

## Shoulder Pain Rehabilitation Protocol

Rotator Cuff Syndrome

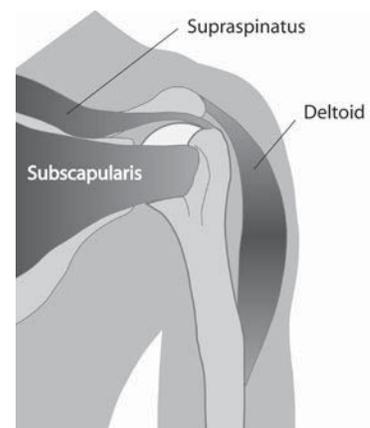
Shoulder impingement

**The Resistance Chair Solution**



### Shoulder Impingement

a. Shoulder impingement is one of the most common causes of shoulder pain in older adults. The rotator cuff tendons (most commonly the supraspinatus muscle) and/or shoulder bursa (fluid filled sac that acts as a cushion) become inflamed when compressed between the bones in the shoulder (scapula and humerus). Patients often report soreness and pain, especially with overhead activities. If left untreated, the rotator cuff tendons can weaken and possibly tear or even rupture. Patients may also lose range of motion due to pain and disuse. The rehabilitation approach includes: focused strengthening of the shoulder, stabilizing muscles to improve mechanics, improving the stability of the shoulder motion to resolve tendon and bursa irritation, and restoring range of motion with proper stretching when necessary.



#### b. Causes

- Overuse, especially with repetitive lifting
- Poor mechanics when performing shoulder activities
- Shoulder instability (muscle imbalance/weakness)
- Poor posture. Slumped posture and/or weakened back muscles cause the shoulder blade to tilt forward, exacerbating the impingement.
- Injury/Trauma
- Degenerative arthritis

#### c. Symptoms

- Pain in the front, top and/or side of the shoulder and upper arm
- Increased pain with raising the arm overhead
- Pain increased with lifting or reaching behind your back.
- Tenderness over the upper outside part of the shoulder
- Decreased strength if left untreated
- Pain at night impairing sleep

d. Management

A physician may diagnose this condition based on one's symptoms and clinical exam. Treatment may include medication (NSAIDs such as Ibuprofen), ice, rest with activity modification (avoiding overhead lifting and related pain inducing activities), and a specific rehabilitation program (often with physical therapy) to reduce inflammation. In more severe cases a steroid injection may help to reduce swelling and pain. Surgery may be indicated when conservative treatment fails.

e. **The Resistance Chair Solution**

The following are specific exercises to improve shoulder mechanics, strength, and stability to reduce impingement and inflammation.

Technique Key: Sit upright, ensuring proper posture, with shoulders relaxed away from ears and make sure to breathe continuously through exercises.

**WARM UP**

Perform each of the following stretches 10 times:

1. Circle shoulders forward and backwards. (or move shoulders in a circular motion, bringing shoulders up, then forward, then down, then back 10 times. Then repeat moving shoulders in the opposite direction.)
2. With palms facing forward, arms to your sides, inhale as you raise arms overhead, exhale as you lower arms.
3. Alternate reaching arms overhead.
4. Holding arms at shoulder level, brings hands together in front and apart to sides.

**Scapular Adduction Exercise**

Goal: To improve posture and alignment of shoulder joint.

1. Sit in chair with back up against posture support
2. Maintain upright posture with chest lifted and eyes looking straight ahead while you squeeze shoulders back and together against sides of posture support. (Figure A)
3. Hold position for 5 seconds. Repeat 12 times.

Maintain this upright posture with chest lifted and back straight throughout rest of the exercises.



Figure A

### Bent-over Reverse Flys

Goal: To strengthen upper back muscles for posture and shoulder alignment.

1. Sit in Chair, fold forward so chest rests on thighs, hands reach toward floor. (Fig. A)
2. Squeeze shoulder blades together as you raise arms out to the sides.
3. Hold 5 seconds. (Fig. B)
4. Relax arms to floor.
5. Repeat 12 times.



Figure A



Figure B

### Internal Rotation

Goal: To improve circulation and strength of rotator cuff.

1. Sit sideways in chair as shown with affected arm toward back of chair.
2. Grasp upper cable with affected arm. Bend elbow 90 degrees, keep wrist straight and forearm parallel to floor. (Figure A)
3. Pull cable across body and return slowly, maintaining a steady rhythm.
4. Repeat 10 times and perform 2 sets. (Figure B)

Technique Key – Maintain wrist straight with elbow by your side and forearm parallel to floor.



Figure A



Figure B

### External Rotation

Goal: To improve circulation and strength of rotator cuff.

1. Sit on side of chair as shown with affected side toward front of chair.
2. Grasp upper cable with affected arm. Bend elbow 90 degrees, keep wrist straight and forearm parallel to floor. (Figure A)
4. Pull cable across body, keeping elbow at your side. (Figure B)
5. Repeat 10 times and perform 2 sets.



Figure A



Figure B

### Chest Press

Goal: To improve strength of chest and shoulder muscles

1. Sit in chair.
2. Grasp upper cables at chest level. (Fig. A)
3. Push arms forward, return slowly. (Fig. B)
4. Repeat 10 times and perform 2 sets

Technique key – Keep wrists straight throughout exercise and shoulders relaxed, away from ears.



Figure A

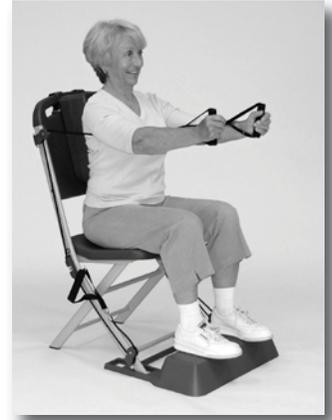


Figure B

### Forward Raises

Goal: To increase strength of front of shoulders.

1. Sit in chair.
2. Grasp lower cables in each hand as shown. (Figure A)
3. With thumbs pointing upward, palms facing inward, raise both arms in front to shoulder level, lower slowly. (Figure B)
4. Repeat 10 times and perform 2 sets.

Technique key – Maintain shoulders relaxed, down away from ears, as you raise your arms. Keep wrists straight.



Figure A



Figure B

### Side Raises

Goal: To increase strength of sides of shoulders.

1. Sit in chair.
2. Grasp lower cables in each hand. (Fig. A)
3. Raise both arms out to side as shown. Lower slowly. (Fig. B)
4. Repeat 10 times and perform 2 sets.

\*Caution: Do not raise higher than shoulder level.

Technique key – Maintain shoulders relaxed, down away from ears, as you raise your arms. Keep wrists straight.



Figure A



Figure B

## Combined Forward/Side Raises

Goal: To increase strength of rotator cuff and shoulders.

1. Sit in chair.
2. Grasp lower cables in each hand. (Fig. A)
3. With thumbs pointing upward, palms facing together raise arms to shoulder level as shown. Lower slowly. (Fig. B)
3. Repeat 10 times and perform 2 sets.

Technique key – Maintain shoulders relaxed, down away from ears, as you raise your arms. Keep wrists straight.



Figure A



Figure B

## Bicep Curl

Goal: To increase strength of front of arms.

1. Sit in chair.
2. Grasp lower cables in each hand, palms facing forward. (Fig. A)
3. Bend elbows and slowly straighten. (Fig. B)
4. Repeat 10 times and perform 2 sets.

Technique key – Keep shoulders stable as you bend elbows.



Figure A

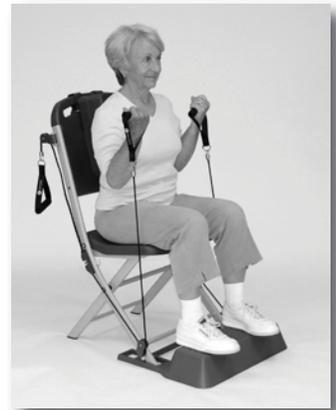


Figure B

## Tricep Pulldown

Goal: To increase strength of back of arms.

1. Sit in chair.
2. Grasp overhead cables and pull down to starting position as shown; elbows at sides and bent to 90 degrees. (Fig. A)
3. Push cables down to sides to straighten arms. (Fig. B)
4. Repeat 10 times and perform 2 sets.

Technique key: Keep elbows close to sides of ribs (or sides of body), and keep wrists straight.



Figure A



Figure B

## Advanced Exercises

\*Progress to include these exercises when your pain has reduced and you can easily perform the above program.

### Chair Push-up

Goal: To increase strength and stability of chest, shoulders and back.

1. Stand 2-3 feet behind chair.
2. Place hands on back of chair as shown. (Figure A)
3. Bend elbows to slowly lower chest towards chair. (Figure B)
4. Straighten elbows to push back to starting position.
5. Repeat 10 times and perform 2 sets.

Technique key: Keep abdominals contracted and back straight throughout exercise.



Figure A

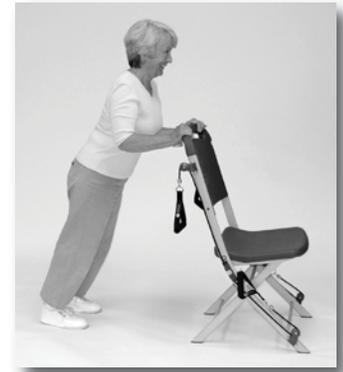


Figure B

### Bent-over Row (One Arm Row)

Goal: Strengthen upper back and shoulder muscles.

1. Begin exercise by bending over and supporting yourself with one hand and one knee on the chair seat.
2. Grasp the lower cable with your arm reaching down straight. (Figure A)
3. Pull the cable straight up so that your hand ends up near your chest with your elbow bent and pointing upwards as shown. (Figure B)
4. Repeat 12 times; perform 2 sets each arm.

Technique Key: Maintain a curve in your lower back and keep your abdominals tight as you perform the exercise.



Figure A

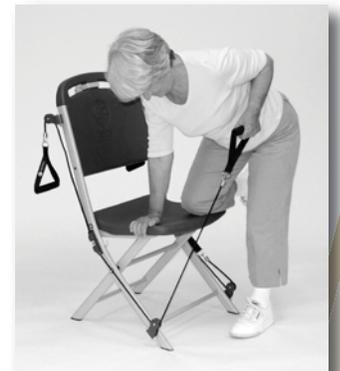


Figure B

## NOTES

- Engage abdominals with all exercises.
- Remember to breathe with each repetition.
- Start rehabilitation slowly, only working through minimal discomfort levels. If pain increases, decrease resistance level and/or repetitions.
- If you experience increased pain, weakness, or swelling, consult your physician.

## POST EXERCISE

1. Rest with ice pack on shoulders for 10-15 minutes.

**CAUTION:** Before beginning any exercise program please consult a healthcare provider for appropriate exercise instructions and safety precautions.

## SHOULDER IMPINGEMENT PROFESSIONAL NOTES

1. Seat patient in chair. Use footrest if needed to stabilize patient.
2. Use posture support unless patient has long legs, as this will place them too far forward in chair.
3. Start with scapular adduction exercise over posture support if able. One of the most common causes of shoulder impingement is poor mechanics due to downwardly rotated scapulas, kyphotic thoracic spine and internally rotated humerus. Prior to performing any of the exercises, it is important to achieve and maintain an upright spine, neutral scapula position, and neutral or externally rotated humerus. When the patient performs the scapular adduction exercises, have them sit tall and inhale as they stretch their shoulders back against the posture support. Inhalation increases the extension moment in the spine thus facilitating the posture we are trying to attain. For some patients, the posture support may be too hard and a cushion is indicated. Cue the patient to wrap their shoulders back around the posture support and turn their palms forward. Make sure they continue to breathe while holding the position.
4. Bent over reverse flies: When strengthening the scapular stabilizers, emphasize the middle and lower trapezius as they also facilitate upward rotation of the scapula, which is important to minimize shoulder impingement. To bias the middle trapezius during bent over reverse flies, have the patient maintain the shoulders in external rotation throughout exercise.

5. Internal and external rotation exercises are commonly given for rotator cuff strengthening. In the elderly, degenerative tears are common. Therefore it is important not to overload these muscles with resistance. The goal is to increase blood flow and promote slow, gentle strengthening. Make sure they keep their wrist straight. If the motion is too difficult, isometric contractions can be performed by holding the pulley at the beginning of tension for 5 seconds.
6. In the case of a significant tear of the rotator cuff, the deltoid can be trained to elevate the arm without impingement (Redding UK reference). Start these patients on active assisted ROM with the overhead pulleys. In these patients, the pulley deltoid exercises with light resistance may be appropriate AFTER they are able to perform active ROM safely.
7. Bicep strengthening can be helpful to increase overall UE strength. Use caution, as many people have degenerative long head bicep tears and shouldn't overload with these exercises.
8. Positioning: attempt to maintain neutral spine throughout.
9. Evidence shows decreased single limb balance associated with ipsilateral shoulder dysfunction. Progress to ipsilateral balance exercises including single limb stance accompanying shoulder PRE's with hand weights.
10. Core strengthening is important to support proper spinal alignment with optimal scapular position. Utilize chair for abdominal crunches and oblique strengthening. Refer to core protocol for details.

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