



## INTERMETACARPAL SPRAIN

### ■ ■ ■ Description

Intermetacarpal sprain is a violent overstretching and tearing of one or more ligaments in the hand at the knuckle. The intermetacarpal ligaments (deep transverse metacarpal ligaments) are a series of ligaments connecting the knuckles (ends of the metacarpal bones). Sprains involving two or more ligaments cause more disability than a single-ligament sprain. Sprains are classified into three grades. In a *first-degree* sprain the ligament is not lengthened but is painful. With a *second-degree* sprain, the ligament is stretched or a portion of the ligament is ruptured, but it still functions (although there is some loss of function). With a *third-degree* sprain, the ligament is torn (complete rupture) and does not function.

### ■ ■ ■ Common Signs and Symptoms

- Severe pain at the time of injury
- Often, a feeling of popping or tearing inside the wrist
- Tenderness and swelling in the hand at the knuckles
- Some bruising soon after the injury
- Impaired ability to use the hand

### ■ ■ ■ Causes

Intermetacarpal sprain is caused by stress imposed on the deep transverse metacarpal ligament that temporarily forces or pries the joints of the hand (knuckle) out of their normal location. The ligaments that normally hold the joint in place are stretched or torn.

### ■ ■ ■ Risk Increases With

- Previous hand sprain or injury
- Contact sports such as boxing, wrestling, or martial arts
- Sports in which falling on an outstretched hand is possible, such as soccer, basketball, and volleyball
- Other sports, such as water polo and gymnastics
- Poor physical conditioning (strength and flexibility)
- Inadequate or poorly fitting protective equipment

### ■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
  - Hand flexibility
  - Muscle strength and endurance
- Taping, protective strapping, or bracing may help prevent injury.
- Provide the hand with support during sports and practice activities for 6 to 12 months following injury.

### ■ ■ ■ Expected Outcome

If this is a first-time injury, proper care and sufficient healing time before resuming activity should prevent permanent

disability. Ligaments have poor blood supply and when torn require as much healing time as fractures. These injuries take a prolonged time to heal, from 2 to 12 weeks.

### ■ ■ ■ Possible Complications

- Prolonged healing time if usual activities are resumed too soon
- Frequent recurrence of symptoms and repeated injury, resulting in a chronic problem; appropriately addressing the problem the first time decreases frequency of recurrence and optimizes healing time
- Injury to other structures (bone, cartilage, or tendon) and chronically unstable or arthritic knuckle (intermetacarpal) joint with repeated sprains
- Prolonged disability (sometimes)
- Hand and finger stiffness or weakness

### ■ ■ ■ General Treatment Considerations

Initial treatment consists of medication and ice to relieve the pain and compressive elastic bandaging and elevation to help reduce swelling and discomfort. A cast, splint, taping, or brace may be recommended to provide support to the joint for varying lengths of time, depending on severity of injury. After immobilization, stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the injury and the immobilization) are necessary. These may be done with or without the assistance of an occupational or physical therapist or athletic trainer. Surgical treatment is rarely needed.

### ■ ■ ■ Medication

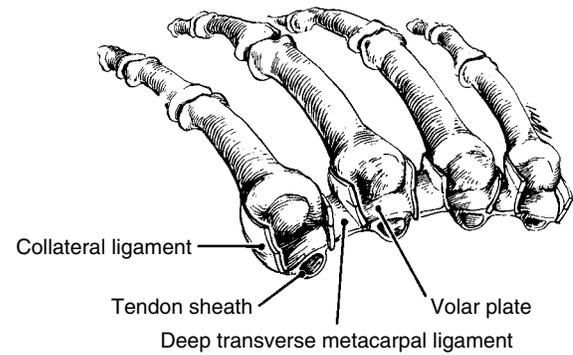
- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers may be prescribed as necessary by your physician. Use only as directed and only as much as you need.

### ■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

**■ ■ ■ Notify Our Office If**

- Pain, swelling, or bruising worsens despite treatment or you have persistent pain lasting more than 2 to 4 weeks
- You experience pain, numbness, discoloration, or coldness in the hand or fingers
- You develop blue, gray, or dusky fingernails
- Any of the following occur after surgery: increased pain, swelling, redness, drainage, or bleeding in the surgical area or signs of infection, including fever
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

**Figure 1**

From DeLee JC, Drez D Jr.: Orthopaedic Sports Medicine: Principles and Practice. Philadelphia, WB Saunders, 1994, p. 970.

Notes:

(Up to 4400 characters only)

Notes and suggestions