

# PECTORALIS MAJOR RUPTURE



## ■ ■ ■ Description

Pectoralis major rupture is a partial or complete tear of the pectoralis major tendon. This structure is the tendon attachment of the pectoralis major muscle to the arm (humerus). The pectoralis major muscle becomes a tendon at the outer chest, and the tendon attaches into the humerus. There is loss of continuity between the pectoralis major muscle and the humerus and thus loss of function of this muscle. The function of the pectoralis major is to forcefully bring the arm to the midline or across the body, as well as to rotate the arm inward. Usually this injury involves the tendon pulling off the humerus, although occasionally the muscle may tear in the mid-belly or at the junction where the muscle becomes tendon.

## ■ ■ ■ Common Signs and Symptoms

- A pop, rip, or tearing and severe sharp, often burning, pain in the chest at the time of injury
- Tenderness, swelling, warmth, or redness and later bruising over and around the pectoralis muscle-tendon, chest, and armpit region
- Pain and weakness when trying to forcefully bring the arm across the body or rotate the arm inward
- Loss of contour of the armpit region, especially when pushing your hands together in front of your body
- Loss of firm fullness when pushing on the area where the tendon ruptured (a defect between the ends of the tendon and bone where they separated from each other)

## ■ ■ ■ Causes

- Sudden episode of stressful overactivity
- Direct blow or injury to the chest
- Fall from a height

## ■ ■ ■ Risk Increases With

- Sports that require excessive muscle stress, such as with bench press weightlifting
- Contact sports with minimal protective devices for the chest
- Wrestling
- Poor physical conditioning (strength and flexibility)
- Previous pectoralis major tendon injury
- Untreated pectoralis major tendinitis
- Cortisone injection into the pectoralis major tendon
- Oral anabolic steroid use

## ■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice and competition.
- Allow time for adequate rest and recovery between practices and competition.

- Maintain appropriate conditioning:
  - Cardiovascular fitness
  - Shoulder flexibility
  - Strength and endurance

## ■ ■ ■ Expected Outcome

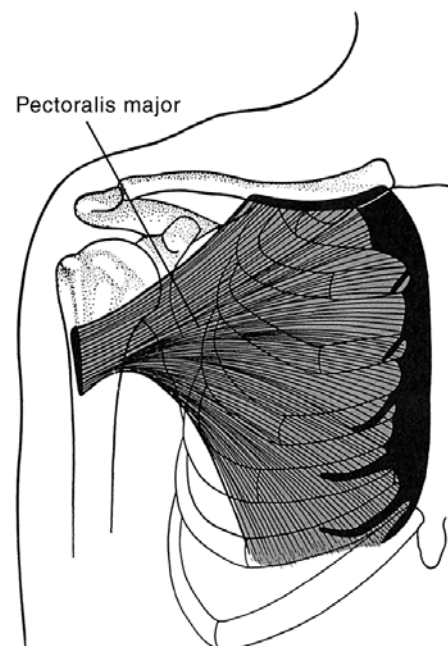
This condition is usually curable with appropriate treatment. Sports can usually be resumed after 6 to 9 months.

## ■ ■ ■ Possible Complications

- Weakness of the pectoralis major, especially untreated
- Rupture of the tendon after treatment
- Prolonged disability
- Risks of surgery, including infection, injury to nerves (numbness, weakness, or paralysis), bleeding, hematoma, pseudocyst, shoulder stiffness, shoulder weakness, and pain with strenuous activity
- Loss of chest or armpit contour
- Inability to repair rupture

## ■ ■ ■ General Treatment Considerations

Initial treatment consists of rest and icing of the area. A sling may be given for comfort. Small or partial pectoralis major tendon injuries may be treated with heat, ultrasound, and shoulder motion exercises. These may be done with the



**Figure 1**

From Hislop HJ, Montgomery J: Daniels and Worthingham's Muscle Testing—Techniques of Manual Examination, 6th ed. Philadelphia, WB Saunders, 1996, p. 97.

assistance of the physical therapist or athletic trainer. Strengthening may be started after a few weeks. Treatment of complete tears is somewhat controversial. Tears in the mid-belly and at the muscle-tendon junction are not amenable to repair. For the active athlete, surgical reattachment of the tendon to the humerus is often advocated. Without surgery, the loss of normal armpit contour and weakness of the shoulder will persist. Repair within the first few weeks provides a better result and is technically easier to perform. After surgery and immobilization, physical therapy is usually needed to regain shoulder motion and strength.

### ■ ■ ■ 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 by your physician. 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

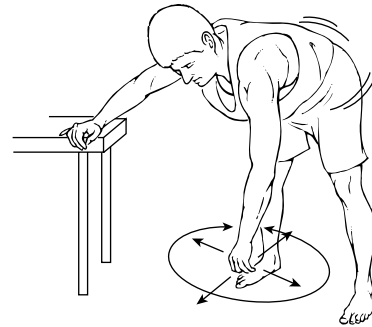
- Pain increases despite treatment
- Any of the following occur after surgery: signs of infection, including fever, increased pain, swelling, redness, drainage, or bleeding in the surgical area
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

## EXERCISES

### ➤ RANGE OF MOTION AND STRETCHING EXERCISES • Pectoralis Major Rupture

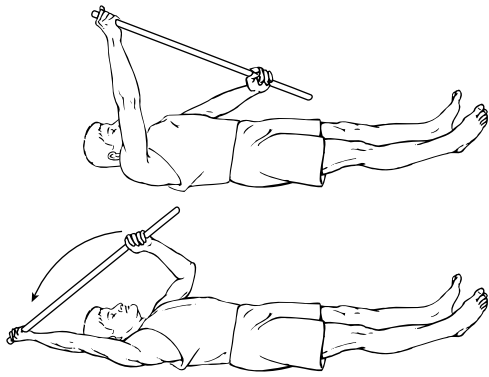
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



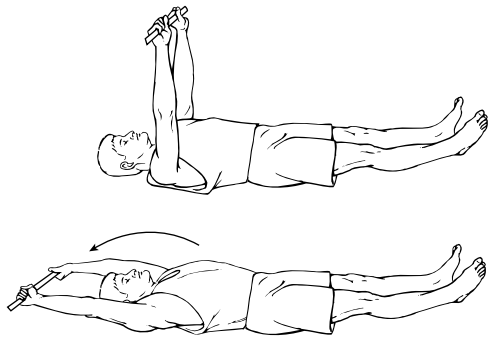
### SHOULDER • Pendulum

1. Lean forward at the waist, letting your \_\_\_\_\_ arm hang freely. Support yourself by placing the opposite hand on a chair, table, or counter as shown.
2. Sway your *whole body* slowly forward and back. This will cause your arm to move. Let your arm hang freely. Do not tense it up.
3. Repeat the above swaying side to side and moving in circular patterns, clockwise and counterclockwise.
4. Do \_\_\_\_\_ repetitions in each direction.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



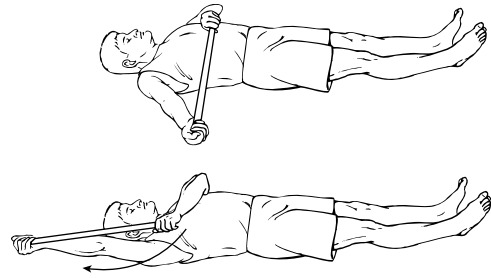
**SHOULDER • Flexion**

1. Lie on your back. Grasp the bottom of a stick, handle of an umbrella, or blade of a golf club in your \_\_\_\_\_ hand as shown.
2. Using the stick, raise your arm overhead as shown until you feel a gentle stretch. Lead with the thumb in a “thumbs up” position.
3. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.



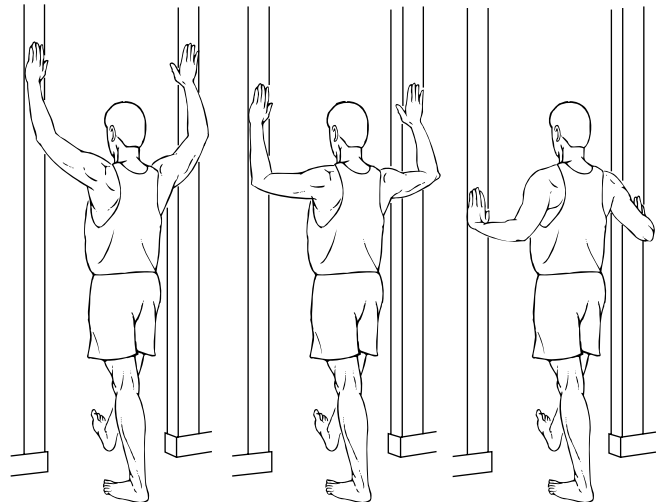
**SHOULDER • Flexion**

1. Lie on your back holding a stick in both hands, keeping your hands shoulder-width apart.
2. Raise both hands over your head until you feel a gentle stretch.
3. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.



**SHOULDER • Abduction**

1. Lie on your back holding a stick, umbrella handle, or golf club in your hand as shown. The hand should be in the “thumbs up” position.
2. Using the stick, slowly push your arm away from your side and as far overhead as you can without pain. Push until you feel a gentle stretch.
3. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.



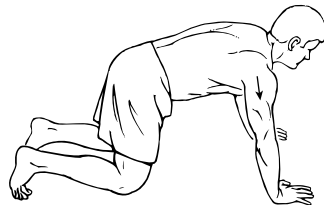
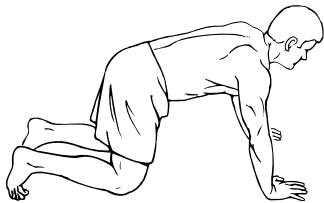
**SHOULDER • External Rotation and Abduction**

1. Stand in front of a door frame as shown.
2. Your hands and forearms may be placed on the door frame in any of the positions shown in the diagram. *Your physician, physical therapist, or athletic trainer will instruct you regarding which position you are to use! This exercise may be done with both arms at the same time or just one arm.*
3. Slowly **step through the doorway** with one foot. Use this stepping motion to obtain a stretch in the front of the shoulder and chest. **Do not lean through the doorway.**
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.

➤ **STRENGTHENING EXERCISES** • Pectoralis Major Rupture

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:

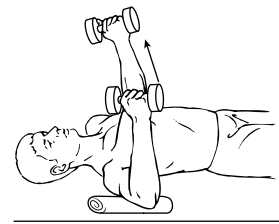
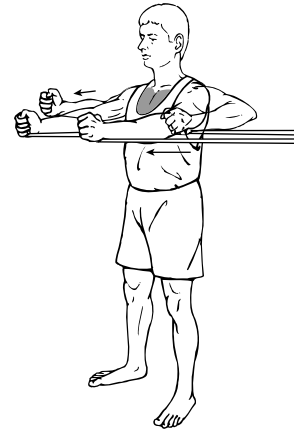
- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.



**SHOULDER** • Scapular Protraction

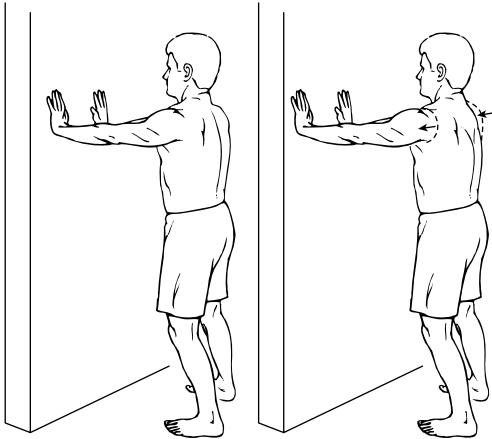
1. Position yourself on your hands and knees as shown.
2. Keep your elbows straight and push down with your hands, raising the back of your shoulders up as shown in the drawing.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

**This exercise may be made harder by assuming a push-up position. Before trying this check with your physician, physical therapist, or athletic trainer.**



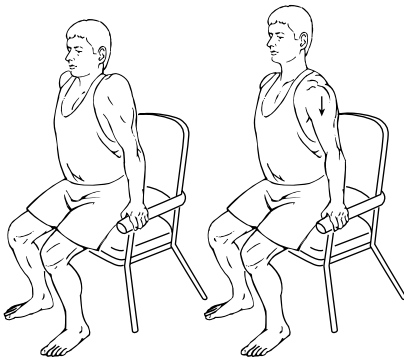
**SHOULDER** • Horizontal Adduction

1. **If using a weight**—Lie on your back with your \_\_\_\_\_ arm on the bed as shown, holding a \_\_\_\_\_ pound weight in your hand.
  2. Raise your arm up slowly toward the ceiling, straightening out your elbow.
  3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
  4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.
1. **If using rubber band/tubing**—Anchor the rubber band/tubing to a solid object.
  2. Hold one end of the band/tubing in each hand as shown with your elbows bent. Your elbows should be in line with your body, *not* behind your body.
  3. Push your arms forward, straightening out your elbows. Keep your arms parallel to the floor.
  4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
  5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



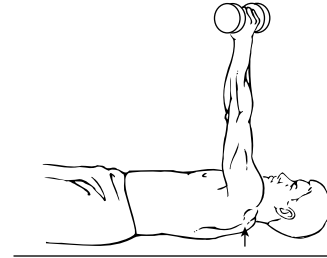
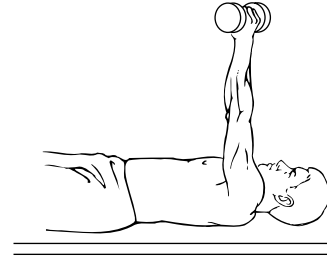
### SHOULDER • Scapular Protraction

1. Stand with your hand against a wall as shown.
2. Keep your elbows straight and push down with your hands, raising the back of your shoulders away from the wall as shown in the drawing.
3. The farther away from the wall you stand, the harder the exercise.
4. Hold this position for \_\_\_\_\_ seconds and then slowly return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



### SHOULDER • Depression

1. Support yourself as shown in an armchair. Your elbows should be straight and your feet flat on the floor.
2. Push your shoulders downward. **Do not bend your elbows.**
3. Support your weight as needed by using your legs.
4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



### SHOULDER • Scapular Protraction

1. Lie on your back with your \_\_\_\_\_ arm straight up in the air as shown. Hold a \_\_\_\_\_ pound weight in your hand.
2. Push your hand up toward the ceiling, keeping your elbow straight and raising your shoulder off the floor.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

Notes:

(Up to 4400 characters only)

Notes and suggestions