

PRONATOR SYNDROME



■ ■ ■ Description

Pronator syndrome is a nerve disorder in the elbow and upper arm that causes pain, hand weakness, and loss of feeling, often in the thumb and first three fingers. It involves compression of the median nerve in the forearm by muscles or ligament-like tissues. It may greatly decrease athletic performance in sports that require strong hand or wrist action.

■ ■ ■ Common Signs and Symptoms

- Tingling, numbness, or burning in part of the hand or fingers that may awaken you at night
- Sharp pains that may shoot from the elbow to the wrist and hand, especially at night
- Morning stiffness or cramping of the hand
- Thumb weakness, particularly when bending the thumb; frequent dropping of objects and inability to make a fist
- Shiny, dry skin on the hand
- Easy forearm fatigue and activity related forearm discomfort that may radiate up into the arm
- Reduced performance in sports requiring strong grip

■ ■ ■ Causes

- Pressure on the median nerve at the forearm caused by swollen, inflamed, or scarred tissue ligament-like tissue or between muscles of the forearm
- Possibly, inflammation of the nerve caused by a virus

■ ■ ■ Risk Increases With

- Sports or occupations that require repetitive and strenuous forearm and wrist movements (tennis, squash, racquetball, carpentry), particularly rotation of the wrist and hand
- Sports that require strenuous or repetitive forearm movement (tennis, racquetball, golf)
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play
- Diabetes mellitus
- Hypothyroidism (underactive thyroid gland)

■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
 - Wrist, forearm, and elbow flexibility
 - Muscle strength and endurance
 - Cardiovascular fitness
- Ensure proper equipment fit.
- Use proper technique and have a coach correct improper technique.

■ ■ ■ Expected Outcome

This condition is usually curable with appropriate treatment, and sometimes it heals spontaneously. Occasionally, surgery is necessary. Surgery is usually needed if muscle wasting (atrophy) or nerve changes have developed.

■ ■ ■ Possible Complications

- Permanent numbness and a weak thumb or fingers in the affected hand
- Permanent paralysis of some of the hand and finger muscles

■ ■ ■ General Treatment Considerations

Initial treatment consists of rest from the offending activity and medications and ice to help reduce inflammation. Discomfort often improves by shaking your hand or dangling your arm. Stretching and strengthening exercises of the muscles of the forearm and elbow are important. Referral to a physical therapist or an athletic trainer may be necessary for treatment. If this treatment is not successful, surgery may be necessary to free the pinched nerve. Surgery may be performed on an outpatient basis (you go home the same day) or you may be admitted for overnight stay. Surgery provides almost complete relief in most patients.

■ ■ ■ 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, usually only after surgery. 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.

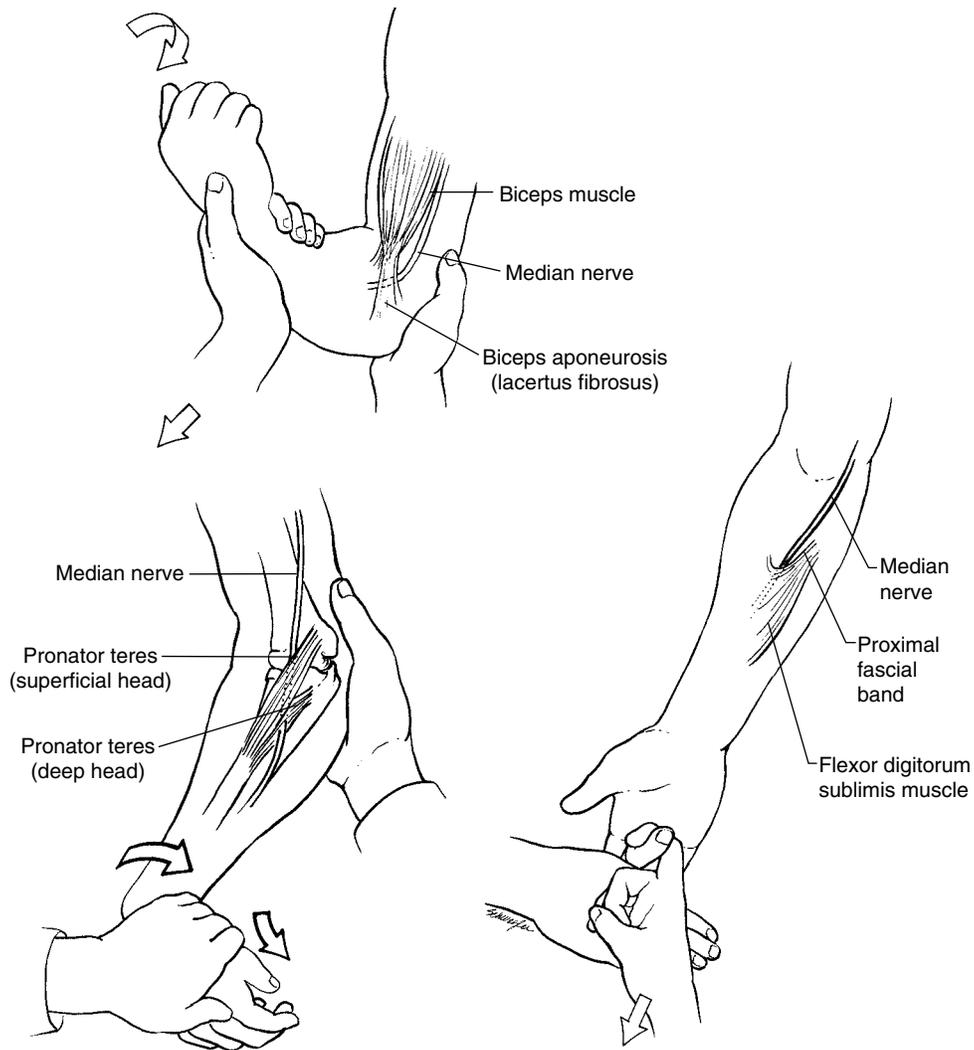


Figure 1

From Jobe FW: Operative Techniques in Upper Extremity Sports Injuries. St. Louis, Mosby Year Book, 1996, p. 528.

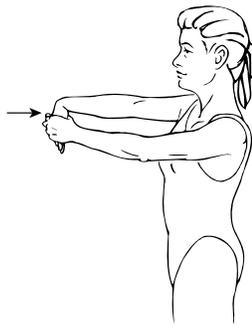
■ ■ ■ Notify Our Office If

- Symptoms get worse or do not improve in 2 weeks 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:
 - Increased pain, swelling, redness, drainage, or bleeding in the surgical area
 - Signs of infection (headache, muscle aches, dizziness, or a general ill feeling with fever)
 - New, unexplained symptoms develop (drugs used in treatment may produce side effects)

> RANGE OF MOTION AND STRETCHING EXERCISES • Pronator Syndrome

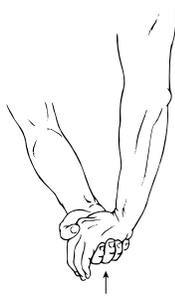
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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 you feel a stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.

> STRENGTHENING EXERCISES • Pronator Syndrome

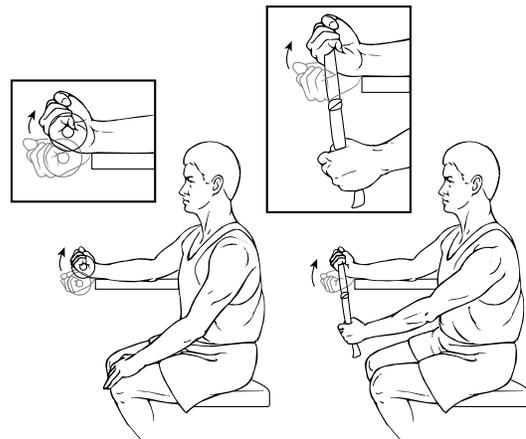
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. If they prove to be painful, stop. Please remember:

- 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.



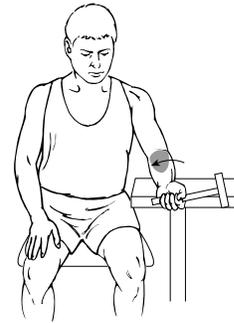
STRENGTH • Supination

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.



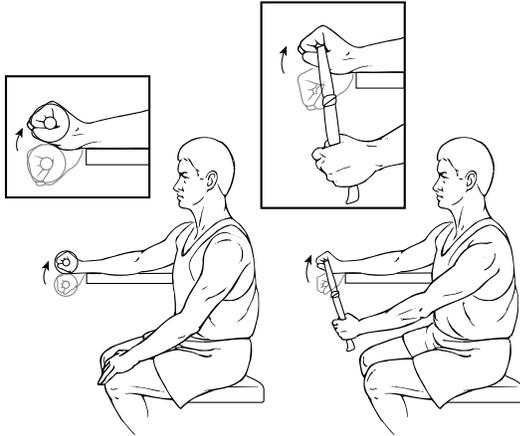
STRENGTH • Wrist Flexors

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.



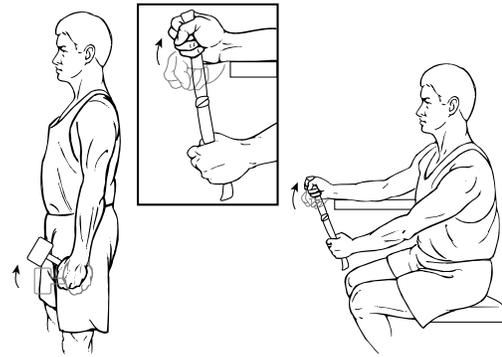
STRENGTH • Pronation

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.



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, 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.

Notes:

(Up to 4400 characters only)

Notes and suggestions