

# IMPINGEMENT SYNDROME (Rotator Cuff Tendinitis, Bursitis)



## ■ ■ ■ Description

Impingement syndrome is characterized by pain in the shoulder due to inflammation of the tendons of the rotator cuff or the bursa (subacromial bursa) that sits between the rotator cuff and the roof of the shoulder (acromion). The rotator cuff is a series of four muscles that surround the ball of the shoulder (humeral head). The subacromial bursa sits over the top of the cuff, allowing for the cuff tendons to slide near the roof of the shoulder without undue friction. Normally the humeral head gets closer to the acromion when the shoulder is moved, particularly as you reach overhead. When the rotator cuff becomes inflamed because of injury or overuse, or when the bursa becomes inflamed, then both the swollen tendon and swollen bursa may become pinched between the humeral head and the acromion. Impingement syndrome may represent a grade 1 or 2 strain of the tendon. A *grade 1 strain* is a mild strain. There is a slight pull without obvious tearing (it is microscopic tendon tearing). There is no loss of strength, and the tendon is the correct length. A *grade 2 strain* is a moderate strain. There is tearing of fibers within the substance of the tendon or where the tendon meets the bone or muscle. The length of the whole muscle-tendon-bone unit is increased, although there usually is decreased strength. A *grade 3 strain* is a complete rupture of the tendon.

## ■ ■ ■ Common Signs and Symptoms

- Pain around the shoulder, often at the outer portion of the upper arm
- Pain that is worse with shoulder function, especially when reaching overhead or lifting
- Occasionally, aching when not using the arm
- Often, pain that awakens you at night
- Occasionally, tenderness, swelling, warmth, or redness over the other aspect of the shoulder
- Loss of strength
- Limited motion of the shoulder, especially reaching behind (such as to back pocket or to unhook bra) or across your body
- Crepitation (a crackling sound) when moving the arm
- Biceps tendon pain and inflammation (in the front of the shoulder); worse when bending the elbow or lifting

## ■ ■ ■ Causes

- Strain from sudden increase in amount or intensity of activity
- Direct blow or injury to the shoulder
- Aging, degeneration of the tendon with normal use
- Acromial spur

## ■ ■ ■ Risk Increases With

- Contact sports such as football, wrestling, and boxing
- Throwing sports, such as baseball, tennis, or volleyball

- Weightlifting and bodybuilding
- Heavy labor
- Previous injury to rotator cuff, including impingement
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play
- Inadequate protective equipment
- Increasing age
- Spurring of the acromion

## ■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Allow time for adequate rest and recovery between practices and competition.
- Maintain appropriate conditioning:
  - Cardiovascular fitness
  - Shoulder flexibility
  - Muscle strength and endurance
- Use proper technique.

## ■ ■ ■ Expected Outcome

This condition is usually curable within 6 weeks if treated appropriately with conservative treatment and resting of the affected area. Healing is usually quicker if injury is caused by a direct blow (versus overuse).

## ■ ■ ■ Possible Complications

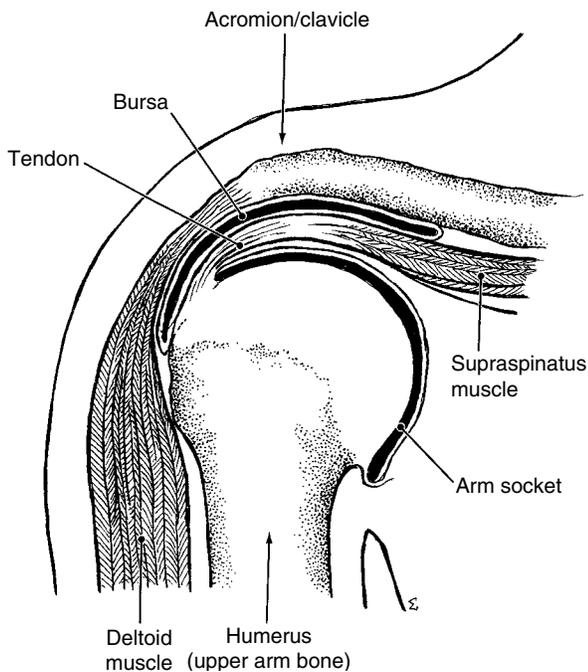
- Prolonged healing time if not appropriately treated or if not given adequate time to heal
- Chronically inflamed tendon, causing persistent pain with activity that may progress to constant pain (with or without activity)
- Shoulder stiffness, frozen shoulder, or loss of motion
- Rotator cuff tendon tear
- Recurrence of symptoms, especially if activity is resumed too soon, with overuse, with a direct blow, or when using poor technique

## ■ ■ ■ General Treatment Considerations

Initial treatment consists of medication and ice to relieve the pain, stretching and strengthening exercises, and modification of the activity that initially caused the problem. These all can be carried out at home, although referral to a physical therapist or athletic trainer may be recommended. An injection of cortisone to the area around the tendon (within the bursa) may be recommended. Surgery to remove the chronically scarred bursa and spur from the acromion may be necessary, but this is usually only considered after at least 3 months of conservative treatment. Surgery may be performed arthroscopically or with an open incision. Return to full activity is usually possible in 3 months.

### ■ ■ ■ 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 are usually not prescribed for this condition. If prescribed, use only as directed and only as much as you need.
- Cortisone injections reduce inflammation, and anesthetics temporarily relieve pain. There is a limit to the number of times cortisone may be given, because it may weaken muscle and tendon tissue.



**Figure 1**

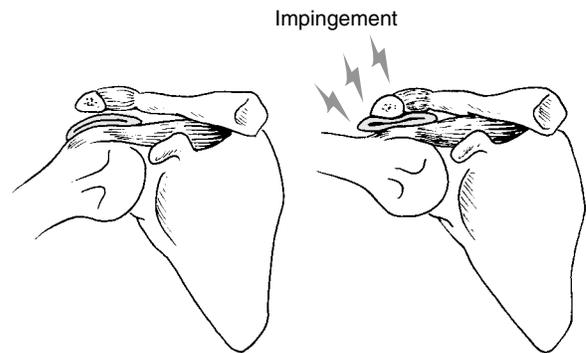
From Economou SG, Economou TS: Instructions for Surgery Patients. Philadelphia, WB Saunders, 1998, p. 549.)

### ■ ■ ■ 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.

### ■ ■ ■ Notify Our Office If

- Symptoms get worse or do not improve in 4 to 6 weeks despite treatment
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)



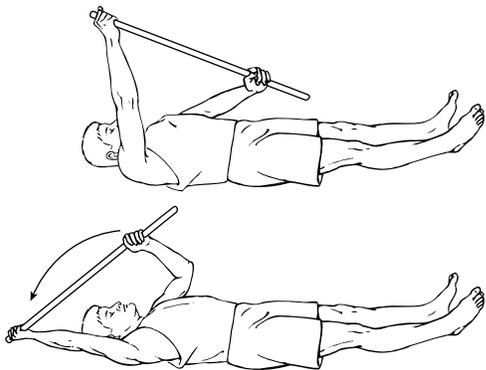
**Figure 2**

From Shankman GA: Fundamental Orthopaedic Management for the Physical Therapy Assistant. St. Louis, Mosby Year Book, 1997, p. 244. © Mayo Foundation.

**> RANGE OF MOTION AND STRETCHING EXERCISES • Impingement Syndrome (Rotator Cuff Tendinitis, Bursitis)**

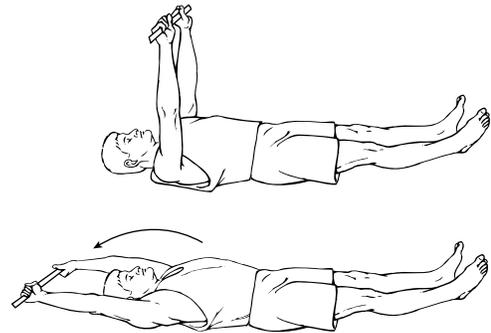
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



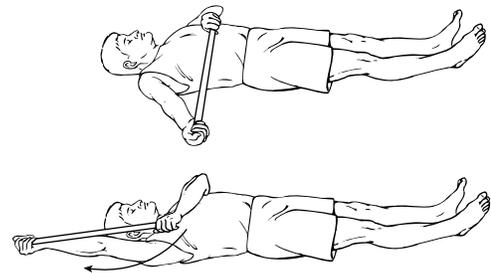
**SHOULDER • Flexion**

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.



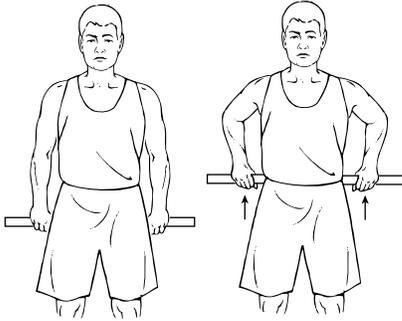
**SHOULDER • Flexion**

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.



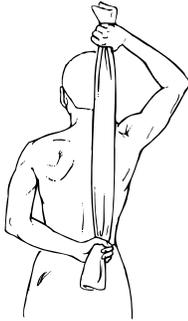
**SHOULDER • Abduction**

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.



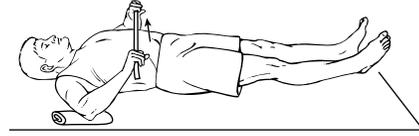
### SHOULDER • Internal Rotation

1. Grasp a stick behind your back with both hands as shown.
2. Slide the stick up your back until you feel a gentle stretch.
3. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.



### SHOULDER • Internal Rotation

1. Place your \_\_\_\_\_ hand behind your back.
2. Drape a towel over your opposite shoulder and grasp it with the hand that is behind your back.
3. Use the towel to gently pull your hand farther up your back until you feel a gentle stretch.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.



### SHOULDER • Internal Rotation

1. Lie on your back with your \_\_\_\_\_ arm out away from your body about 60 degrees and a rolled-up towel placed under your elbow as shown.
2. Turn/rotate your arm inward toward your body from the shoulder.
3. To assist in this stretch you may use a rope or towel to gently pull the arm farther inward as shown.
4. Make sure to keep your shoulders flat on the floor/bed on which you are lying.



### SHOULDER • Horizontal Adduction

1. Stand or lie on your back, grasping your elbow as shown in the diagram.
2. Keeping your arm at shoulder height, pull your arm across your chest until you feel a gentle stretch in the back of your shoulder.
3. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day. Hold each repetition 5 to 10 seconds.

➤ **STRENGTHENING EXERCISES** • Impingement Syndrome (Rotator Cuff Tendinitis, Bursitis)

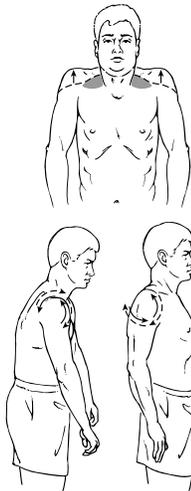
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.
- If weight equipment is used during the progression of your strength program, you should avoid activities that involve your hands or elbows going behind your head/body. These types of exercises place undue stress on your shoulders.



**STRENGTH** • Shoulder Abduction, Isometric

1. While standing, raise the \_\_\_\_\_ arm slightly away from the body as shown.
2. Place the other hand on top of your arm and push down. Do not allow your arm to move. Push as hard as you can without having any pain or moving the arm.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



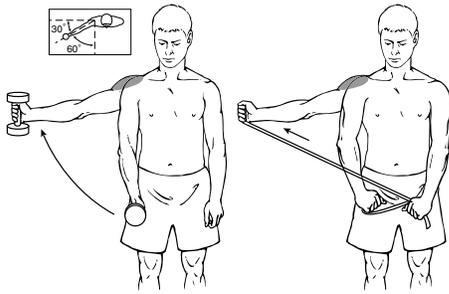
**SHOULDER** • Scapular Elevation, Shrugs

1. Stand with your arms at your side in a *good erect posture*.
2. Subtly “shrug” your shoulders up and back toward your ears.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
4. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.
5. You may perform this exercise with a \_\_\_\_\_ pound weight in each hand.
6. Avoid standing in a slouched position with poor posture by using this technique intermittently throughout the day.



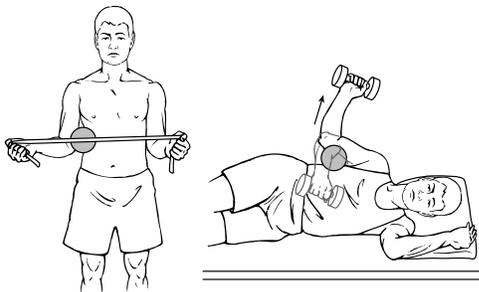
**STRENGTH** • Shoulder, External Rotation, Isometric

1. Bend your \_\_\_\_\_ elbow to 90 degrees as shown, holding your arm slightly in front of your body.
2. Place your opposite hand over your wrist as shown.
3. Try to turn/rotate your arm outward, away from your body, as if it were a gate swinging open. Resist this motion with the opposite hand that is on your wrist. Do not let any motion occur.
4. Hold this position for \_\_\_\_\_ seconds.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



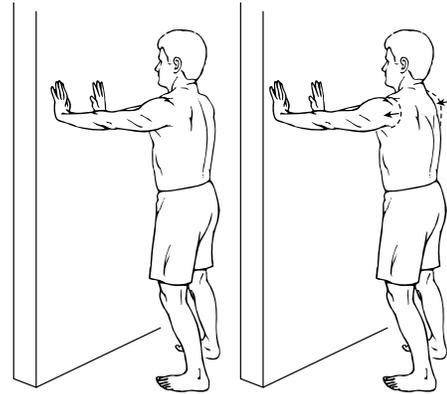
### STRENGTH • Scaption, Thumb Up

1. Hold a \_\_\_\_\_ weight in your \_\_\_\_\_ hand with your arm at your side but slightly forward (approximately 30 degrees; see small diagram). This exercise may also be done with rubber band/tubing as shown.
2. Your hand should be in a “thumbs-up” position.
3. Slowly raise your arm in the “thumbs-up” position through your *pain free* range. If this is painful, stop and discuss this with your physician, physical therapist, or athletic trainer. Do not allow your shoulder to “shrug up” while doing this exercise.
4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



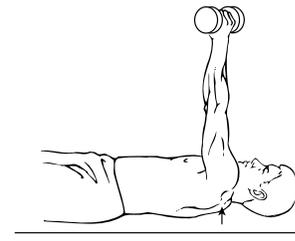
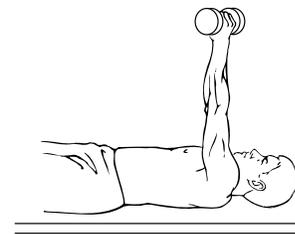
### STRENGTH • Shoulder External Rotation

1. Lie on your side with your \_\_\_\_\_ arm up and the elbow bent to 90 degrees, or stand with your arms at your side and the elbows bent to 90 degrees as shown. Place a small rubber ball (4 to 6 inches in diameter) or rolled-up towel between your elbow and your side as shown.
2. Hold a \_\_\_\_\_ pound weight in your hand and turn the arm up toward the ceiling, keeping the elbow bent as shown. If using rubber band/tubing, turn the arm(s) out from your side while keeping the elbows bent.
3. Do this slowly and in control through your *pain free* range of motion only. If this is painful, stop and discuss this with your physician, physical therapist, or athletic trainer.
4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



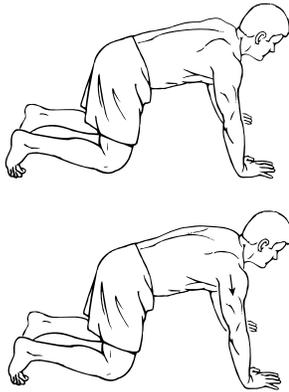
### SHOULDER • Scapular Protraction

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 • Scapular Protraction

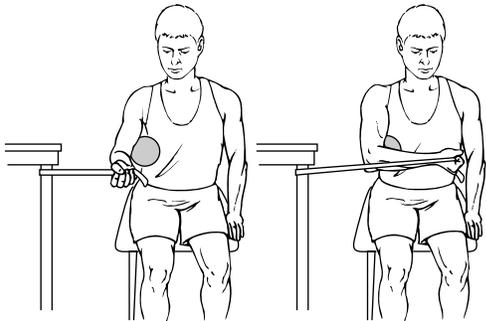
1. Lie on your back with your \_\_\_\_\_ arm straight up in the air as shown. Hold a \_\_\_\_\_ pound weight in your hand.
2. Push your hand up toward the ceiling, keeping your elbow straight and raising your shoulder off the floor.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return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



**SHOULDER • Scapular Protraction**

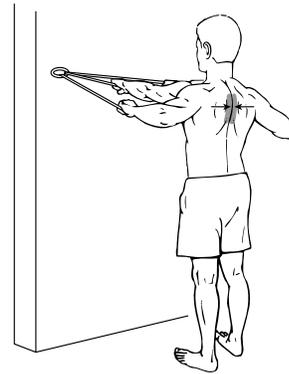
1. Position yourself on your hands and knees as shown.
2. Keep your elbows straight and push down with your hands, raising the back of your shoulders up as shown in the drawing.
3. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
4. Repeat exercise \_\_\_\_\_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



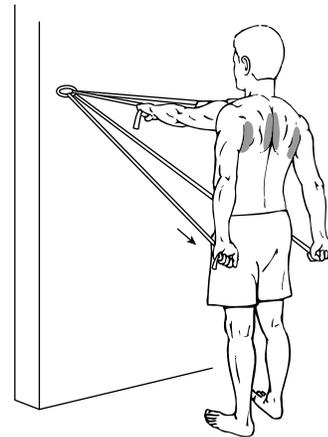
**SHOULDER • Internal Rotation**

1. Anchor the rubber band/tubing to a heavy/solid object as shown.
2. Place a small ball or towel between your elbow and body as shown in the drawing and bend your elbow to 90 degrees. Squeeze the ball gently to the side of your chest with your elbow.
3. Turn/rotate your arm in toward your body (across your chest/stomach). Do not let the ball move/fall away from the side of your chest.
4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



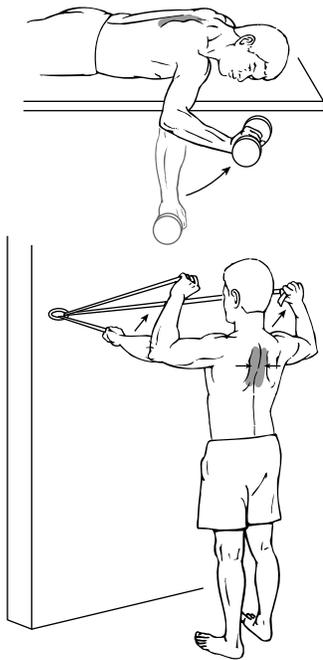
**SHOULDER • Scapular Retraction**

1. Anchor rubber band/tubing to a stable, fixed object.
2. Hold one end of the band/tubing in each hand with your arms straight out in front of you.
3. Squeeze/“pinch” your shoulder blades together.
4. Keeping your shoulder blades pinched together, pull your arms back as shown. Your hands should be level with your shoulders when you finish. Do not let your elbows go behind your body.
5. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
6. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



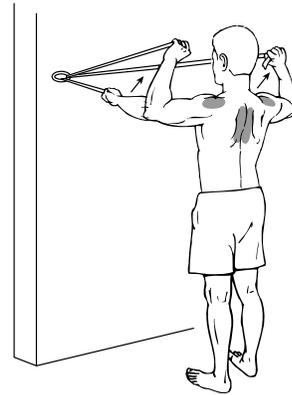
**STRENGTH • Shoulder Extension**

1. Anchor/secure rubber band/tubing around a stable object such as a stair post or around the knob of a closed door.
2. Stand holding the rubber band/tubing in front of you with your arms extended as shown.
3. Squeeze/pinch your shoulder blades together and pull your arms down and backward as shown. ***Do not pull arms past the midline of your body.***
4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



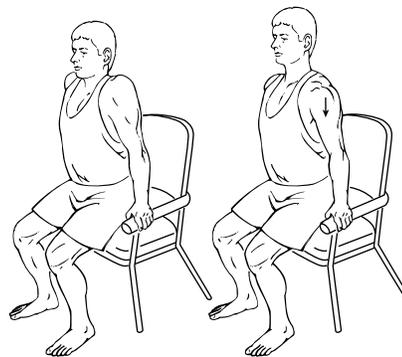
### SHOULDER • Scapular Retraction and External Rotation

1. **If using a weight**—Lie on your stomach with your \_\_\_\_\_ arm out to the side and over the edge of the bed as shown. The elbow should be bent to 90 degrees and the upper arm should be supported by the bed. Hold a \_\_\_\_\_ pound weight in your hand.
  2. Turn/rotate your arm up toward the ceiling while keeping the elbow bent.
  3. Squeeze/“pinch” your shoulder blades together.
  4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
  5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.
1. **If using rubber band/tubing**—Hold one end of the band/tubing in each hand. Your elbows should be bent 90 degrees and at shoulder height.
  2. Squeeze/“pinch” your shoulder blades together.
  3. Keeping your shoulder blades pinched together, turn your arms up as if someone had said “Stick ’em up!” Your hands should be in the position shown when you finish. **Do not bring your elbows or your hands past the middle of your body.**
  4. Hold this position for \_\_\_\_\_ seconds and then *slowly* return to the starting position.
  5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



### STRENGTH • Shoulder, External Rotation/Rowing

1. Anchor/secure rubber band/tubing around a stable object such as a stair post or around the knob of a closed door.
2. Stand holding the rubber band/tubing in front of you with your arms extended as shown.
3. Squeeze/pinch your shoulder blades together and pull your arms back as shown, bending your elbows. Your fists should end at shoulder height and close to your body.
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.

Notes:

(Up to 4400 characters only)

Notes and suggestions