

METACARPAL FRACTURE

(Other than Boxer's Fracture)



■ ■ ■ Description

Metacarpal fracture is a broken bone (fracture) in the middle of the hand. The metacarpal bones connect the wrist to the fingers and make up the arch of the hand. One or more metacarpal bones may be fractured. Fracture of the metacarpal of the little finger is most often near the knuckle. This is called a boxer's fracture and is described elsewhere.

■ ■ ■ Common Signs and Symptoms

- Severe pain at the time of injury
- Pain, tenderness, swelling (especially the back of the hand), and later bruising of the hand
- Visible deformity if the fracture is complete and the bone fragments separate enough to distort normal body contours
- Numbness or paralysis from swelling in the hand, causing pressure on the blood vessels or nerves (uncommon)

■ ■ ■ Causes

- Direct blow, such as a striking blow with the fist
- Indirect stress to the hand such as caused by twisting or violent muscle contraction (uncommon)

■ ■ ■ Risk Increases With

- Contact sports (football, rugby, or soccer)
- Sports that require hitting (boxing, martial arts)
- History of bone or joint disease, including osteoporosis
- Poor physical conditioning (strength and flexibility)

■ ■ ■ Preventive Measures

- Maintain appropriate conditioning:
 - Hand and finger strength
 - Flexibility and endurance
- For participation contact sports, wear appropriate protective equipment for the hand and ensure correct fit.
- Use proper technique when hitting, punching, and landing from fall.

■ ■ ■ Expected Outcome

With appropriate treatment and normal alignment of the bones, healing can be expected, usually in 4 to 6 weeks. Occasionally, surgery is necessary.

■ ■ ■ Possible Complications

- Nonunion (fracture does not heal) or malunion (heals in a bad position, including twisted fingers)
- Chronic pain, stiffness, or swelling of the hand
- Excessive bleeding in the hand, causing pressure and injury to nerves and blood vessels (rare)
- Unstable or arthritic joint following repeated injury or delayed treatment
- Arrest of normal hand growth in children

- Infection in open fractures (skin broken over fracture) or at the incision or pin sites if surgery was necessary
- Shortening or injured bones
- Bony prominence or loss of contour of the knuckles
- Arthritic or stiff finger joint if the fracture goes into the joint

■ ■ ■ General Treatment Considerations

These bones have inherent stability when only one is broken, and thus single bone fractures are often treated without surgery when they do not involve the joint and are not displaced (out of alignment). If the bones are in appropriate alignment (position), the initial treatment consists of ice and elevation of the injured hand at or above heart level to reduce swelling. Pain medications help to relieve pain. Immobilization by splinting, bandaging, casting, or bracing for 4 or more weeks is usually recommended to protect the bones while they heal. For fractures that are displaced (out of alignment), involve more than one metacarpal, or involve a joint (the knuckle or the wrist) and are displaced, surgery is usually recommended. Surgery usually involves placement of removable pins, screws, and occasionally plates. After immobilization (with or without surgery), stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the immobilization and the injury) are necessary. These may

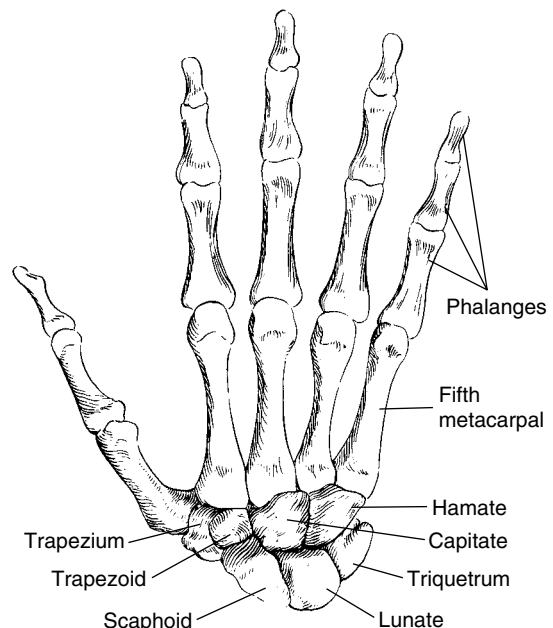


Figure 1

From Jenkins DB: Hollinshead's Functional Anatomy of the Limbs and Back, 6th ed. Philadelphia, WB Saunders, 1991, p. 157.

be done with or without the assistance of an occupational therapist, physical therapist, or athletic trainer. Occasionally, depending on the sport and position, a brace or splint may be necessary when initially returning to sports.

■ ■ ■ 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.
- Strong pain relievers may be prescribed as necessary. Use only as directed and only as much as you need.

■ ■ ■ Cold Therapy

Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain. Use ice packs or an ice massage.

■ ■ ■ Notify Our Office If

- Pain, tenderness, or swelling worsens despite treatment
- You experience pain, numbness, or coldness in the hand
- Blue, gray, or dusky color appears in the fingernails
- Any of the following occur after surgery: fever, increased pain, swelling, redness, drainage, or bleeding in the surgical area
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

Notes:

(Up to 4400 characters only)

Notes and suggestions