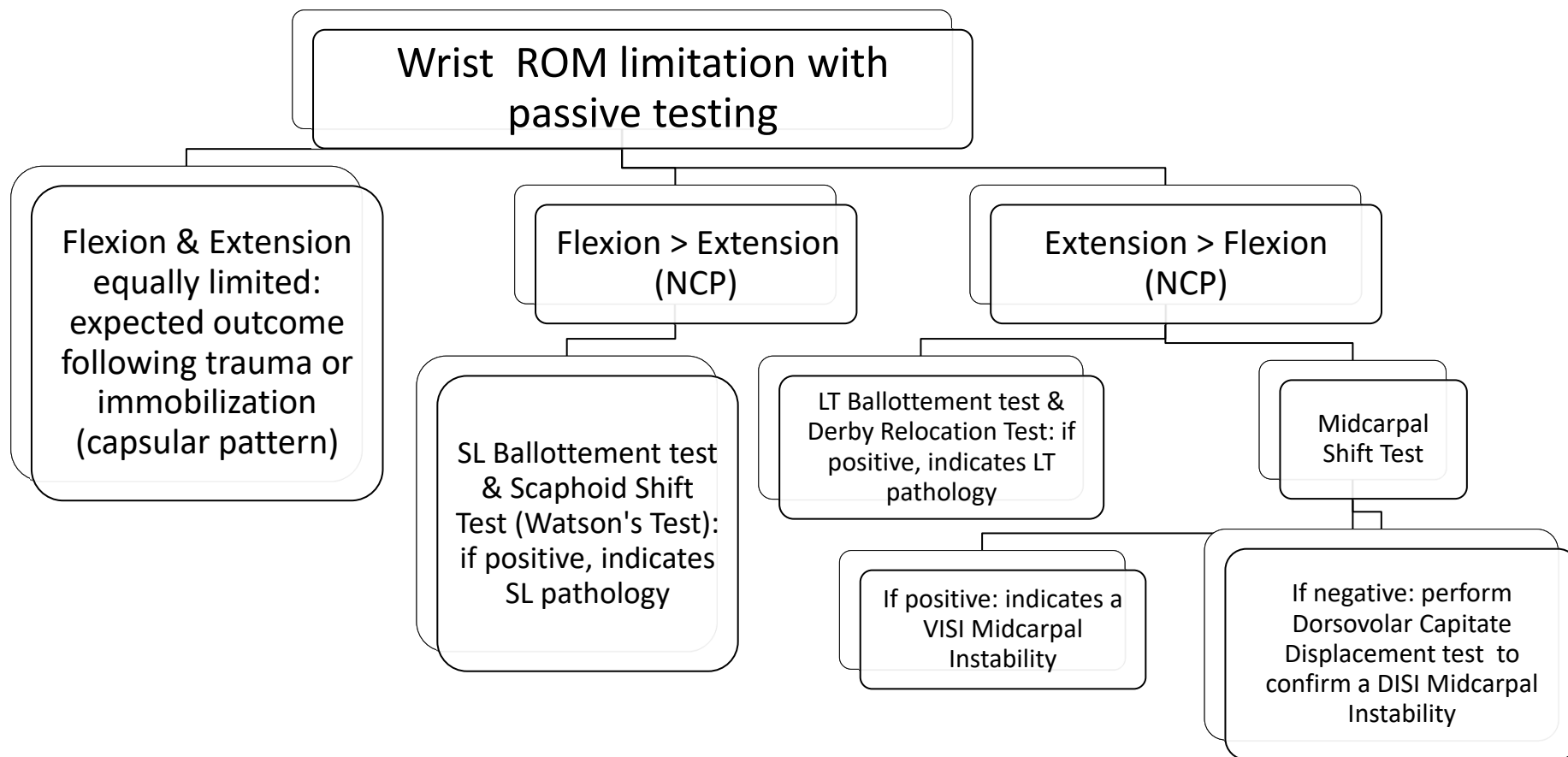
Schmass D, Pohlmann S, Weinzierl A, et al. Relevance of the scaphoid shift test for investigation of scapholunate ligament injuries. J Clin Med. 2022;Oct 26;11(21):6322.

Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

63

Special Tests:

Passive Wrist Testing: with limitations present



NCP = noncapsular pattern

Special Tests: Wrist Extension Limitation

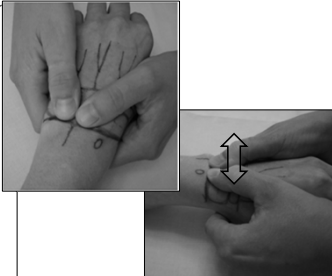
Lunotriquetral Ballotment Test

STEP #1:

- Stabilize the lunate with the index finger and thumb of one hand.

STEP #2:

- With the other hand, grasp the triquetrum dorsally and pisiform volarly and displace the pisotriquetral unit volarly, then dorsally




Rhee PC, Sauve PS, Lindau et al. Examination of the wrist: ulnar-sided wrist pain due to ligamentous injury. J Hand Surg Am. 2014;Sep;39(9):1859-62.

65

Special Tests: Wrist Extension Limitation

Lunotriquetral Ballotment Test



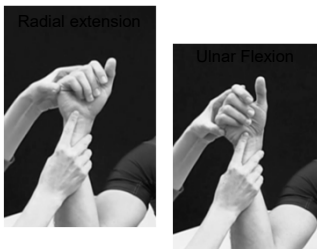
(+)test: pain, crepitus, and increased motion (compared to the uninvolved side)

66

Special Tests: Wrist Extension Limitation

Derby Test

- Therapist loads the pisiform in a dorsal direction while the patient moves the wrist along the "dart-thrower's plane"



Christodoulou L, Bainbridge LC. Clinical diagnosis of triquetrolunate ligament injuries. J Hand Surg (Br). 1999;24(5):598-600.


Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

67


Special Tests: Wrist Extension Limitation

Derby Test

- This reduces the subluxation of the LT joint causing the feeling of instability to disappear and grip strength to increase (with sustained pressure over the pisiform)
- (+) test: reduction or elimination of symptoms indicates LT pathology



Radial extension



Ulnar flexion

Christodoulou L, Bainbridge LC. Clinical diagnosis of triquetrolunate ligament injuries. J Hand Surg (Br). 1999;24(5):598-600.


Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

68

Special Tests: Wrist Extension Limitation

Derby Test

- Very sensitive test for LT instability
- Positive likelihood ratio (+LR) >16 (but has not been reproduced)



Christodoulou L, Bainbridge LC. Clinical diagnosis of triquetrolunate ligament injuries. J Hand Surg (Br). 1999;24(5):598-600.

Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

69

Special Tests: Wrist Extension Limitation

Derby Test: second option!

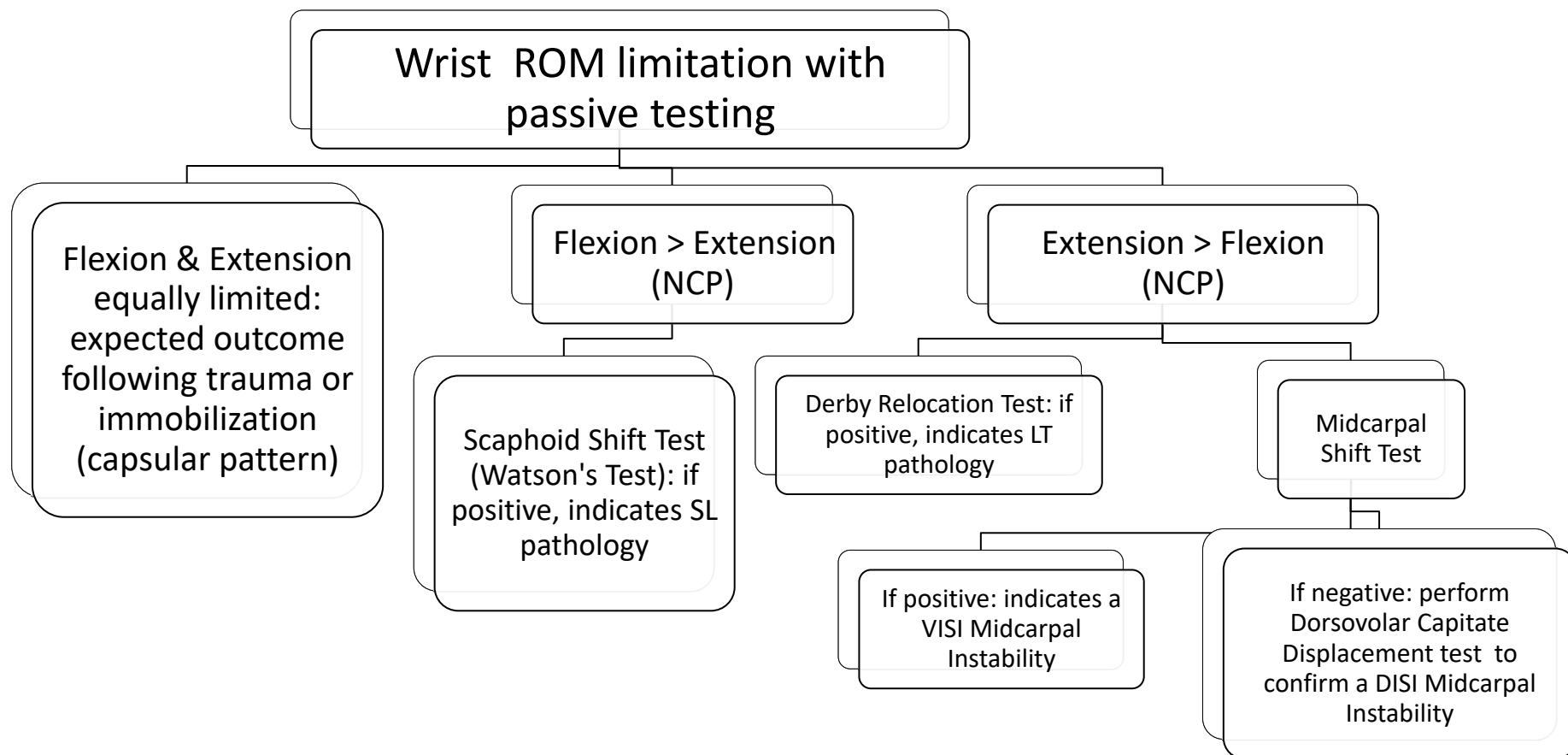


Rhee PC, Sauve PS, Lindau et al. Examination of the wrist: ulnar-sided wrist pain due to ligamentous injury. J Hand Surg Am. 2014;Sep;39(9):1859-62.

70

Special Tests:

Passive Wrist Testing: with limitations present



NCP = noncapsular pattern

Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

With a volar midcarpal instability (MCI), the proximal row remains flexed throughout the entire range of ulnar deviation until it reaches a certain position when it suddenly snaps into an extended position, which is referred to as the "catch-up clunk."

Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.

72

Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

Provocation of the "catch up" extension clunk of the proximal row at end range of ulnar deviation (from reduction of the capitate and lunate VISI malalignment).

Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.


73

Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

Step #1: The examiner stabilizes the patient's pronated forearm with the contralateral hand

The patient's wrist is positioned in 15° of ulnar deviation



Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.


74

Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

Step #2: The examiner's thumb exerts a volar-directed pressure over the distal capitate.

Step #3: The wrist is then simultaneously axially loaded



Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.


75

Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

Step #4: In the final step, the wrist is ulnarly deviated while maintaining the volar-directed pressure and axial compression.

- (+) test: if a painful clunk occurs that reproduces the patient's symptoms, indicating a Midcarpal VISI
- (+LR) 2.67



Lichtman DM, Pientka WF. Midcarpal instability: a historical and etymological review. J Hand Surg Am. 2023;48(2):188-192.

Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

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Special Tests: Wrist Extension Limitation

Midcarpal Shift Test




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Special Tests: Wrist Extension Limitation

Midcarpal Shift Test

- An example of a (+) test!

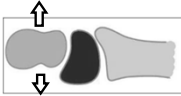


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Special Tests: type of midcarpal instability

Dorsovolar Capitate Displacement Test

STEP #1: The therapist stabilize the lunate with the index and thumb of one hand.



STEP #2: With the other hand, the therapist grasp the capitate dorsally and volarly with the other hand and displace the capitate volarly, then dorsally.



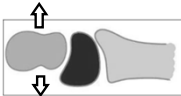

Johnson RP, Carrera GF. Chronic capitulunate instability. J Bone Joint Surg Am. 1986;68(8):1164-1176.

79

Special Tests: type of midcarpal instability

Dorsovolar Capitate Displacement Test

This test will allow for appreciation of amplitude of movement at the midcarpal joint and assist in differentiation of a midcarpal instability and LT pathology.

Johnson RP, Carrera GF. Chronic capitulunate instability. J Bone Joint Surg Am. 1986;68(8):1164-1176.

Green DP, Pederson WC, Hotchkiss RN, Wolfe SW. Green's Operative Hand Surgery 6th ed. Elsevier Inc. Philadelphia. 2011.

80

Special Tests: type of midcarpal instability

Dorsovolar Capitate Displacement Test

81

Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Flexion

```

    graph TD
      A[Pain with passive wrist flexion] --> B[dorsal wrist pain]
      A --> C[volar wrist pain]
      B --> D[a structure is being stretched]
      C --> E[a structure is being compressed]
      D --> F[radial nerve, synovial sheaths, carpal bone dyskinematics]
      E --> G[median nerve or carpal bone dyskinematics]
  
```

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Dorsal Pain with Passive Wrist Flexion

Wartenberg's syndrome

Dorsal Radial Sensory Nerve issue.....

- **traction** occurs with FA pronation, wrist flexion & UD
- **compression** occurs with FA pronation, between ECRL and brachioradialis (scissorlike effect)

83

Dorsal Pain with Passive Wrist Flexion

Eichhoff's Test (aka: Finkelstein's): in pronation

...for Wartenberg's syndrome

- Eichhoff's test performed in forearm pronation will provoke Wartenberg's syndrome
- For **de Quervain's**, this test will be **equally painful** in forearm neutral & pronation

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Dorsal Pain with Passive Wrist Flexion

Intersection syndrome

Tenomyosynovitis of 1st & 2nd compartment

The pain is located 3-4 cm proximal to Lister's tubercle (location of synovial sheath)




Occurs at the musculotendinous junction of the APL/EPB and ECRL/ECRB.

85

Dorsal Pain with Passive Wrist Flexion

...for Intersection syndrome


- Most painful test: combined wrist and thumb flexion
- Other provocative tests: resisted radial abduction & palmar abduction; Eichhoff's may also reproduce pain
- Look for localized pain at 1st & 2nd compartment intersection!

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Flexion



```

graph TD
    A[Pain with passive wrist flexion] --> B[dorsal wrist pain]
    A --> C[volar wrist pain]
    B --> D[a structure is being stretched]
    C --> E[a structure is being compressed]
    D --> F[radial nerve, synovial sheaths, carpal bone dyskinematics]
    E --> G[median nerve or carpal bone dyskinematics (SL)]
            
```


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Volar Pain with Passive Wrist Flexion (+)
LR: 2.95
(-)
LR: 0.57

Carpal Tunnel Syndrome

Tinel Sign

- With the wrist in a relaxed position (20° of ext), percuss over the course of the median nerve just proximal to and over the carpal tunnel.
- (+) test: paresthesias or electrical shock –like sensation in the hand or forearm



Highly recommended provocative test


Amirfeyz R, Gozzard C, Leslie U. Hand elevation test for assessment of carpal tunnel syndrome. J Hand Surg Br. 2005; 30:361-364.
 Valdes K & LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-42.

88

Volar Pain with Passive Wrist Flexion (+)

Carpal Tunnel Syndrome **Phalen's Test** (-)

- Patient's wrist positioned in end-range flexion and elbow in full extension; held for 60 seconds
- (+) test: paresthesias produced in the median nerve distribution



Highly recommended provocative test

Amirfeyz R, Gozzard C, Leslie U. Hand elevation test for assessment of carpal tunnel syndrome. J Hand Surg Br. 2005; 30:361-364.
 Valdes K & LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-42.


89

Volar Pain with Passive Wrist Flexion (+)
LR: 0.80
(-)
LR: 1.27

Carpal Compression Test-Durkan's

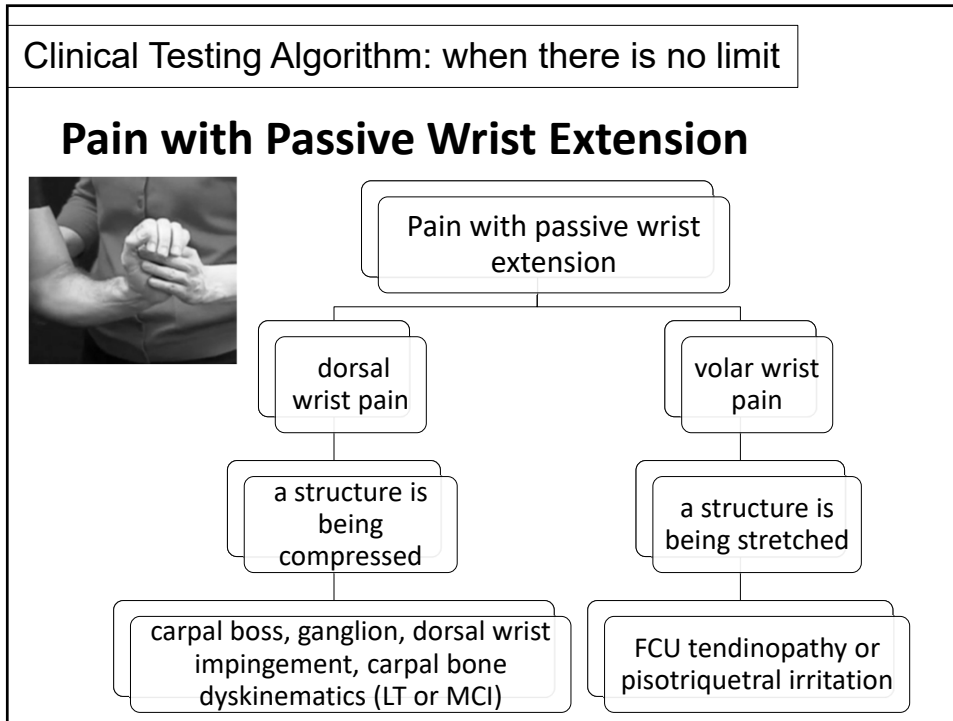
Carpal Tunnel Syndrome

- place patient's wrist in neutral and compresses the carpal canal
- hold for 30 seconds
- (+) test: reproduction of median nerve symptoms



Amirfeyz R, Gozzard C, Leslie U. Hand elevation test for assessment of carpal tunnel syndrome. J Hand Surg Br. 2005; 30:361-364.
 Ma H & Kim I. The diagnostic assessment of hand elevation test in carpal tunnel syndrome. J Korean Neurosurg Soc. 2012;Nov; 52(5):472-475.

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91

Dorsal Pain with Passive Wrist Extension

Carpal Boss

- osteophyte at the base of the 2nd or 3rd metacarpal
- irritation of the soft tissue (dorsal wrist capsule, ECRL or ECRB insertions)



- etiology: compression during wrist hyper-extension activities such as with gymnastics and weightlifting
- caused by trauma or overuse
- these osteophytes can limit wrist extension

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Dorsal Pain with Passive Wrist Extension



Dorsal Wrist Ganglion

- Most common mass about the wrist
- Attached by a pedicle of variable length to the scapholunate ligament
- Occult dorsal ganglia, likely due to predynamic scapholunate instability

Teefey SA, Dahiya N, Middleton WD, Gelberman RH, Boyer MI. Ganglia of the hand and wrist: A sonographic analysis. AJR 2008;191:716-720.

93

Dorsal Pain with Passive Wrist Extension

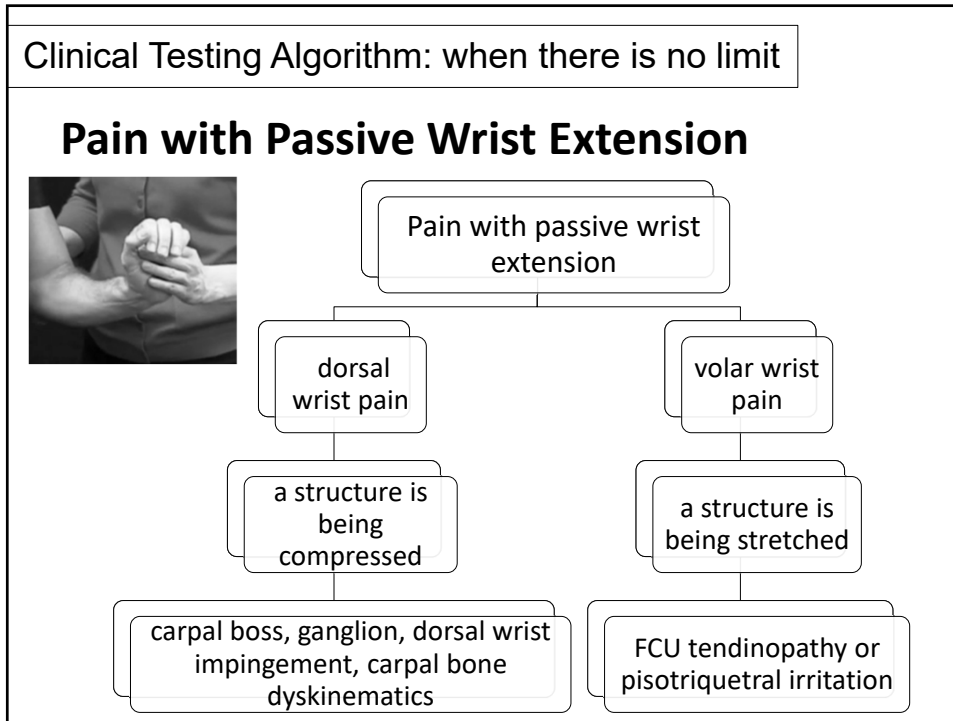
Dorsal Wrist Impingement

- pinching of the dorsal wrist capsule between the ECRB tendon and the dorsal ridge of the scaphoid
- persistent capsular inflammation causes thickening of the dorsal wrist capsule
- Scapholunate interval should be tested for stability



Henry M. Arthroscopic management of dorsal wrist impingement. J Hand Surg 2008;33A:1201-1204.

94




95

Volar Pain with Passive Wrist Extension

Pisiform Tracking/Shear Test FCU tendinopathy vs pisotriquetral arthropathy

- place wrist in flexion (FCU on slack)
- move the pisiform from ulnar to radial with a grinding-like motion on the triquetrum
- (+) test: pain & crepitation indicated pisotriquetral arthropathy



Rayan G. Pisiform ligament complex syndrome and pisotriquetral arthrosis. Hand Clinics. 2005; 21:507-517.

96

Volar Pain with Passive Wrist Extension

Pisiform Tracking/Shear Test



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Volar Pain with Passive Wrist Extension

FCU tendinopathy

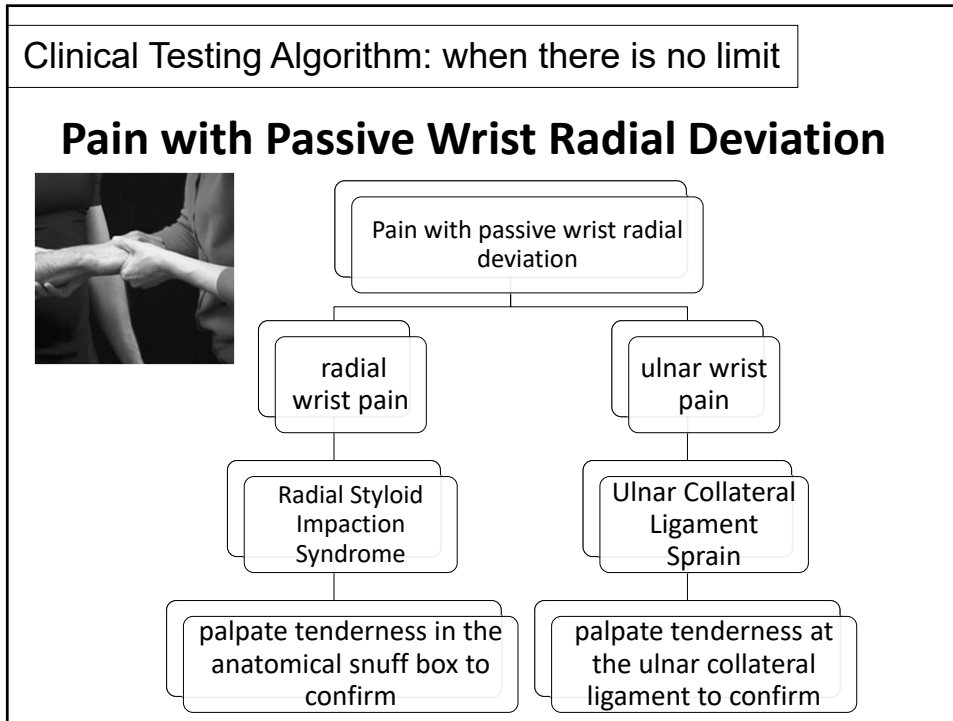
“FCU tendinopathy seldom occurs in isolation and often is associated with pisotriquetral instability and arthrosis”

- (-) Pisiform Tracking/Shear Test
- Confirm tendinopathy with palpation



Rayan G. Pisiform ligament complex syndrome and pisotriquetral arthrosis. Hand Clinics. 2005; 21:507-517.

98




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Radial Pain with Passive Wrist Radial Deviation

Radial Styloid Impaction Syndrome

- Symptoms are produced by radial deviation with pressure exerted on scaphoid tuberosity from the radial styloid;
- Confirm with tenderness to palpation elicited from volar aspect of radial styloid




Wheeless' Textbook of Orthopaedics. WheelessOnline.com. Duke University Medical Center's Division of Orthopaedic Surgery, in conjunction with Data Trace Internet Publishing, LLC .

100

Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Radial Deviation

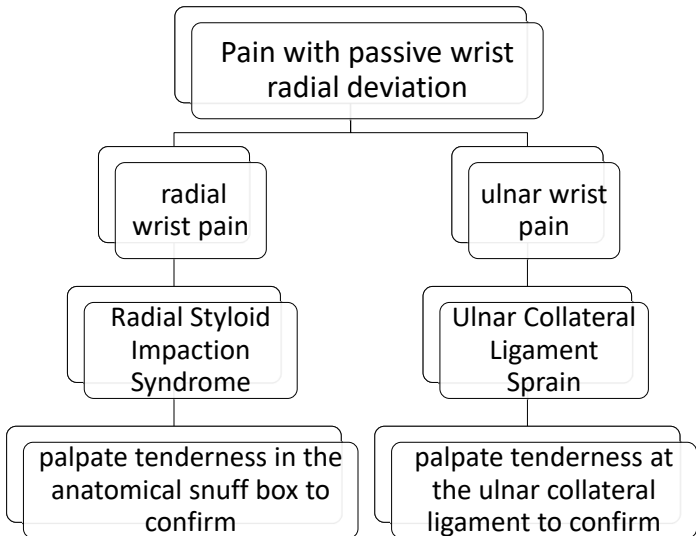


Palpate tenderness in the anatomical snuff box to confirm radiostyloid impaction syndrome

101

Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Radial Deviation



```
graph TD; A[Pain with passive wrist radial deviation] --> B[radial wrist pain]; A --> C[ulnar wrist pain]; B --> D[Radial Styloid Impaction Syndrome]; C --> E[Ulnar Collateral Ligament Sprain]; D --> F[palpate tenderness in the anatomical snuff box to confirm]; E --> G[palpate tenderness at the ulnar collateral ligament to confirm]
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Ulnar Pain with Passive Wrist Radial Deviation

Ulnar Collateral Ligament Sprain

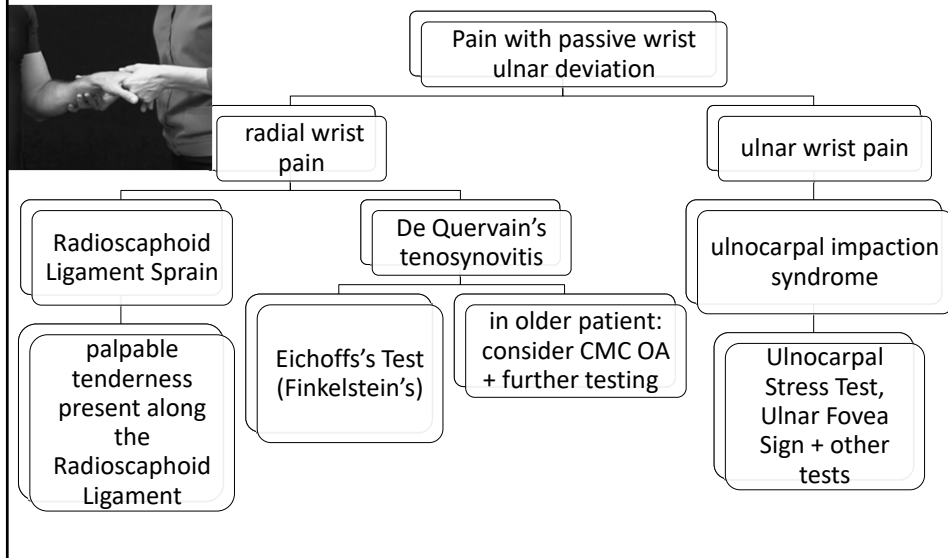


Palpate along the ulnar collateral ligament to confirm Ulnar Collateral Ligament sprain

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Clinical Testing Algorithm: when there is no limit

Pain with Passive Wrist Ulnar Deviation



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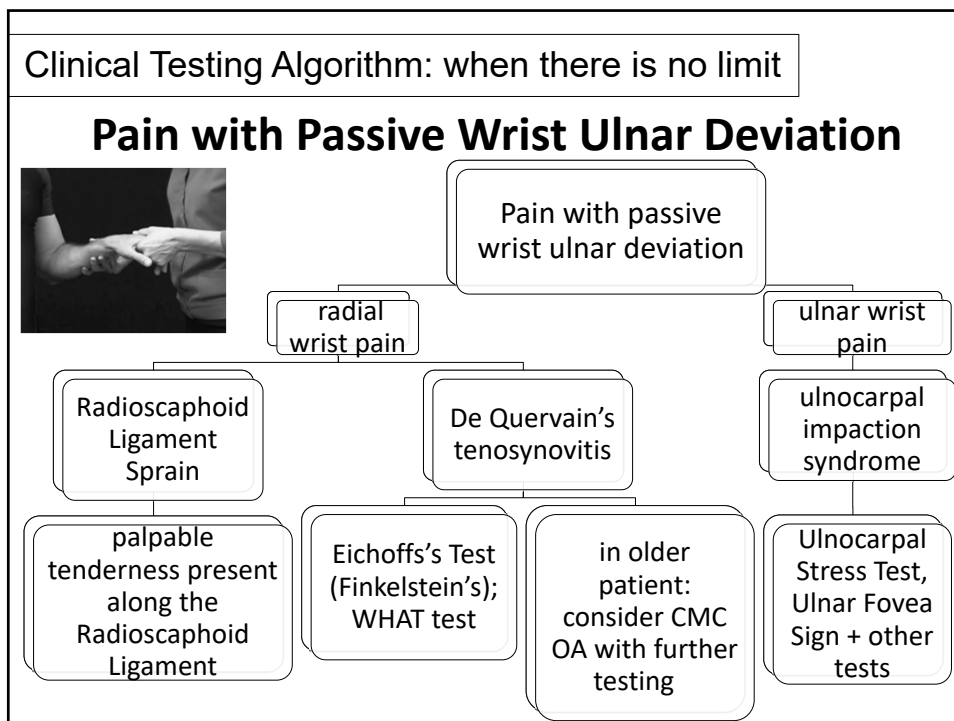
Radial Pain with Passive Wrist Ulnar Deviation

Pain with Passive Wrist Ulnar Deviation



Palpate along the Radioscaphoid Ligament to confirm a sprain

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Radial Pain with Passive Wrist Ulnar Deviation

Eichhoff's Test
De Quervain's Tenosynovitis

- mistakenly referred to a the "Finkelstein's Test"
- the patient places the thumb in the palm and gently wraps fingers around the thumb
- the wrist is passively brought into ulnar deviation
- (+) test: reproduction of the patient's symptoms



Sauvé PS, Rhee PC, Shin AY, et al. Examination of the wrist: radial-sided wrist pain. J Hand Surg. 2014; Oct;39(10):2089-92.

107

Radial Pain with Passive Wrist Ulnar Deviation

Eichhoff's Test




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Radial Pain with Passive Wrist Ulnar Deviation

Wrist Hyperflexion and Abduction of the Thumb (WHAT) Test
De Quervain's Tenosynovitis

- a dynamic test that isolates the tendons in the 1st dorsal compartment
- With the wrist maximally flexed, the patient abducts the thumb against resistance of the examiner
- (+) test: reproduction of the patient's symptoms

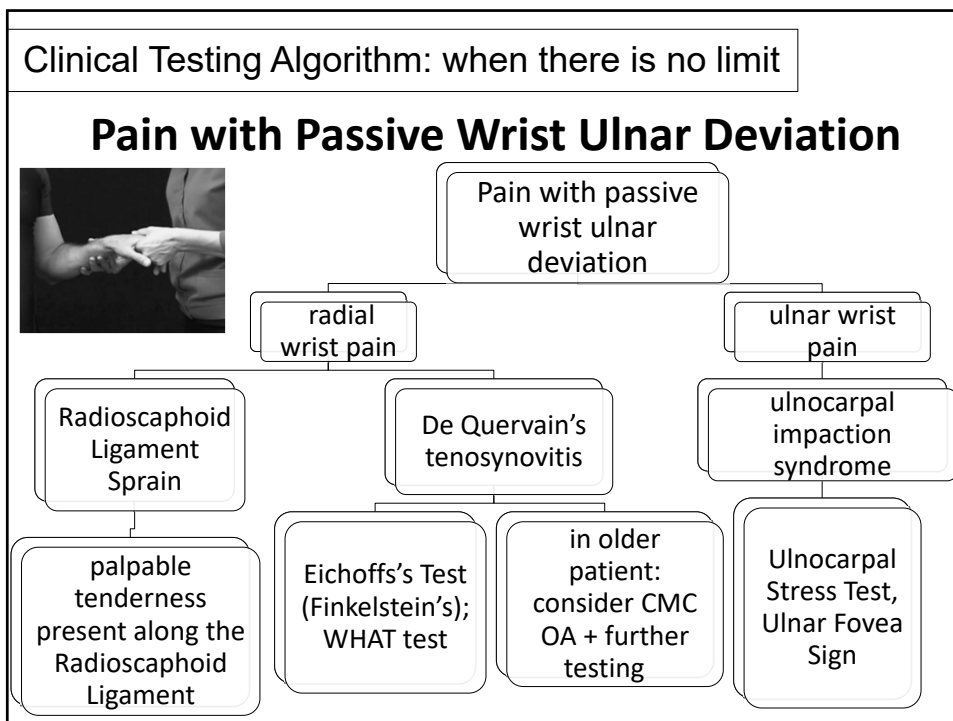


Goubau JF, et al. The wrist hyperflexion and abduction of the thumb (WHAT) test: a more specific and sensitive test to diagnose de quervain tenosynovitis than the eichhoff's test. J Hand Surg (Eur). 2014; Mar;39(3):286-92.

109



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111

Clinical Testing Algorithm: when there is no limit

Ulnocarpal Stress Test

- Place your contralateral hand under the patient's olecranon
- Place the patient's wrist in ulnar deviation (UD)
- Provide an axial load through the wrist, while maintaining wrist UD, as you perform passive forearm pronation & supination
- (+) test: reproduction of ulnar wrist pain




Nakamura R, Horii T, Imaeda E, et al. The ulno-carpal stress test in the diagnosis of ulnar-sided wrist pain. J Hand Surg Br. 1997; 22: 719-723.

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Clinical Testing Algorithm: when there is no limit

Ulnocarpal Stress Test



113

Clinical Testing Algorithm: when there is no limit

Ulnocarpal Stress Test

- Sensitive, but not specific
- (+) test: reproduction of ulnar wrist pain, can include involvement of the TFCC, LT interval, ulnocarpal impaction, arthritis/arthrosis, or a loose body
- Positive likelihood ratio (+LR): 1.0

We need more tests!

Valdes K, LaStayo P. The value of provocative tests for the wrist and elbow: a literature review. J Hand Ther. 2013; 26:32-43.

Sachar K. Ulnar-sided wrist pain: evaluation and treatment of triangular fibrocartilage complex tears, ulnocarpal impaction syndrome, and lunotriquetral ligament tears. J Hand Surg. 2008; 33A: 1669-1679.


Nakamura R, Horii T, Imaeda E, et al. The ulno-carpal stress test in the diagnosis of ulnar-sided wrist pain. J Hand Surg Br. 1997; 22: 719-723.

114

Clinical Testing Algorithm: when there is no limit

Ulnar Fovea Sign

- Used to identify an ulnotriquetral (UT) ligament tear or foveal disruption
- Place the wrist and forearm in neutral
- Locate the ulnar fovea between the ulnar styloid and FCU tendon




Tay SC, Tomita K, Berger R. The "ulnar fovea sign" for defining ulnar wrist pain: an analysis of sensitivity and specificity. J Hand Surg. 2007; 32A: 438-444.

115

Clinical Testing Algorithm: when there is no limit

Ulnar Fovea Sign

- Using your thumb tip, press distal and deep into the "soft spot" (ulnar fovea) between the ulnar styloid, FCU tendon, and volar surface of the ulnar head
- (+) test: exquisite tenderness compared to the uninvolved side, reproducing the patient's pain



Tay SC, Tomita K, Berger R. The "ulnar fovea sign" for defining ulnar wrist pain: an analysis of sensitivity and specificity. J Hand Surg. 2007; 32A: 438-444.

116

Clinical Testing Algorithm: when there is no limit

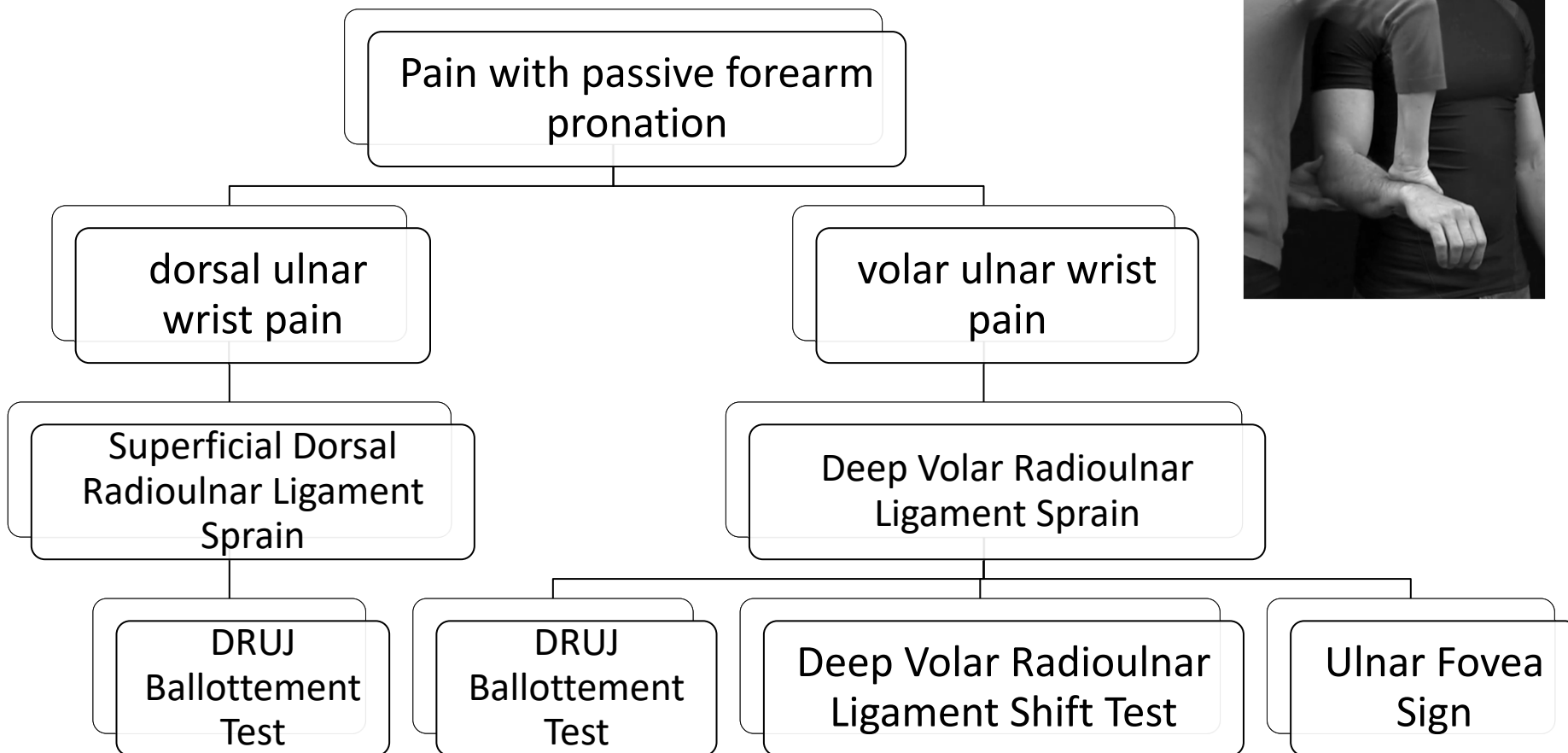
Ulnar Fovea Sign



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Clinical Testing Algorithm: when there is no limit


Pain with Passive Forearm Pronation



Clinical Testing Algorithm: pain with passive forearm rotation

DRUJ Ballottement Test

- For DRUJ instability or TFCC involvement
- Place the forearm in neutral
- Firmly grasp the distal radius and carpus
- Apply a volar-directed force to the distal ulna, perpendicular to the dorsum of the forearm, allowing the distal ulna to return to neutral




Nagashima M, Omokawa S, Hsegawa H, et al. Reliability and validity analysis of the distal radioulnar joint ballottement test. *J Hand Surg Am.* 2024 Jan;45(1):15-22.
Onishi T, Omokawa S, Iida A, et al. Biomechanical study of distal radioulnar joint ballottement test. *J Orthop Res.* 2017; 35:1123-1127.

119

Clinical Testing Algorithm: pain with passive forearm rotation

DRUJ Ballottement Test

- Then apply a dorsal-directed force, allowing the distal ulna to passively return to neutral
- Compare the amount of excursion of the involved side to the uninvolved side
- (+) test: increased translation compared to the uninvolved side




Nagashima M, Omokawa S, Hsegawa H, et al. Reliability and validity analysis of the distal radioulnar joint ballottement test. *J Hand Surg Am.* 2024 Jan;45(1):15-22.
Onishi T, Omokawa S, Iida A, et al. Biomechanical study of distal radioulnar joint ballottement test. *J Orthop Res.* 2017; 35:1123-1127.

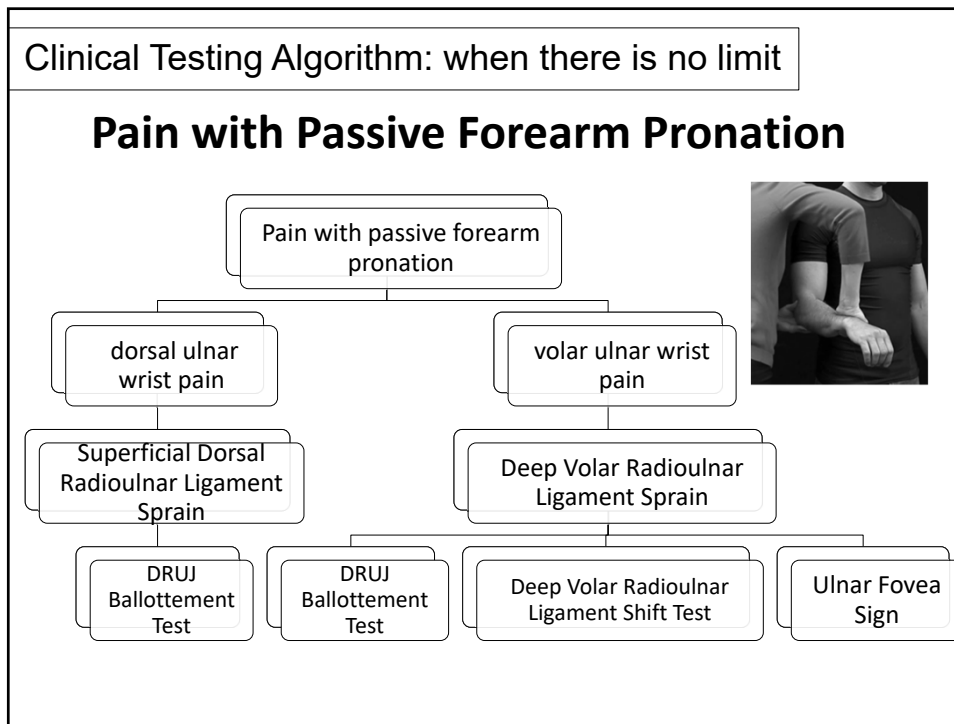
120

Clinical Testing Algorithm: pain with passive forearm rotation

DRUJ Ballottement Test



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Clinical Testing Algorithm: when there is no limit

Radioulnar Ligament Shift Tests

- **Volar Radioulnar Ligament Shift Test:** (forearm in pronation) Evaluates the integrity of the volar deep radioulnar ligament
- **Dorsal Radioulnar Ligament Shift Test:** (forearm in supination) Evaluates the integrity of the dorsal deep radioulnar ligament

Omokawa S, Iida A, Kawamura K, et al. A biomechanical perspective on distal radioulnar joint instability. *J Wrist Surg.* 2017; 6(2): 88-96.

Chidgey LK. The distal radioulnar joint: problems and solutions. *J Am Acad Orthop Surg.* 1995; 2: 95-109.

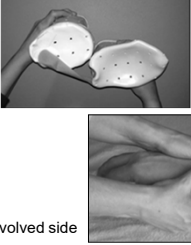
Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. *J Physiother.* 2011; 57(4):247-253.

123

Volar Ulnar Wrist Pain with Passive Forearm Pronation

Volar Radioulnar Ligament Shift Test

- Forearm **pronated**: stabilize distal ulna and ulnar carpal column with an ipsilateral lumbrical grip
- Perform volar translation of the distal radius, then allow it to return to its original position
- Repeat translation as needed for better assessment



Look for: Amplitude of movement compared to uninvolved side

Chidgey LK. The distal radioulnar joint: problems and solutions. J Am Acad Orthop Surg. 1995; 2: 95-109.

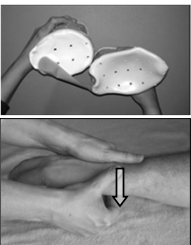
Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. J Physiother. 2011; 57(4):247-253.

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Clinical Testing Algorithm: pain with passive forearm pronation

Volar Radioulnar Ligament Shift Test

- (+) test: increased amplitude of movement and/or softer end-feel compared to the uninvolved side



Look for: Amplitude of movement compared to uninvolved side

Chidgey LK. The distal radioulnar joint: problems and solutions. J Am Acad Orthop Surg. 1995; 2: 95-109.

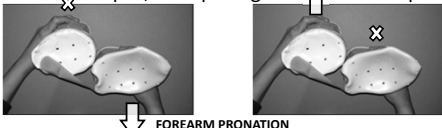
Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. J Physiother. 2011; 57(4):247-253.

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Volar Ulnar Wrist Pain with Passive Forearm Pronation

Volar Radioulnar Ligament Shift Test

- Some authors describe the test with stabilizing the distal ulna and carpus, then pushing down on the radius, while others describe stabilizing the distal radius and carpus, then pulling the distal ulna up



Look for: Amplitude of movement compared to opposite side


Omokawa S, Iida A, Kawamura K, et al. A biomechanical perspective on distal radioulnar joint instability. J Wrist Surg. 2017; 6(2): 88-96.

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Volar Ulnar Wrist Pain with Passive Forearm Pronation

Volar Radioulnar Ligament Shift Test

- (+) test: increased amplitude of movement and/or softer end-feel compared to the uninvolved side

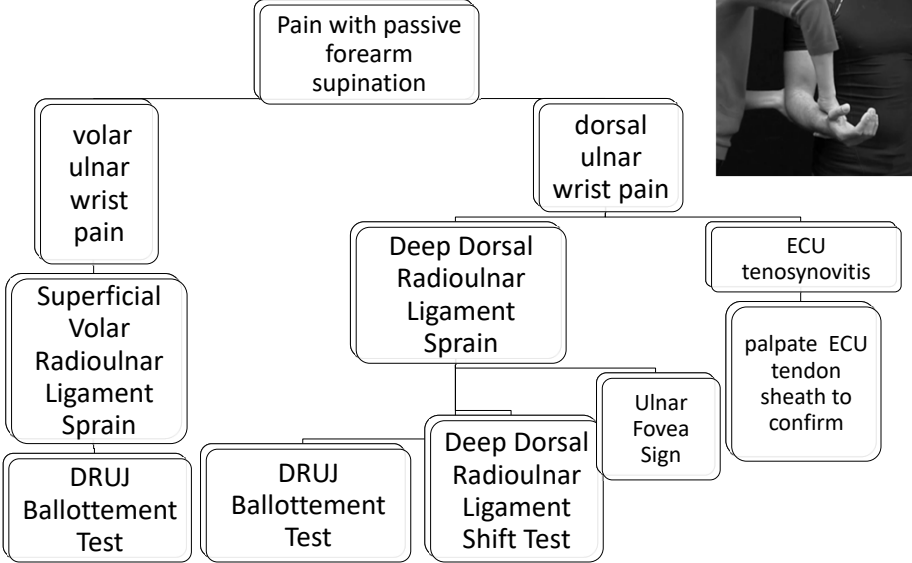



Chidgey LK. The distal radioulnar joint: problems and solutions. J Am Acad Orthop Surg. 1995; 2: 95–109.
 Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. J Physiother. 2011; 57(4):247-253.

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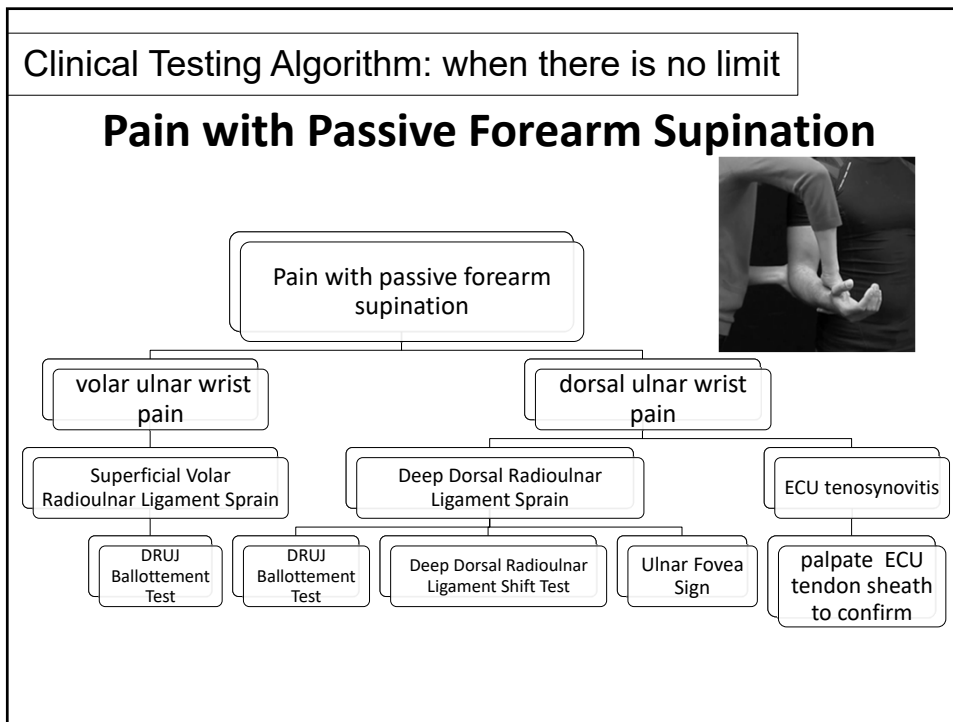
Clinical Testing Algorithm: when there is no limit

Pain with Passive Forearm Supination





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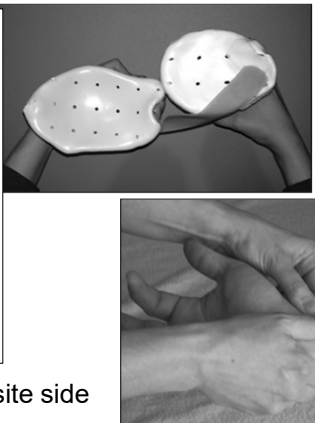


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Dorsal Ulnar Wrist Pain with Passive Forearm Supination

Dorsal Radioulnar Ligament Shift Test

- Forearm **supinated**: stabilize distal ulna and ulnar carpal column with an ipsilateral lumbrical grip
- Perform volar translation of the distal radius, then allow it to return to its original position
- Repeat translation as needed for better assessment



Look for: Amplitude of movement compared to opposite side

Chidgey LK. The distal radioulnar joint: problems and solutions. *J Am Acad Orthop Surg.* 1995; 2: 95–109.

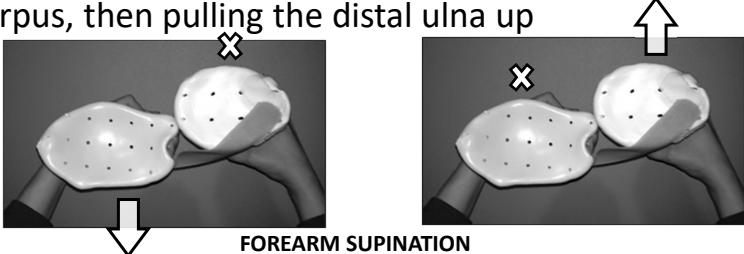
Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. *J Physiother.* 2011; 57(4):247-253.

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Volar Ulnar Wrist Pain with Passive Forearm Supination

Dorsal Radioulnar Ligament Shift Test

- Similar to the Volar Radioulnar Ligament Shift Test, some authors describe pushing down on the radius, while others describe stabilizing the distal radius and carpus, then pulling the distal ulna up



FOREARM SUPINATION

Look for: Amplitude of movement compared to opposite side


Omokawa S, Iida A, Kawamura K, et al. A biomechanical perspective on distal radioulnar joint instability. *J Wrist Surg.* 2017; 6(2): 88-96.

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Clinical Testing Algorithm: pain with passive forearm supination

Dorsal Radioulnar Ligament Shift Test

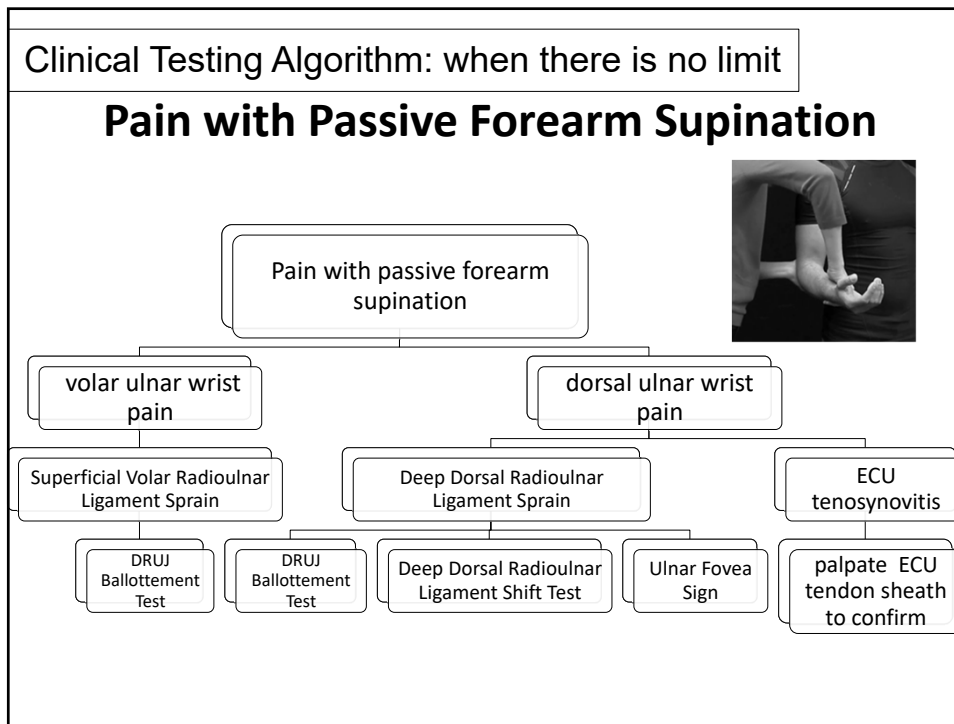
- (+) test: increased amplitude of movement and/or softer end-feel compared to the uninvolved side



Chidgey LK. The distal radioulnar joint: problems and solutions. *J Am Acad Orthop Surg.* 1995; 2: 95–109.

Prosser R, Harvey L, LaStayo P, et al. Provocative wrist tests and MRI are of limited diagnostic value for suspected wrist ligament injuries: a cross-sectional study. *J Physiother.* 2011; 57(4):247-253.

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Assessment of the Wrist

Our Final Step!: Palpation

- Palpate *with intent*
- Because of the minimal pain reference in the wrist and hand, palpation is helpful to confirm the location of the painful structure

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Assessment of the Wrist

Summary

- A systematic approach to evaluation of the wrist allows us to be consistent and efficient
- Questions to remember during the exam:
 - 1. Is there a limit?
 - 2. Is it a capsular pattern or non-capsular pattern?
 - 3. If there is no limit, is there pain? If yes, where?
- Perform special tests to confirm suspicions with the the patient's history and clinical exam
- Save palpation for last to confirm the painful structure! 😊

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