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Version 2 (Revised Date 9.25.2006)

MOON SHOULDER GROUP

ROTATOR CUFF REHABILITATION THERAPIST DIRECTED PROGRAM

Introduction

The Shoulder MOON group is a Multi-center Orthopaedic Outcomes Network, a consortium of institutions working together to bring patients the best possible care with disorders of the shoulder.

The patient before you is participating in a study to determine the effectiveness of physical therapy in treating rotator cuff tears. It is essential that he or she follow this rehabilitation program very closely. This rehabilitation program has been distilled from seven Level 1 or Level 2 randomized controlled trials that demonstrate benefits from physical therapy for treating rotator cuff pain. Please follow this program carefully.

Do not add, alter, or skip any of the treatments in this protocol.

The therapist can provide instruction on patient directed active range of motion, patient directed flexibility, and patient directed strengthening. There is evidence that manual therapy can be helpful at improving outcomes and should be included at the discretion of the therapist (see page 10). When the patient no longer needs manual therapy and is ready to continue the exercise program at home, he or she can be moved to a home exercise program, as there is evidence that home exercise programs can be as effective as regular physical therapy visits.

Patients should perform the strengthening exercises three times per week. Range of motion and flexibility exercises can be performed daily.

Modalities

With regard to modalities, some of these exercise programs used heat and cold. Thermal modalities should be applied for 15 minutes before and after exercise. There is limited evidence to support the use of electrotherapy. There is no evidence to support the use of ultrasound.

HOME REHABILITATION

Patients in whom manual therapy is no longer necessary can be moved to a home exercise program. Movement to a home program is at the discretion of the physician and therapist.

Please instruct the patient in proper form and technique for the exercises listed in this booklet and on the patient's instructional DVD. Do not add or remove any exercises. Please set up a progression program. If the patient has any questions, please instruct him/her to contact his/her physician.

If you have questions, please contact the referring MOON physician or contact the study coordinator (see back cover for contact information).

Thank you for your participation in this research effort!

Therapist Directed Manual Therapy

In patients who have limited range of motion or who otherwise might benefit, some well designed studies with a high level of evidence suggest that manual therapy is of benefit. This manual therapy is primarily aimed at shoulder but may be directed to the shoulder girdle, the cervical spine, and the upper thoracic spine. In most cases passive accessory or passive physiologic joint mobilization Maitland grades I-IV is used. Maitland Mobilization Techniques are performed 2-4 times at 30 seconds each with two or three oscillations per second with the grade of stretch determined by the patients response and end feel testing, and should include:

-Inferior glide
-Anterior glide
-Posterior glide
-Long axis traction

The goals are to:
-Enhance glenohumeral caudal glide in positions of flexion or abduction and
-Increase physiological flexion or internal rotation

If a patient reaches a plateau:
-Change the vigor of the technique used
-Change the technique
-Direct treatment toward the relevant movement limitations.

Typical treatment during subsequent visits should focus on:
-Improving the combined physiologic movements of hand behind back or shoulder quadrant
-Increasing upper thoracic extension or side bend
-Enhancing extension, rotation, or side bend of the cervical spine.

Techniques may also include soft tissue massage and muscle stretching, particularly of the pectoralis minor, infraspinatus, teres minor, upper trapezius, sternocleidomastoid, and scalenes musculatures. Effleurage, friction and kneading techniques may also be employed with the subject sitting and the arm supported loosely.

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Patient Directed Active and Active Assisted Range of Motion (See pictures on next page)

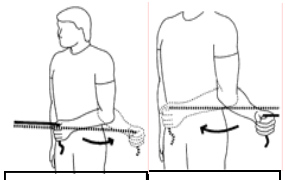
The patient begins with **pendulum exercises** for the shoulder. He/she should be instructed to use the momentum of the body to move the arm. They should be told NOT to use the shoulder muscles. The patient should move the arm counter-clockwise, clockwise, forward and back, and side to side. Do 20 cycles for each motion.

Posture exercises should be done within the pain free range.

Active assisted range of motion using a cane or a pulley system. Motions include forward elevation, external rotation, and abduction. Do 3 sets of 10 repetitions. These can be done lying down, and when comfortable, have the patient do them while standing upright.

Active training of the scapula muscles (rhomboid, serratus, trapezius, levator scapulae, and pectoralis minor) should be done using the exercises depicted, by doing shoulder shrugs and by pinching the shoulder blades behind. Do 3 sets of 10 repetitions.

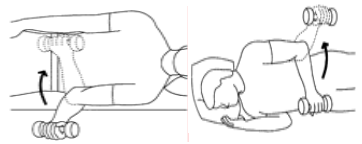
Active range of motion of the shoulder. Muscle relaxation exercise for the upper trapezius are performed by having the patient raise the arm in the scapular plane without shrugging the shoulder. Relaxation is enhanced through visual input by performing in front of the mirror, or by proprioceptive input by placing the uninvolved hand on the active upper trapezius. The patient should do 3 sets of 10 repetitions.



External Rotation Secure elastic at waist level. Hold elbow at 90 degrees arm at side. Pull hand away from body as shown.

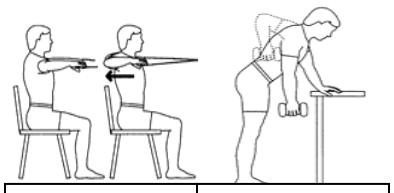
Internal Rotation Secure elastic at waist level. Hold elbow at 90 degrees arm at side. Pull hand across body as shown.

OR



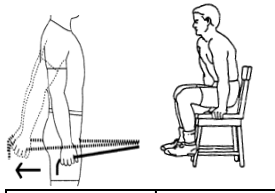
Internal Rotation—Lie on involved side, elbow bent at 90 degrees, arm at side. With or without weight, pull hand inward across body, as shown.

External Rotation—Lie on side, involved side up. Arm at side, elbow bent, with or without weight. Move hand up as shown



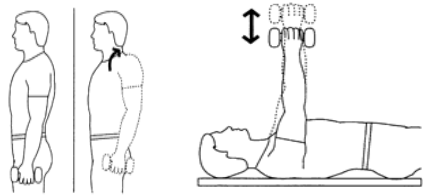
Rows– Seated or standing, bend elbows and pull elastic cord back. Try to pinch your shoulder blades behind you.

Upright Row- Do one arm at a time. While standing lean over a table. Bend at waist. Pull hand weight back, pulling shoulder blade back.



Low Trapezius-Stand upright. Grasp elastic bands. Keep elbows straight and pull. Try to reach behind you.

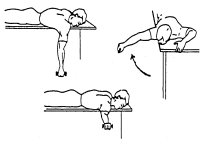
Chair Press– While seated press up on chair lifting body off chair. Try to keep



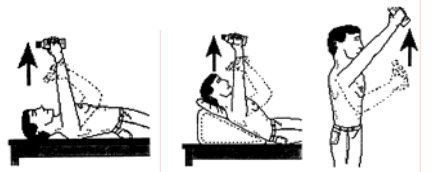
Shrugs—Stand with weights in hands. Roll shoulders back and hold.

Press Up - Lie on back, elbow locked straight, weights in hands. Move arm up toward ceiling as far as possible.

Pushup Plus - Do a pushup (either on your hands or forearms) and then really push to bring your spine to the ceiling.



Posterior Deltoid Exercise - Lying on stomach, with small weight in hand, lift arm to side and hold



Jackins' Exercises are designed for patients with difficulty with forward elevation. While lying on back lift arm over head, use the other arm to help, then use the arm alone, then add 1 or 2 lb weights and repeat. Then raise back 20 degrees and repeat sequence. Keep raising back 20 degrees and repeat sequence until upright

Patient Directed Strengthening
(See pictures on next page)

Strengthening should be done 3 to 4 times each week with 3 sets with 10 repetitions for each exercise. Repetitions and or resistance can be increased as tolerated. Teach and emphasize good form. Patients exceeding mild discomfort should reduce the level of resistance, or modify the range of the exercise until they are comfortable enough to progress. Strengthening of the rotator cuff is done within limits of pain.

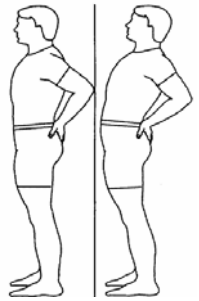
Do NOT have the patient perform full-can or empty-can supraspinatus exercises!

Rotator Cuff Strengthening
Internal and External Rotation Isometrics against a wall. Hold pressure for 20 seconds then rest. Do 3 sets of 10 repetitions.
Internal and External Rotation against resistance. Patient stands when using elastic bands or lies on side to use hand weights. Keep the arm against the body. Internally rotate against resistance for internal rotation. Externally rotate against resistance for external rotation. Patients can progress from an initial position of the arm close to the side, to a position of abduction of the arm. Try to progress as 3 sets, 10 reps the first week, 3 sets of 15 reps the second week, 3 sets of 20 reps the third week. Then progress by shortening the band. Exercises should induce fatigue but not cause increased shoulder pain. Increase the resistance (or weight) and the number of repetitions as tolerated by pain.

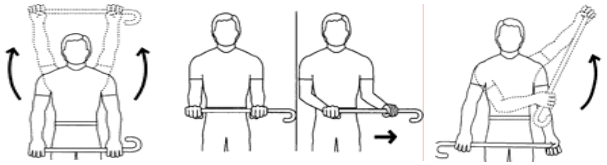
Postural and Periscapular Muscle Strengthening
-Rows– While seated or standing bend elbows and pull elastic cords back. Try to pinch shoulder blades behind you. An upright row can be done with a hand weight as directed.
-Chair Press-Use arms on bottom of chair or armrests to get out of a chair. Hold the position then relax.
-Shrugs– Like the posture exercise for range of motion, repeat using hand weights.
-Press Up—While lying on your back holding hand weights and elbows locked push up toward the ceiling.
-Push Up Plus-With hands or forearms on table, do a pushup, then really push to try to touch your spine to the ceiling.
-Posterior Deltoid-Lying on your stomach with your arm over the table and a weight in your hand, bring the arm out to the side and hold.

Jackins' Exercises
For patients with limited active forward elevation, Jackins' exercises may be used. Begin lying on your back. Raise the injured arm using the uninjured arm to help do at least 3 sets of 10 repetitions. When this is easy, practice raising the arm by itself. When this is easy, use a small weight. When this is easy, raise the head of the bed about 20 degrees and repeat the process. When this becomes easy, raise the head of the bed another 20 degrees and repeat the process again. Continue to raise the head of the bed and repeat the process until you are lifting weights while standing upright.

Pendulum Exercises:
Let the arm dangle. Make 20 small counter-clockwise circles. Make 20 small clockwise circles. Make forward and backward motions then side to side motions.

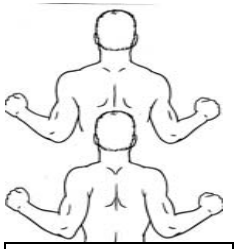


Posture exercises:
Put hands on hips, lean back and hold.

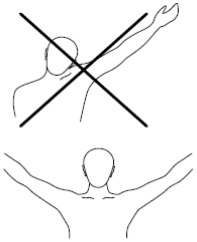


Active Assisted Range of Motion using a Cane:
Lying supine, hold the cane with both hands. Elevate the arms using the healthy arm to guide the injured arm. Increase the use of the injured arm as directed by comfort. These can be done upright when comfortable. Images demonstrate Forward Elevation, External Rotation, and Abduction. Can do standing if comfortable.

Active training of the scapula muscles.
Shoulder Shrugs: Pull shoulders up and back and hold.



Active training of the scapula muscles.
Pinch the back of the shoulder blades together using good posture.



Active range of motion. In front of a mirror practice raising your arm in front of your body without shrugging your shoulder.

Patient Directed Flexibility
(See pictures on next page)

Each stretch is 30 seconds each with 10 seconds rest between each stretch, repeat five times per day.

Anterior Shoulder Stretches

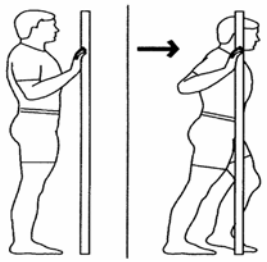
-**Door Stretch.** The patient's hands are placed at shoulder height on with the forearms on the door jamb. The patient leans into the door space stretching the tissues in front (especially pectoralis minor) This can be done in a corner where two walls meet, and the patient would lean into the corner.

Posterior Shoulder Stretches

-**Sleeper Stretch.** The patient lies on the injured side. The arm is forward elevated to 90 degrees from the body, the elbow is bent to 90 degrees. The uninjured arm pushes the forearm of the injured shoulder toward the table internally rotating the shoulder.

-**Golfer Stretch.** Patient reaches the injured arm toward the opposite scapula and uses other hand to horizontally adduct the arm.

-**Towel Stretch.** Patient uses a towel behind the back, and performs towel assisted internal rotation. The hand of the uninjured arm is placed behind the neck and the hand of the injured shoulder by the back pocket. A towel is held with both hands. The uninjured arm pulls upward, brining the uninjured arm up the back, stretching the posterior capsule.



Anterior Shoulder Stretch

(Door Stretch)

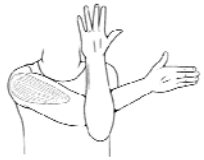
Place hands at shoulder level on each side of a door or in a corner of a room.

Posterior Shoulder Stretch (Sleeper Stretch)

Lie on your side on a flat surface.

Bring involved arm across in front of body as shown.

Push down on hand toward table.
Gently pull across chest until a stretch is felt in the back of shoulder.



Posterior Shoulder Stretch (Golfer Stretch)

Bring involved arm across in front of body as shown.

Hold elbow with other arm.
Gently flex the bent arm which will pull the other arm across chest until a stretch is felt in the back of shoulder.

Posterior Shoulder Stretch (Towel Stretch)

Hold uninvolved arm over shoulder with towel as shown.

Grasp towel with involved arm.
Slowly pull upward with uninvolved arm until a gentle stretch is felt.

MOON Shoulder Group

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ORTHOPEDIC INSTITUTE

Version 1 (Date: 9.25.2006)

Rotator Cuff Home Exercise Program

MOON SHOULDER GROUP

Introduction

The MOON Shoulder group is a Multi-center Orthopaedic Outcomes Network. In other words, it is a group of doctors from around the country working together to do research so they can give patients with shoulder problems the best possible care.

You have been kind enough to be in our rehabilitation study. We are trying to find out why some patients with rotator cuff tears get better with therapy and others do not.

Your doctor, athletic trainer or physical therapist can help guide you through this program which is broken up into three parts:

Range of Motion— you should do this every day to help get your motion back.

Flexibility— you should do this every day to help stretch tight tissues.

Strengthening– you should do this 3 or 4 days each week to help get your strength back.

For most of the exercises you will do a certain number of repetitions (or reps) and a certain number of sets. **Example: 3 sets / 10 reps**
Set 1: Do the exercise 10 times and then rest for a few seconds,
Set 2: Do the exercise 10 times and then rest for a few seconds,
Set 3: Do the exercise 10 times and then rest for a few seconds. Then move onto the next exercise.

Patient Rehab Diary

Patient DVD

Please do not add, skip or alter any of the exercises without talking to your doctor first.

Rehab Diary

In order to know if the therapy is helpful, we need to know how often you do the exercises. **At the back of this booklet you will find a Rehab Diary. It is a very important part of this study so please take a few minutes each day to fill it out.**

DVD

At the back of this booklet you will also find a DVD. The DVD shows you how to do all of the exercises in this booklet. Some points to remember:

1. The Range of Motion and Flexibility exercises can be done every day, while the strengthening exercises should be done 3 or 4 times per week.
2. With the Range of Motion exercises, it may be easier and less painful to start while lying on your back. When that becomes comfortable, you can do the exercises standing.
3. With strengthening, if you have moderate or severe pain with any of the exercises, you should decrease the resistance, decrease the amount of times you do the exercise, or skip the exercise until you can do it without pain.

If you have any questions after reading the booklet or watching the DVD, talk to your doctor, physical therapist, or athletic trainer.

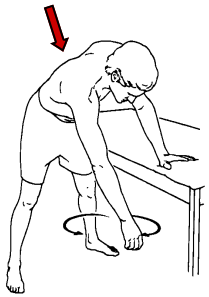
The red arrows point to the injured shoulder in the pictures where it may not be clear.

Range of Motion Exercises

Do these every day

1. **Pendulum exercises**.

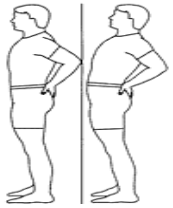
Move your body and let the movement of your body move your shoulder. Example: Rest your good hand on a table and bend over a little at your waist. Make circles with your hips/body which will cause your injured arm to make circles. Repeat this by moving your hips/body in different directions. **Do not use your shoulder muscles.** Do each motion 20 times.



Let the injured arm hang over the side of the table. Make 20 small circles in one direction and then 20 small circles in the other direction. Make forward and backward motions 20 times and then side to side motions 20 times.

2. Posture exercises.

These exercises should be done within the pain free range. In other words you should not have any pain while doing these exercises.
Do this exercise 20 times.



Put your hands on your hips, lean back and hold for 20 seconds.

Jackins' Exercises

If you have a hard time raising your arm, you should try these Jackins' exercises.
Do 3 sets / 10 reps. for each exercise.

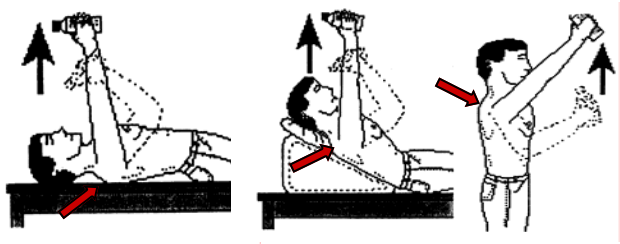


Figure 1 Figure 2 Figure 3

Begin by lying flat on your back (1). While lying on your back lift your injured arm over your head, using your good arm to help. Once this gets easier, try raising the injured arm by itself. Once this gets easier, try raising the injured arm with a small weight in your hand.

Once this gets easier raise your back by resting on pillows or sitting in a recliner (2) and start the whole process over. Keep raising your back and starting the process over again until you are standing straight up.

Again, if you have any questions after reading this booklet or watching the DVD, talk to your doctor, physical therapist, or athletic trainer.

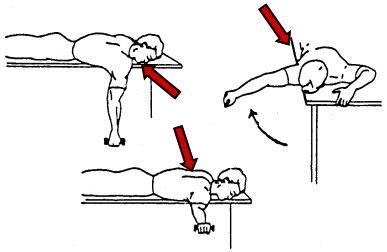
8. Push Up Plus:

Do 3 sets / 10 reps.

Do a pushup (either on your hands or forearms) and then really push to bring your spine to the ceiling. Kneeling on the floor, place your hands or forearms on the floor. Start by doing a push-up, then round your back. Really push to try to touch your spine to the ceiling.

9. Posterior Deltoid:

Do 3 sets / 10 reps.



Lying on your stomach hang your arm over the side of the bed or couch. While holding a weight, bring the arm out to the side and hold for 20 seconds.

3. Active assisted range of motion.

Use a cane/broomstick/pulley system so the good arm moves the injured arm.

Do 3 sets / 10 reps for each exercise

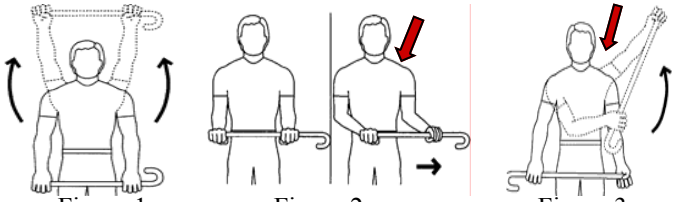


Figure 1 Figure 2 Figure 3

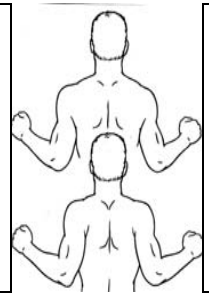
Lying on your back, hold the cane with both hands. Raise your arms using the good arm to help guide the injured arm (Figure1). Next use the good arm to move the injured arm to the side (Figure 2). Lastly, use the good arm to move the injured arm up to the side and up (Figure 3) You may start to use your injured arm more as it starts to feel more comfortable. Again as you start to feel more comfortable you can also do these standing up.

4. Active training of the scapula muscles.

Two exercises are shoulder shrugs and pinching your shoulder blades.

Do 3 sets/10 reps for each exercise.

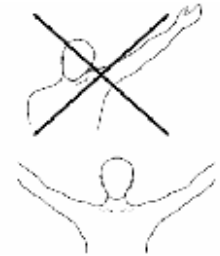
Shoulder Shrugs: Pull shoulders up and back and hold.



Pinch the back of the shoulder blades together using good posture.

5. Active range of motion. Raise your injured arm while looking at yourself in the mirror—be sure not to hike or raise your shoulder! You can place your hand (from your good arm) on top of your injured shoulder to make sure the muscles are relaxed.

Do 3 sets / 10 reps.



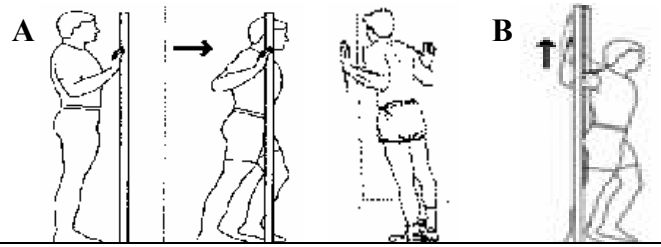
In front of a mirror practice raising your arm in front of your body without shrugging your shoulder.

Flexibility

Do these every day

Hold each stretch for 30 seconds and rest for about 10 seconds in between. Repeat five times per day.

1. Door Stretch.



Place your hands or forearms at shoulder level on each side of a door frame or in a corner of a room (A). Lean forward into door or corner and hold. Next place your hands or forearms over your head on each side of the door, lean forward and hold (B).

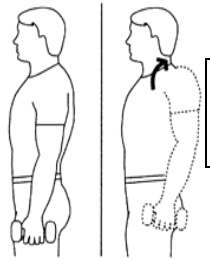
5. **Chair Press:**

Do 3 sets / 10 reps.

While seated put your hands on the seat or on the arm rests. Then press down with your arms, lifting your body off chair. Try to keep your back straight.

6. Shrugs: Like the shoulder shrugs (page 5), except this time you use weights.

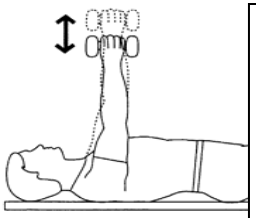
Do 3 sets / 10 reps.



Stand with weights in hands. Roll shoulders back and hold.

7. Press Up:

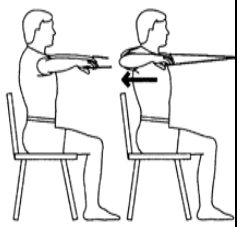
Do 3 sets / 10 reps.



Lie on back, elbow locked straight, arms stretched up towards the ceiling with weights in hands. Move/ Push arms up towards the ceiling as far as possible.

Postural / Periscapular Muscle Strengthening

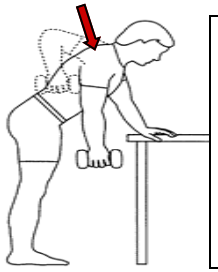
3. Rows: Do 3 sets / 10 reps.



While sitting or standing, bring arms up to shoulder height and bend your elbows. Grab the elastic bands with both hands and try to pull the elastic cords back, pinching your shoulder blades behind you.

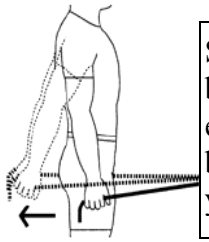
OR

An upright row can be done with a hand weight.
(If you do not have hand weights, use a can of soup).



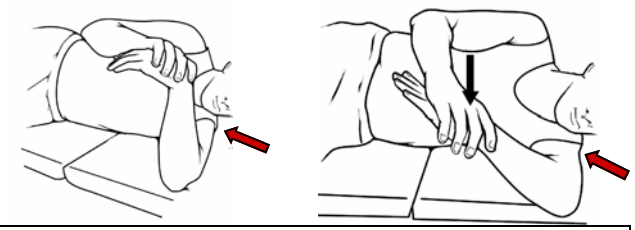
Do one arm at a time. While standing lean over a table. Bend at waist. With your elbow bent raise your arm towards the ceiling, pulling your shoulder blade back.

4. **Low Trapezius Exercise:**
Do 3 sets / 10 reps.



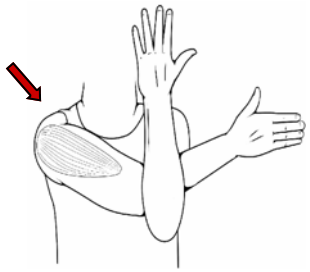
Stand straight up. Grab the elastic bands with both hands. Keep elbows straight and pull your arms backwards, trying to reach behind you.

2. **Sleeper Stretch.**



On a flat surface lie on your side with your injured shoulder down. Raise your arm to shoulder height and then bend your elbow. Use your good arm to push your forearm (of the injured shoulder) down towards the floor or bed.

3. **Golfer Stretch.**



Bring the injured arm across in front of body. Hold elbow with other arm (see picture). Gently pull your forearm (of your good arm) towards your chest/face which will pull the injured arm across chest until a stretch is felt in the back of shoulder**.**

4. **Towel Stretch.** Place the hand of your good arm behind your neck and the hand of the injured shoulder by your back pocket. Grab a towel with both hands. Use the good arm to pull upward, bringing the injured arm up the back.

Hold your good arm over shoulder with towel as shown. Grasp the towel with your injured arm. Slowly pull upward with your good arm until a gentle stretch is felt.

Strengthening

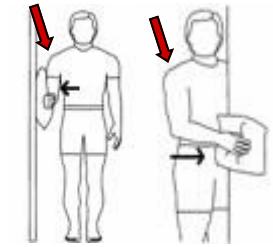
Do these 3 to 4 times per week

- Repetitions and/or resistance can be increased as tolerated.
- Be sure to use good form.
- If you have moderate or severe discomfort reduce the level of resistance or decrease the range of the exercise until it is comfortable.

Rotator Cuff Strengthening

1. **Isometrics against a wall.**

Do 3 sets / 10 reps.

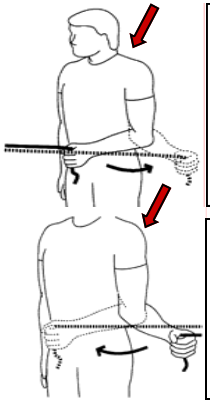


A **B**

Press the outside of your forearm against a wall (A) for 20 seconds. Relax. Next press the inside of your forearm against a wall (B) for 20 seconds. Relax.

2. **Internal / External Rotation against resistance.** Stand up when using elastic bands or lie on side to use hand weights. If you are using elastic bands please tie them to a doorknob in order to secure them. Keep the arm against the body. Internally rotate against resistance for internal rotation. Externally rotate against resistance for external rotation.

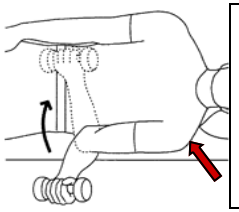
Do 3 sets / 10 reps.



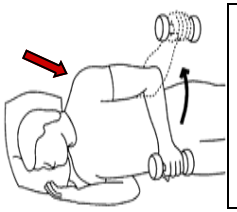
Secure elastic at waist level. Hold elbow at 90 degrees with arm at side. Pull hand away from body as shown.

Secure elastic at waist level. Hold elbow at 90 degrees arm at side. Pull hand across body as shown.

OR



Lie on injured side, elbow bent at 90 degrees, arm at side. With or without weight, pull hand towards your belly.



Lie on side, injured side up. Arm at side, elbow bent, with or without weight, move hand away from your belly.