

# Madigan Army Medical Center

## Musculoskeletal Treatment Guidelines

### NEUROPATHY ENTRAPMENT (Upper Extremity)

#### Diagnosis/Definition

- Pain, loss of strength or sensory changes in the distribution of the median or ulnar nerves but not associated with neck pain.

#### Initial Diagnosis and Management

- History and physical examination.
- Plain radiographs are not required.
- NSAIDs.
  - Adults - 200 to 400 milligrams (mg) every four to six hours as needed for up to 2 weeks. Example: Ibuprofen
  - Take tablet or capsule forms of these medicines with a full glass (8 ounces) of water.
  - Do not lie down for about 15 to 30 minutes after taking the medicine. This helps to prevent irritation that may lead to trouble in swallowing.
  - To lessen stomach upset, these medicines should be taken with food or an antacid.
- For [Carpal Tunnel Syndrome](#) symptoms prescribe a volar wrist splint to wear at night and during the day (take splint off every 2 hours and move wrist to prevent stiffness). Also avoid activities that promote symptoms.
- For cubital tunnel syndrome, educate the patient to avoid pressure on elbow and to avoid activities that increase symptoms. Refer to Occupational Therapy for night elbow splints.

#### Ongoing Management and Objectives

- Expect Resolution or decreasing symptoms within three to four weeks.

#### Indication a profile is needed

- Any limitations that affect strength, range of motion, and general efficiency of upper arms.
- Slightly limited mobility of joints, muscular weakness, or other musculo-skeletal defects that may prevent hand-to-hand fighting and disqualifies for prolonged effort.
- Defects or impairments that require significant restriction of use

#### Specifications for the profile

- Week 1-4
  - No upper body PT requiring flexion or extension at the wrist

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- No lifting or pushing with affected wrist
- No low crawl
- No stretcher duty with affected wrist(s)
- Motor vehicle driving only with splint and with caution

### **Patient/Soldier Education or Self care Information**

- Demonstrate deficits that exist
  - Describe/show soldier his/her limitations
- Explain injury and treatment methods
  - Use diagram attached to describe injury, location and treatment.
- Instruct and demonstrate rehab techniques
  - Demonstrate rehab exercises as shown in attached guide
  - Warm up before any sports activity
  - Participate in a conditioning program to build muscle strength
  - Do stretching exercises daily
- Ask the patient to demonstrate newly learned techniques and repeat any other instructions.
- Fine tune patient technique
- Correct any incorrect ROM/stretching demonstrations or instructions by repeating and demonstrating information or exercise correctly.
- Encourage questions
  - Ask soldier if he or she has any questions
- Give supplements such as handouts
- Schedule follow up visit
  - If pain persists
  - The pain does not improve as expected
  - Patient is having difficulty after three days of injury
  - Increased pain or swelling after the first three days
  - Patient has any questions regarding care

### **Indications for referral to Specialty Care**

- If patient exhibits pain, sensory changes or decrease in AROM or strength, to the upper extremity refer to Occupational Therapy for evaluation and treatment.
- No relief with 3-4 weeks then refer to Occupational Therapy.
- If the patient has completed a full course of treatment with no improvement then consider referral to Orthopedic Surgery

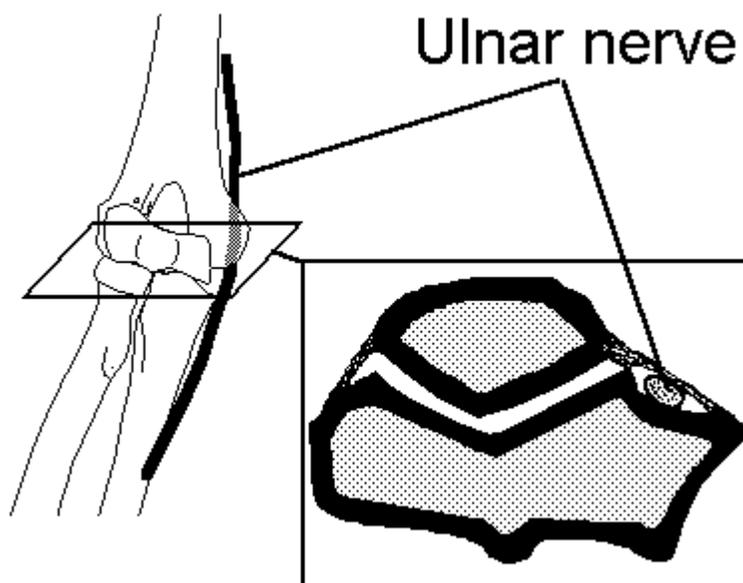
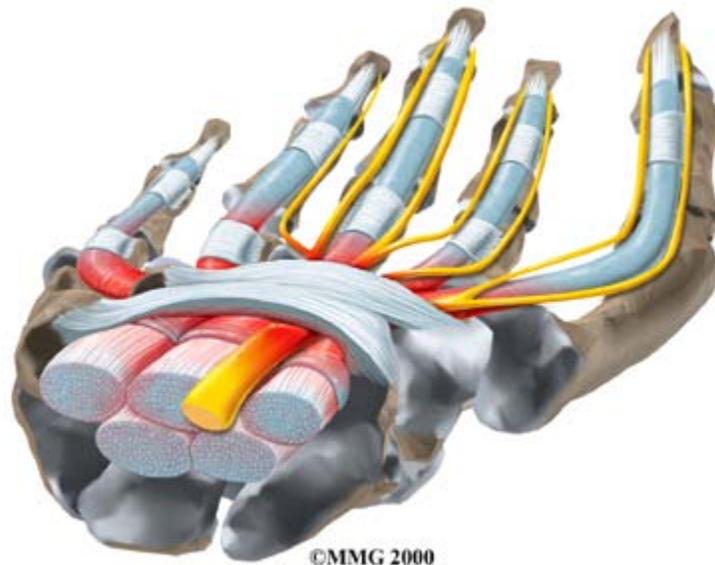
### **Referral criteria for Return to Primary Care**

- Resolution of symptoms.

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## EXERCISES

As with all exercise, you need to listen to your body, keep the back of the neck and spine lengthened and the rib cage lifted. Remember to breathe as you work with the different exercises.



1



2

### Finger & Wrist Stretch

#### Benefits:

Loosens stiff fingers, hands and wrists. Completed daily for a few months, hands will become more flexible.

Starting with the right hand gently extend the fingers back one by one. See fig 1 & 2



3

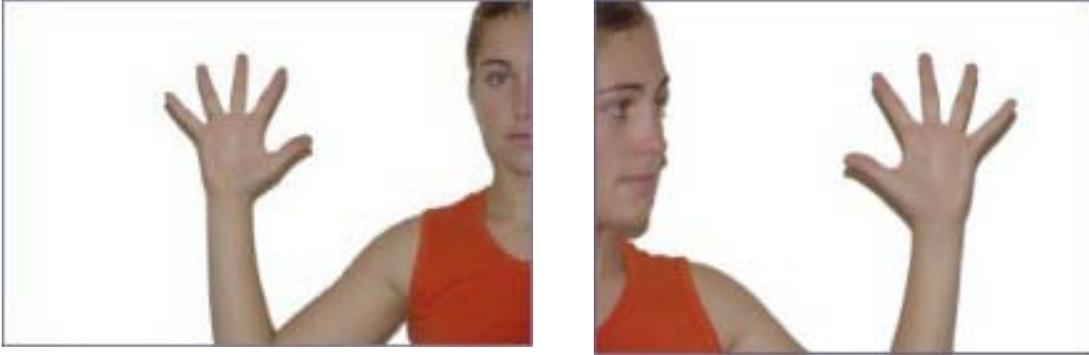


4

Then take them all back at the same time . This helps to stretch open your palm. Repeat several times. See fig 3 & 4

Take your thumb back towards your wrist. Then bring it forwards, stretching gently and firmly. Never force it.

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5

6

Finish by making a fist and slowly opening it, stretching your fingers and thumb out as far as you can. See fig 5 & 6



7

Put your palms together, fingers pointing upwards, as if you were praying. Stretch your fingers and press palms together strongly. Keep the base of your palms pressing together, as you gradually lower your hands until your lower arms are horizontal. See fig 7

Then take your hands down still further, fingers and upper palms together. You should feel the stretch on the insides of your fingers and wrists. Hold for a few seconds, then repeat.

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<b>PHYSICAL PROFILE</b>																																
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### PATIENT INFORMATION

If you've ever bumped your elbow and felt a tingling sensation down your arm into your hand (hitting your "funny bone"), you've bumped the ulnar nerve. But the ulnar nerve also can be the cause of more serious and permanent problems in the fingers and hand.

The ulnar nerve extends down the arm, across the elbow, and into the hand. It provides sensation to the little and ring fingers and activates many of the small muscles in the hand. You can actually feel this nerve as it passes behind the elbow and through a tight tunnel (the cubital tunnel) at the inside of the elbow.

**The problem** An injury to the elbow such as a dislocation or fracture can tear or inflame the ulnar nerve. The inflamed nerve can swell and become trapped in the cubital tunnel. This gives the condition its name, ulnar nerve entrapment. It is often also called cubital tunnel syndrome.

Prolonged pressure on the nerve also can be a problem. Bending the elbow stretches the ulnar nerve and puts pressure on it as it passes through the cubital tunnel, pressing it against the bone. This constant rubbing can damage the nerve's protective covering (myelin sheath) or the nerve itself and disrupt the nerve's ability to conduct messages from the brain. Gradually, the muscles of the hand start to weaken, so that it becomes difficult to open a jar or grasp a tool.

### Signs of a problem

Although the problem is in the elbow area, most symptoms occur in the hand and fingers because the ulnar nerve controls movement and sensation there. Both sensory and motor skills are affected. Symptoms include:

- Tenderness along the inside of the elbow.
- Tingling and numbness in little and ring fingers (especially at night).
- Numbness in your hand when the elbow is bent, such as when you drive or hold a telephone.
- Difficulty with hand coordination (such as when typing or playing a musical instrument).
- Decreased grip and pinch strength; muscle weakness.
- Pain along the inside border of the shoulder blade.

If you experience any of these symptoms, contact a physician. Early diagnosis and treatment is essential to controlling symptoms.

### Diagnosing the problem

Maintained by the Madigan Army Medical Center - Quality Services Division  
Clinical Practice and Referral Guidelines Administrator

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## **Musculoskeletal Treatment Guidelines**

A physician can use several methods to diagnose ulnar nerve entrapment. Your own description of the symptoms is a primary source of information. If you've experienced a fall, blow or other injury to the elbow, the physician may request an X-ray. The physician may also apply pressure around the nerve to see if pain or tingling results, check to see if the hand muscles are atrophying, or do an electrical stimulation test to see how well the nerve conducts sensory information.

### **Who's at risk**

- Anyone who falls on or injures their elbow
- People whose jobs involve excessive bending of the elbow (typists or data entry operators, drivers)
- Diabetics
- People with arthritis or thyroid problems
- Alcoholics

### **Nonoperative (conservative) treatment**

- Keep the elbow as straight as possible. A straight elbow puts less pressure on the ulnar nerve.
- Avoid crossing your arms across your chest.
- If you frequently use the telephone, consider using a headset or cradle attachment, so you don't have to hold the telephone to your ear with a bent elbow.
- Adjust your workspace so that you don't have to bend your elbow more than 30 degrees and you can keep your wrist in a neutral position.
- Consider wearing a splint at night. Something as simple as a towel wrapped around the elbow can help keep it straight.
- Use elbow protectors if you play sports to avoid bumping the elbow.
  
- If muscle atrophy and numbness continues, corticosteroids may be used to reduce swelling and pressure.

### **Operative treatment**

If conservative treatment is not effective and muscle strength continues to weaken, further evaluation and surgery may be needed. There are several surgical options; the most frequent type of surgery (anterior submuscular transposition) moves the nerve from behind the bone to the front of the elbow. After the surgery, treatment must focus on maximizing the use of the hand and arm through physical therapy. This process can take several months.

# Madigan Army Medical Center

## Musculoskeletal Treatment Guidelines

### Input was provided by:

- Occupational Therapy Clinic
- Physical Therapy Clinic
- Orthopedic Clinic
- Family Practice Clinic
- Okubo Clinic
- 555 Engineers
- 1<sup>st</sup> Brigade
- 3<sup>rd</sup> Brigade
- 62<sup>nd</sup> Medical Brigade

### POC:

- Outcome Management

### References:

- Mellion, I., Morris B. (2002). Team Physician's Handbook, 3<sup>rd</sup> Edition. Hanley & Belfus, Inc: Philadelphia, PA.
- Lillegard, Rucker. (1999). The Handbook of Sports Medicine. A symptom-oriented approach, 2<sup>nd</sup> Edition. Butterworth-Heinemann Medical: Burlington, MA.
- Baechle, Thomas, Earle, Roger. (2000) Essentials of Strength Training and Conditioning, 2<sup>nd</sup> Edition. Human Kinetics Pub: Champaign, IL
- Schenck, Robert, Jr. et al. (1999). Athletic Training and Sports Medicine, 3<sup>rd</sup> Edition. American Academy of Orthopedics: Tucson, AZ.
- [Madigan Carpal Tunnel Syndrome Referral Guideline](#)
- [http://orthoinfo.aaos.org/topic.cfm?topic=A00069&return\\_link=0](http://orthoinfo.aaos.org/topic.cfm?topic=A00069&return_link=0)
- <http://www.eatonhand.com/mus/mus052.htm>