home

ORTHOPAEDIC SPECIALISTS OF NORTH CAROLINA

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ORIF Metacarpal Fracture

Acute Care

The most common metacarpal fracture occurs at the neck of the 4th and/or 5th metacarpal bone. This fracture is more commonly referred to as a "Boxer's fracture" because it is often seen when an individual has improper alignment of the hand while punching an object. Other types of metacarpal fractures include fractures at the shaft and/or base.

Acute findings of a metacarpal fracture often include: bruising and swelling around the involved joint and/or the entire hand; loss of AROM & PROM of the involved joint; and severe TTP of the involved joint (Pho & Godges).

Non-operative acute care for the first 1-3 weeks include compression wraps, ice, elevation, and possible TENS to control swelling and pain. As well as, a protective splint with the MP joint positioned at 70° of flexion.

Open Reduction Internal Fixation (ORIF) acute care in the first 1-3 weeks include compression wraps, ice, elevation, infection control, and a removable splint. Operative management goals of the fracture are: to control pain and swelling, prevent infections, and to protect the fracture. The need for surgical repair depends on the angulation and rotation of the bone in the acute phase of injury. If surgery is needed the ORIF will include placement of stainless steel or titanium pins, screws, and/or plates (Knight).

http://www.handandwristinstitute.com/metacarpal-fractures-doctor/


Open Reduction Internal Fixation - 5th Metacarpal Fracture Surgery

Indications of surgical intervention:
- displaced fracture involving the joint
- comminuted/multiple bone fragments
- mal-alignment of digits when making a fist
- volar angulation >35 degrees

Surgical Techniques and Hardware

A plate and screws inserted through an incision on the posterior aspect of the hand; 5th metacarpal shaft fracture

Transverse pinning for unstable 5th metacarpal neck fracture
Post Surgical Management

If a pin is used for fixation, it will be in place for approximately 4 weeks and then removed by the surgeon typically in office. Patients who receive a pin will be placed in a cast or custom splint. After surgery, the patient will be seeing Occupational Therapy to regain mobility and strength in the wrist, hand, and digits.

Open Reduction Internal Fixation - 5th Metacarpal Fracture Rehabilitation Protocol

Weeks 0-2:
- Custom Splint - Static, forearm based ulnar gutter to include 4th and 5th MC with MP's flexed (to 60 degrees if possible)
- Edema control - light edema massage
  - If incision still open, avoid incision area
- Early light active and passive finger ROM (tendon glides)
TENDON-GLIDING EXERCISES

Tendon adhesions may result after trauma or surgery. They can be prevented or reduced by tendon-gliding exercises. These exercises allow each tendon to reach its greatest amount of movement. They also reduce hand swelling. Tendon-gliding exercises are as important to the hand as aerobic exercise is to the heart.

Do each exercise _______ times, _______ times a day.

☐ Start with your fingers straight every time you do these exercises.

☐ Make a tabletop with your fingers by keeping them straight and then bending only at the wrist and at the knuckles. Relax and repeat.

☐ Make each type of fist shown below, one at a time, with your fingers.

1.) Hook Fist
2.) Straight Fist
3.) Full Fist

☐ Curl your thumb into your palm as far as possible then stretch it out as far as possible.

*If you have any questions about these guidelines – or the appropriateness of any other activities – please call Orthopaedic Specialists of North Carolina.

- Splint should be worn 24 hours/day except for hygiene, skin checks, and exercises

Weeks 2-6
- Continue wearing splint - adjust splint as needed for patient satisfaction and comfort
- Continue with finger active and passive ROM activities
- Scar massage - if incision closes sooner than 2 week time line, may begin earlier
- Full wrist active and passive ROM
OCCUPATIONAL THERAPY

MOVEMENTS OF THE HAND AND WRIST

1. MP Flexion (1st Joint)
2. IP Flexion (2nd Joint)
3. Opposition / Thumb Flexion
4. Abduction / Adduction

5. Wrist Flexion - Extension
6. Wrist Ulnar And Radial Deviation
7. Stretch Hand / Make A Fist
8. Palm Up / Palm Down (Keep Elbow At Your Side)

Wrist Stretches

* Do each of the following exercises slowly through the complete range of motion and hold.

**Flexor Stretch**
- Straighten the elbow completely.
- With the palm facing down, grasp the middle of the hand and thumb. Slowly bend the wrist up until a stretch is felt.
- Hold for ____ seconds.
- Release and repeat ____ times.

**Extensor Stretch**
- Straighten the elbow completely.
- With the palm facing down, grasp the back of the hand. Slowly bend the wrist down until a stretch is felt.
- Hold for ____ seconds.
- Release and repeat ____ times.

* Depending on Dr. orders, may begin very light ADLs

Weeks 6+

• Continue with wrist/finger ROM activities
• Continue with scar massage as needed
• Splint may be discontinued
• Begin gentle finger, grip, wrist strengthening - begin with no more than 1 lb
Thera-Putty Exercises

Repeat these exercises ___ times for ___ times a day.
These exercises will strengthen the muscles of your fingers, hand and forearm.

**Finger Hook**
Make a hook with your fingers as you press into the putty.

**Full Grip**
Squeeze your fingers into the putty like you are making a fist.

**Finger Extension**
Loop the putty over the end of the finger while it is bent. Try to straighten your finger.

More on next page ➝

Learn more about your health care.

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Finger Spread
Spread the putty like a pancake over your fingers and thumb. Try to spread them apart.

Finger Scissor
Place a 1 inch thick piece of putty between each pair of fingers and squeeze together.

Finger Pinch
Pinch the putty between each finger and the thumb.

Scissor Spread
Place putty around two fingers at a time and try to spread them apart.

Thumb Extension
Loop the putty at the end of your thumb while it is bent. Try to straighten your thumb by pulling it upward.
**Thumb Press**
Push your thumb into the putty as you move the thumb toward your small finger.

**Thumb Adduction**
Press the putty with your thumb against the side of your index finger. Keep your fingers and thumb straight.

**Thumb Pinch Strengthening**
Squeeze the putty between your thumb and side of your index finger.

**Three Jaw Chuck Pinch**
Pull the putty using your thumb, index and middle fingers.

**Wrist Extension**
- Grasp putty with hand.
- Place forearm on table with hand off edge of table, palm down as shown.
- Move wrist upward.
- Slowly return to starting position.

**Radial Deviation**
- Grasp putty on side.
- Hold elastic in hand, thumb up.
- Move hand upward.
- Return to start position.

**Ulnar Deviation**
- Sit and secure ends of the band under your feet, creating a loop in the middle.
- Keep elbow at side, grasp middle loop of band, keeping thumb forward.
- Keep shirt next to side and move wrist backward.
- Hold and slowly return and repeat.

**Supination**
- Secure elastic on forearm.
- Position hand palm down with elastic crossing over thumb as shown.
- Rotate hand to palm up, elastic should resist this movement.
- Slowly return to start position.

** Pronation**
- Secure elastic on forearm.
- Position hand palm up with elastic crossing under thumb as shown.
- Return hand to palm down, elastic should resist this movement.
- Slowly return to start position.

Visit Orthopaedic Specialists online at www.orsantos.com
Complete all exercises 10 repetitions 2 times a day.

Using can of soup and palm down, bend wrist up.

Using can of soup with palm up, bend wrist up.

- Progress with strengthening (increase resistance) as tolerated
- Discharge to HEP as indicated by patient progress
- If patient is athlete, return to play per Dr. orders

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