Hand and Wrist Strain/Sprain

**Diagnosis/Condition:** Sprains and strain of hand and wrist
- Trigger finger, acquired
- De Quervain’s tenosynovitis
- Other tenosynovitis of hand and wrist

**Discipline:** DC, ND

**ICD-9 Codes:** 842.00; 727.03; 727.04; 727.05

**ICD-10 Codes:** S63.509A, S66.919A, M65.30, M65.4

**Origination Date:** 1996

**Review/Revised Date:** 10/2014

**Next Review Date:** 10/2016

Painful disorders of the wrist and hand encompass a wide variety of clinical conditions from acute injuries (strains, sprains, dislocation and fracture) arthritis (degenerative joint disease, rheumatoid), tendinopathy (ganglion cyst, tendinitis, tenosynovitis) and peripheral neuropathy (carpal tunnel syndrome, ulnar neuropathy—“handlebar palsy”). This clinical pathway focuses on commonly encountered causes of wrist and hand pain: sprain/strain injuries and tendinopathies.

Sprains of the wrist most commonly occur as a result of a fall but can also occur as result of sports injury. The most common injury is to the scapho-lunate ligament.

Major problems associated with tendons include tendinitis, tendinosis, and tenosynovitis. The cause of these conditions is often unknown, but usually strain, overuse, injury, or excessive exercise may be implicated. There is limited epidemiological evidence for an association between aspects of computer work and tendinitis.¹

Tendinitis can affect any tendon but is most commonly seen in the wrist and fingers. Tenosynovitis is inflammation of the lining of the tendon sheaths which enclose the tendons. The tendon sheath is usually the site which becomes inflamed, but both the sheath and the tendon can become inflamed simultaneously. De Quervain’s tenosynovitis is the most common form of this disorder and involves the tendon sheaths of the extensor pollicis brevis and abductor pollicis longus. Text messaging on cell phones may be a source of De Quervain tenosynovitis.²

Stenosing tenosynovitis that involves the tendon sheath of the fingers can cause “trigger finger.” Trigger finger is more frequent in women >53 years old. It may be related to diabetes, body mass index (obesity), black race and certain occupations such as secretary, seamstress and homemaker.³⁴
Subjective Findings and History
- Acute trauma, especially for strains and sprains.
- Repetitive movements such as grasping, pinching, knitting, hand work, tool use.
- Often idiopathic, especially tenosynovitis.
- Personal medical history may be important including pregnancy, systemic illnesses such as diabetes, rheumatic conditions (e.g. rheumatoid arthritis), concurrent medications.
- Pain, swelling, numbness, restricted motion, “triggering” of digits.
- Palpable nodule at affected tendon or tendon sheath.
- A De Quervain’s screening tool (DQST) has been developed for both research and clinical use.\(^5\)

Objective Findings
- Palpation:
  - Edema, ecchymosis, tenderness, crepitus, nodule.
  - Evaluate for spinal problems.
- ROM: frequently decreased, fixed flexion deformity of affected finger.
- Orthopedic tests—provocative maneuvers of involved structures often painful or limited, eg. Finkelstein’s.
- Neurologic examination to differentiate neurogenic problems: Tinel’s, Phalen’s Sign, sensory testing, muscle strength, passive elbow flexion/pronator test.
- Positive apprehension test.
- Diagnostic imaging when appropriate, e.g. radiographs to rule out naviculare/scaphoid fracture with trauma.

Assessment
The clinical impression should indicate the specific anatomical structures involved and clinically correlate them with the mechanism of injury, history, subjective complaints, and objective findings.

Plan
Passive Care:
- Manipulation and mobilization of articular and soft tissue structures.
- Physical therapy modalities.
- Brace/taping, splinting.\(^6\)
- Cross friction therapy and stretching of adhesions.
- NSAIDs.
- Topical salicylic acid, other topical analgesic cream.
- Nutritional supplementation (Vitamin B complex, Vitamin C, manganese, magnesium, calcium, glucosamine sulfate, chondroitin).
- Botanical supplementation.
- Topical treatments (egs. Comfrey (Symphytum) poultice, hypericum, arnica, calendula).
- Passive exercises to improve range of motion.
• Homeopathy per rubric.
• Acupuncture.
• Adequate protein consumption.

Active Care:
Conservative treatment of tendinopathies is recommended for mild conditions. There are limited high quality evidence-based studies to assist in choosing the conservative treatment for tenosynovitis, tendonitis, or De Quervain’s disease. The addition of active care can reinforce care received in the office.

• Rest from inciting activities and training in proper mechanics of joint protection.
• Functional training.
• Exercises for stretching, mobility, strength, and improved neuromuscular coordination and conditioning. Activities/work restrictions if appropriate may include: No repetitive motion, lifting, grasping, pinching; keyboard and other job site modifications.

Length of Treatment
• Estimated duration of care: 2-6 weeks.
• If suspicious of carpal fracture despite initial negative radiographs, follow up radiographs may be indicated 10-14 days later if still painful.

Referral Criteria
• Referral to a hand specialist or orthopedist for more severe or persistent symptoms may be appropriate after four weeks without symptomatic or functional improvement.
• Further diagnostic work-up may include referral for advanced imaging.

Resources for Clinicians

Resources for Patients
DeQuervain’s tenosynovitis. MayoClinic.com.


Clinical Pathway Feedback
CHP desires to keep our clinical pathways customarily updated. If you wish to provide additional input, please use the e-mail address listed below and identify which clinical pathway you are referencing. Thank you for taking the time to give us your comments.

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Hand and Wrist Strain/Sprain Clinical Pathway
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