Manual Therapy Interventions for Wrist Pain

Amanda A Grant PT, DPT, FAAOMPT, MTC, CLT, OCS

and

Matthew L. Daugherty, PT, DPT, MOT, OTR/L, FAAOMPT, MTC, OCS
Disclosure

- Both speakers are employed by the University of St. Augustine for Health Sciences (USAHS).
- Some manual treatment techniques are taught at USAHS.
- No relevant financial relationship exists.
Objectives

- 1) Describe the influence of biomechanical and anatomical structures on wrist pain.

- 2) Identify, through differential diagnosis, impairments at the wrist, radiohumeral joint, distal radioulnar joint, and TFCC.

- 3) Demonstrate and integrate manual therapy intervention techniques in the management of wrist pain.
Wrist Anatomy - Review

- Distal Radioulnar
- Radiocarpal
- Midcarpal
- Carpal metacarpal
Wrist Pain Differential Diagnosis

- Big things to look for....
  - History
  - MOI
  - Nature/location of Pain
Compensatory Movements with Limited Pronation or Supination
Limited Pronation with Shoulder Compensation
Limited Supination with Shoulder Compensation
Radiohumeral and Radioulnar Joint Relationship

- Compensations
  - Lacking pronation results in increased GH abduction and CMC flexion or opposition
    - Irritation of APL and EPB
  - Lacking supination results in increased GH adduction and ER, and wrist ulnar deviation
    - Strain to TFCC
CMC Joint AROM Assessment of Opposition
Adductor Pollicis

- **Attachments:**
  - **Transverse head:**
    - anterior body of the third metacarpal
  - **Oblique head:**
    - bases of the second and the third metacarpals and the adjacent trapezoid and capitate bones
    - medial side of the base of the proximal phalanx of the thumb and the ulnar sesamoid
Adductor Pollicis Length Assessment
Radio-humeral and Radioulnar Joint Relationship

- Kinetic chain
  - The body *will* compensate in the presence of dysfunction

“There is no prediction for a normal compensation BUT there are some common occurrences.”

Patla, C. JOSPT 2000
Examination for Joint Mobility for Supination/Pronation Impairments

- Ulna-meniscal triquetral joint
- Distal radius-ulna joint (DRUJ)
- Proximal radio-humeral joint

- Must check alignment prior to assessment and manipulation
DRUJ Assessment
DRUJ Assessment
Proximal Radio-Humeral Joint
Proximal Radio-Humeral Joint Assessment and Treatment
Proximal Radio-Humeral Joint-Assessment and Treatment
Ulna-Meniscal-Triquetral Joint (UMT Volar Glide)
UMT Volar glide
UMT Volar glide
Wrist Case #1

- 25 y.o. female c/o sx beginning after 2 day bike ride (totaling >150 miles)
  - Paresthesia in ulnar nerve distribution (digits IV ulnar half and V) volarly only.
  - Sensory changes
  - Difficulty in separating fingers/ Wartenberg sign
  - Hand clumsiness
  - Hand weakness and loss of grip power and dexterity

- MOI: Prolonged wrist extension with elbow locked in extension, and pressure through ulnar border of the hand/wrist
Ulnar Tunnel Syndrome

- 3 potential sites of entrapment
  - Just proximal to or within Guyon’s Canal (sensory and motor involvement)
  - Between abductor digiti minimi and flexor digiti minimi (motor only)
  - Distal end of Guyon’s canal (sensory only)
Unique interventions to Case #1

- UMTV
- Distal Radioulnar joint
- Proximal Radioulnar joint
UMT Volar Glide
Wrist Case #2

- 45 y.o. male chief c/o chronic proximal wrist pain
  - Located centrally and points to dorsal, distal forearm surface.
  - Avid mountain biker
  - No recent MOI
Wrist Case #2

- Long history of going ‘over the bars’, Fall on outstretched hand (FOOSH) injuries.

- Pain worsens with wrist extension, particularly when loaded-closed chain and in pronation or supination.
Unique interventions to Case #2

- Distal Radioulnar joint
- Lateral Carpal Glide
DRUJ Instability

- Physical Exam
  - AROM
  - PROM (Classical)

- Joint Mobility

- Special Tests
  - DRUJ instability test

Figure 72-7 The distal radioulnar joint (DRUJ) instability test (also described in Box 72-4) is a translation maneuver of the ulna on the radius in various positions of forearm rotation. It is performed by stabilizing the radius with one hand and manually translating the ulna palmarly and dorsally with the other hand. This should be done initially in neutral forearm rotation, where up to 5 mm of translation may be noted. In the extreme positions of supination and pronation, however, less translation should be noticed, because the stabilizing DRUJ bony structures control motion and the triangular fibrocartilage complex (distal and palmar radioulnar ligaments) structures tighten. If translation of the ulna at the extremes of rotation equals that of the neutral translation, DRUJ instability is present.

Reprinted from Rehabilitation of the Hand and Upper Extremity, 2011

Distal Radio-Ulnar Joint
DRUJ Treatment
DRUJ Treatment
DRUJ Instability Management

- Minimize mal-alignment
- External Stabilization
  - Taping
  - External bracing
- Internal Stabilization
  - Must be initially done with alignment or bracing
- Strengthening
- Proprioception/stabilization therex
Lateral Carpal Glide-Option #2
Lateral Carpal Glide-Option
Lateral Carpal Glide-Gripping
Lateral Carpal Glide-Open Chain
Flexion and Extension
Lateral Carpal Glide-Closed Chain
No success distally????

- Assess proximally
Wrist Case #3

- 27 y.o. female with chief c/o sudden onset wrist pain.
  - Located on ulnar side of wrist.
  - Recreational tennis player and works out at gym 3+ days/week.
  - Recent MOI-recent pain after gym workout 1 week ago.
  - Getting better but still has 3/10 pain with gripping activities and lack of full grip strength.
Wrist Case #3

- Joint and Tendonopathy Impairments???

- Unsatisfactory response to distal (wrist) treatment
  - Distal Radioulnar Joint Glides
  - Lateral Carpal Glide
Unique interventions to Case #3

- Proximal Radio-Humeral Joint Glides
- Lateral Glide of Ulna
Proximal Radio-Humeral Joint-Treatment
Lateral Glide of Ulna
Lateral Glide of Ulna
Lateral Glide of Ulna
Lateral Glide of Ulna-Treatment
Lateral Glide of Ulna - Supportive Treatment
Lateral Glide of Ulna - Supportive Treatment
Closing Remarks

- Kinetic chain
  - The body will compensate in the presence of dysfunction

“There is no prediction for a normal compensation BUT there are some common occurrences.”
Patla, C. JOSPT 2000
Closing Remarks

- Don’t give up!

- Assess the kinetic chain proximally and distally.

- “Foot/ankle” of the UE.

- PT’s need to be treating the entire UE, including hand and wrist.
Thank you for the opportunity to share our clinical pearls with you.

Special Thanks to Megan Dawson and Morgan O’Clair

Questions???
Reference

Reference