RADIUS FRACTURE

Description

Radius fracture is a complete or incomplete break of one of the bones of the forearm (radius) that extends from the elbow to the wrist. This discussion does not include fractures of the elbow or wrist joints.

Common Signs and Symptoms

- Severe forearm pain at the time of injury
- Tenderness, swelling, and later bruising of the forearm
- Later, swelling and bruising in the wrist and hand
- Visible deformity if the fracture is complete and bone fragments separate (displaced) enough to distort normal body contours
- Numbness, coldness, or paralysis below the fracture involving the forearm or hand from pressure on or stretching of blood vessels or nerves (uncommon)

Causes

- Direct blow or force to the forearm bone
- Indirect stress due to falling on an outstretched hand, twisting injury, or violent muscle contraction

Risk Increases With

- Contact sports such as football, rugby, soccer, martial arts, and hockey
- Any sport in which you may fall on an outstretched hand
- History of bone or joint disease, previous immobilization of the forearm
- Poor physical conditioning (strength and flexibility)

Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
  - Cardiovascular fitness
  - Forearm strength
  - Flexibility and endurance
- Wear proper protective equipment and ensure correct fit.

Expected Outcome

With appropriate treatment and normal alignment of the bones, healing can be expected. Surgery may be necessary to realign fractures that are displaced. Average healing time is 6 to 8 weeks in adults and 4 to 6 weeks in children.

Possible Complications

- Nonunion (fracture does not heal)
- Malunion (heals in a bad position)
- Chronic pain, stiffness, loss of motion, or swelling of the elbow or wrist
- Excessive bleeding in the forearm, causing pressure and injury to nerves and blood vessels
- Heterotopic ossification (calcification of the soft tissues about the forearm)
- Injury to the nerves of the hand or wrist due to stretching from the fracture, causing numbness, weakness, or paralysis
- Shortening of the arm
- Loss or motion of the elbow, forearm, or wrist

General Treatment Considerations

If the bone is in the appropriate alignment (position), the initial treatment consists of ice and medications to help relieve pain. Immobilization by splinting, casting, or bracing for 4 to 6 or more weeks is recommended to protect the bones while they heal. Severe fractures, fractures that are displaced (not in appropriate alignment), and, occasionally, nondisplaced fractures may require surgery to restore and maintain the joint to its normal position. Surgery includes repositioning the bones and holding the position with rods, plates, screws, or pins. After immobilization (with or without surgery), stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the injury and the immobilization) are necessary. These are usually done with the assistance of a physical therapist or athletic trainer.

Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before

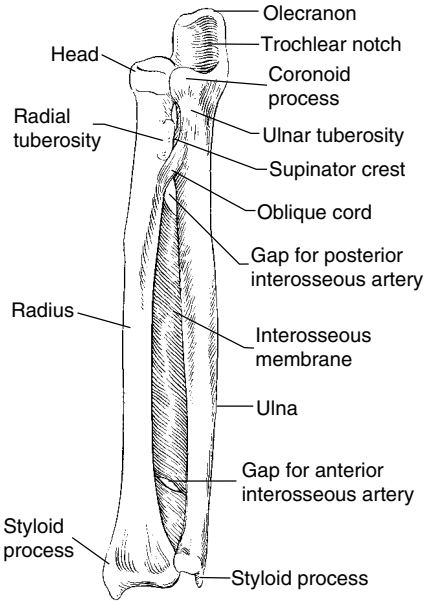


Figure 1

From Jenkins DB: Hollinshead's Functional Anatomy of the Limbs and Back, 6th ed. Philadelphia, WB Saunders, 1991, p. 122.

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 and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.

Notify Our Office If

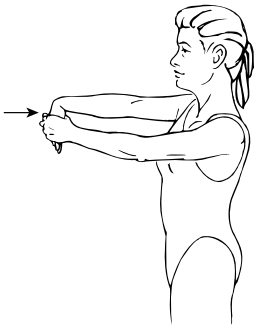
- Pain, tenderness, or swelling worsens despite treatment
- You experience pain, numbness, or coldness in the hand
- Blue, gray, or dusky color appears in the fingernails
- Any of the following occur after surgery: fever, increased pain, swelling, redness, drainage, or bleeding in the surgical area
-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

EXERCISES

➢ **RANGE OF MOTION AND STRETCHING EXERCISES** · Radius Fracture

These are some of the ***initial*** exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A ***gentle*** stretching sensation should be felt.



RANGE OF MOTION · Wrist Flexion

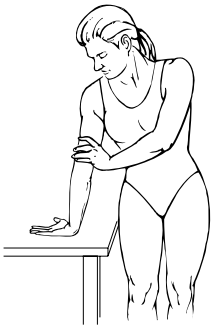
1. Hold your _____ wrist as shown with the fingers pointing down toward the floor.
2. Pull down on the wrist until you feel a stretch.
3. Hold this position for _____ seconds. Repeat exercise _____ times, _____ times per day.
4. This exercise should be done with the elbow ***bent to 90 degrees / straight.*** (Physician, physical therapist, or athletic trainer should circle one of these.)

RANGE OF MOTION · Wrist Extension

1. Hold your _____ wrist as shown with the fingers pointing away from the floor.
2. Pull up on the wrist until you feel a stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.
5. This exercise should be done with the elbow ***bent to 90 degrees / straight.*** (Physician, physical therapist, or athletic trainer should circle one of these.)

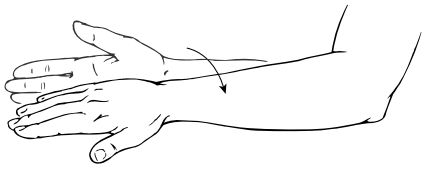
RANGE OF MOTION · Wrist Extension

1. Place the palm of your _____ hand flat on the top of a table as shown. Your fingers should be pointing backward.
2. Press down, bending your wrist and straightening your elbow until you feel a stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



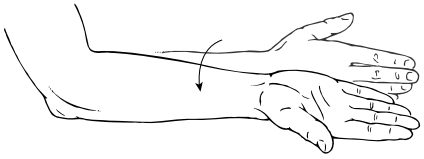
RANGE OF MOTION · Wrist Flexion

1. Place the back of your _____ hand flat on the top of a table as shown. Your shoulder should be turned in and your fingers facing away from your body.
2. Press down, bending your wrist and straightening your elbow until your feel a stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION · Pronation

1. Stand or sit with your elbow bent to 90 degrees.
2. Turn your palm down toward the floor as far as possible.
3. Hold this position for _____ seconds and then ***slowly*** return to the starting position.
4. Repeat exercise _____ times, _____ times per day.



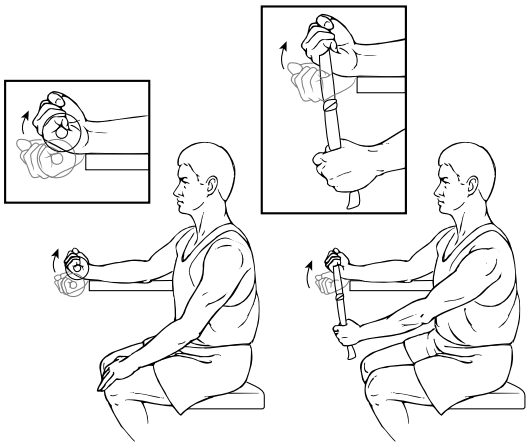
RANGE OF MOTION · Supination

1. Stand or sit with your elbow bent to 90 degrees.
2. Turn your palm upward as far as possible.
3. Hold this position for _____ seconds and then ***slowly*** return to the starting position.
4. Repeat exercise _____ times, _____ times per day.

➢ **STRENGTHENING EXERCISES** • Radius Fracture

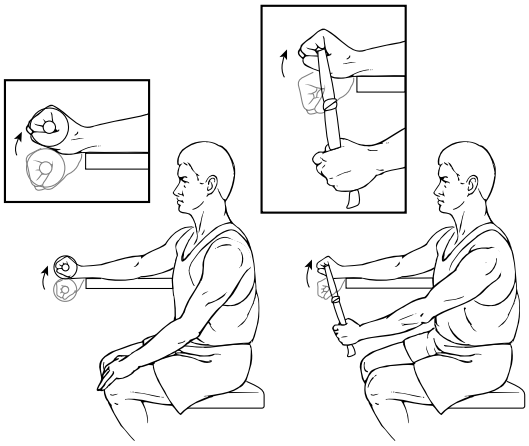
These are some of the ***initial*** exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as ***initially*** prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.



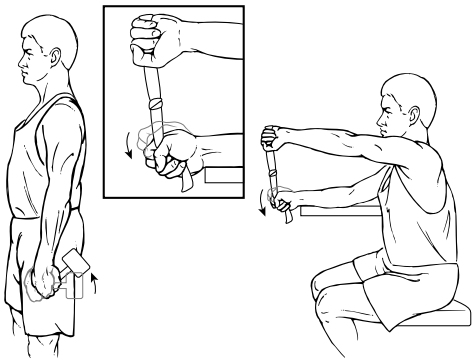
STRENGTH • Wrist Flexors

1. Sit or stand with your forearm supported as shown.
2. Using a _____ pound weight or a piece of rubber band/tubing, bend your wrist slowly upward toward you.
3. Hold this position for _____ seconds and then ***slowly*** lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.



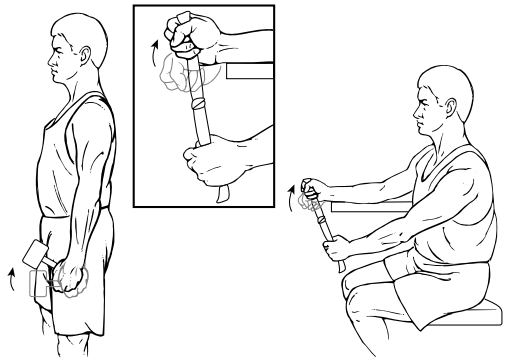
STRENGTH • Wrist Extensors

1. Sit or stand with your forearm supported as shown.
2. Using a _____ pound weight or a piece of rubber band/tubing, bend your wrist slowly upward toward you.
3. Hold this position for _____ seconds and then ***slowly*** lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.



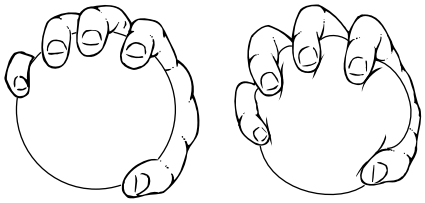
STRENGTH • Wrist, Ulnar Deviation

1. Stand with a _____ oz. hammer in your hand as shown, or sit holding on to the rubber band/tubing with your arm supported as shown.
2. Raise your hand upward behind you or pull down on the rubber tubing.
3. Hold this position for _____ seconds and then ***slowly*** lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.



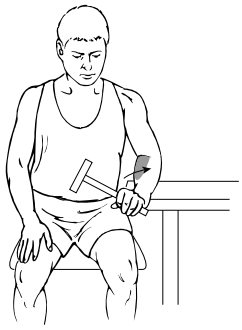
STRENGTH · Wrist, Radial Deviation

1. Stand with a _____ oz. hammer in your hand as shown, or sit holding on to the rubber band/tubing with your arm supported as shown.
2. Raise your hand upward in front of you or pull up on the rubber tubing.
3. Hold this position for _____ seconds and then ***slowly*** lower the wrist back to the starting position.
4. Repeat exercise _____ times, _____ times per day.



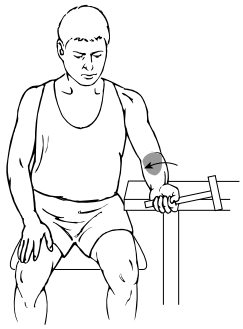
STRENGTH · Grip

1. Hold a wad of putty, soft modeling clay, a large sponge, a soft rubber ball, or a soft tennis ball in your hand as shown.
2. Squeeze as hard as you can.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH · Supination

1. Sit with your forearm supported on a table and the hand over the edge and your palm facing the floor.
2. Hold a _____ oz. hammer or a stick with a weight on the end in your hand as shown.
3. Turn your palm and hand toward you to a "thumbs-up" position.
4. Hold this position for _____ seconds and then ***slowly*** return to the starting position.
5. Repeat exercise _____ times, _____ times per day.



STRENGTH · Pronation

1. Sit with your forearm supported on a table and the hand over the edge and your palm facing up toward the ceiling.
2. Hold a _____ oz. hammer or a stick with a weight on the end in your hand as shown.
3. Turn your palm and hand toward you to a "thumbs-up" position.
4. Hold this position for _____ seconds and then ***slowly*** return to the starting position.
5. Repeat exercise _____ times, _____ times per day.

Notes: (Up to 4400 characters only)

Notes and suggestions