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## **Rehabilitation Protocol for Rotator Cuff Surgery**

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### **Biceps tenodesis +/- acromioplasty (no rotator cuff repair)**

1. **Goal:** to restore range of motion (ROM), strength, function, and confidence to the shoulder while avoiding the pain and swelling commonly caused by active use of the arm before scapulo-humeral rhythm has been restored. Also avoiding arm positions or exercises that might strain the supraspinatus during the rehabilitation period.
2. **Facts:** The *supraspinatus* or “rotator cuff” muscle is normally weak, temporarily, following arthroscopic surgery to relieve impingement. Normal function of the supraspinatus muscle is necessary for pain free use of the arm when reaching, throwing, or lifting above waist level. Supraspinatus function can be restored with minimal pain or discomfort by ensuring that the elbow is supported and shoulder (trapezius) relaxed during range of motion and strengthening exercises—this is best accomplished in the supine position until supraspinatus strength is at least 3+/5. EMG evidence has shown that scaption resistance exercises strengthen all parts of the deltoid muscle—anterior, middle, and posterior.
3. **Precautions:**
  - a. General: *Trapezius spasm and dysfunction* leads to superior placement of the arm against the underside of the acromion and delays recovery. *Pain* is usually sign of muscle dysfunction or stress on the repair (especially once the inflammatory phase of healing subsides 3-4 weeks post-op); it is best addressed by changing the speed, force, range, or direction of rehabilitation exercises, or by addressing trapezius takeover or spasm. *Abduction exercises are to be avoided* as they are usually painful; scaption replaces abduction and forward flexion exercises and streamlines rehabilitation. *Walking the wall* exercises are in my opinion counterproductive for most patients as the exercise frequently ends in trapezius substitution & takeover leading to pain and slower rehab.
  - b. ROM: *Elbow Flexion* should be passive in the 1<sup>st</sup> 3 weeks after surgery and active assisted in weeks 4-6. *Elbow extension*

should be active assisted with gravity with the forearm supinated and not cause pain in the 1<sup>st</sup> 6 weeks. *Elbow pronation* should be active assisted with the elbow flexed 90 degrees in the 1<sup>st</sup> 6 weeks post-op. *Extremes of internal rotation and adduction of the shoulder are to be avoided* in the 1<sup>st</sup> 3-4 weeks as they can put undue stress on the rotator cuff. There is less stress on the rotator cuff when forward elevation exercises are done in 20 degrees of abduction (in the plane of the scapula) in neutral rotation.

- c. Strengthening exercises are most successful and cause the least pain when done in a mid-range arc of motion. Resistive exercises for elbow flexion should be avoided in the 1<sup>st</sup> 6 weeks and submaximal until 3 months post-op and should cause no pain.

### **REMINDER:**

When the patient agrees to undergo arthroscopic shoulder surgery they willingly commit to a 3-month, vigorous, structured, rehabilitation program. They should understand that the end-result depends to a great extent on their discipline, motivation, and perseverance in performing the exercise program. Without their commitment and energy, the surgery is assured to fail to meet their expectations. With their cooperation and dedication they have an excellent chance to regain the strength, motion, and confidence in their shoulder to participate in a wide variety of activities, including throwing and racquet sports and repetitive use of the arm at shoulder level or above.

A physical therapist's treatment and supervision is recommended for optimal results. Physical therapy normally begins 3-7 days post-op. Physical therapy visits are typically 3 times a week in the 1<sup>st</sup> 4 weeks, then 2-3 times a week for the 2<sup>nd</sup> 4 weeks. The following exercise program should be followed daily on your own to achieve the goals expected at the end of each time interval. This detailed protocol has been designed as a reference specifically for you and your physical therapist.

### **TIMING OF POST-SURGICAL VISITS:**

1. WEEK 1 (dressing change, suture removal (if necessary), & x-ray)
2. WEEK 5 (ROM check)
3. WEEK 9 (strength check)

## **REHABILITATION PROGRAM**

### **IMMEDIATELY POST-OP—1<sup>st</sup> week Comfort Phase**

1. **ACTIVITY:** A shoulder immobilizer (sling with a strap to keep the arm against the body) is provided for comfort. Sitting up in bed or chair is usually the most comfortable position, even to sleep. Put a bag of ice on the shoulder, covering the

dressing with a towel to keep it dry. Change it every 4 hours. Some patients will have a thermos type ice machine, which is started at the coldest setting, then adjusted to comfort. Ice machines are \$150 and are convenient but not always necessary for recovery. Others will have synthetic ice bags that are part of the shoulder immobilizer. Ice is important for 3 days after surgery to keep swelling and pain to a minimum. Prescription pain pills are provided and should be taken every 4 hours in the first 24 hours to prevent muscle spasm and subsequent pain that can be difficult to control without hospitalization. You will have a doctor's visit 5-6 days after surgery to check the wounds and to make arrangements to start physical therapy.

2. **RANGE OF MOTION:** The patient should open and close their fist several times each hour while awake to prevent swelling and stiffness of the hand. If comfortable, they may begin removing the shoulder immobilizer the day after surgery to dangle their arm and straighten and bend the elbow, supporting the operated extremity with the opposite hand. This should be done twice a day until the immobilizer is discontinued.
3. **WOUND CARE:** It is important to not get the dressing or incision wet. You may shower 48 hours after surgery if you cover your dressing with a plastic bag (or plastic wrap such as Saran Wrap or Glad Press'N'Seal), and waterproof tape. Please do not remove or change the dressing in the 1<sup>st</sup> 3 days after surgery unless it gets soaking wet. You may remove the dressing the 3<sup>rd</sup> post-op day and leave the incisions open to air or cover them with Band-Aids.
4. **GOAL:** The goal in the first week after surgery is comfort. A good night's sleep is essential. Prescription sleeping pills are provided and should be used if necessary.

## **Weeks 2 & 3 Protective Phase**

1. **PAIN & SWELLING:** It is important to reduce pain and swelling throughout rehabilitation with the use of specific modalities, such as, ice pack, electrical stimulation, ultrasound, and mobilizations, as recommended by your physician or physical therapist. After 3 days ice is no longer necessary day and night and can be used as needed for pain control. If you have a shoulder immobilizer that comes with synthetic ice bags, the part of the immobilizer that holds the ice bags can be removed after 3 days.
2. **ACTIVITY:** Gradually increase the time out of the immobilizer, as comfort allows. You may use the arm at waist level. Do not reach for anything until the doctor or therapist gives the OK. You may slowly raise your arm, if your hand is touching your chest, up to the level of your ear or face; do this laying flat on your back until it is comfortable to do sitting up. Assist the arm by supporting it with your opposite hand until motion is pain-free.
3. **RANGE OF MOTION:** The shoulder immobilizer is for the patient's comfort and to protect the biceps tenodesis. They may stop using it at the end of this phase

if it no longer helps them stay comfortable. Three to 5 days after surgery, begin active assisted and passive shoulder motion using counter top slides and rotation with the elbow supported, within the tolerance of comfort; by 2 weeks post-op, the shoulder should move to 90 degrees flexion (scaption), and to 0 to 10 degrees external rotation when arm is abducted 20-30 degrees in the supine position. Some pain during ROM exercises is acceptable, but **pain should subside within 30 minutes after each therapy session.** Tell your therapist if you are experiencing pain longer than 30 minutes after a PT session. ROM exercises may include pendulum, scaption, extension, and external rotation to neutral but internal rotation behind the back and adduction should be avoided in the early phase of rehabilitation as they stress the rotator cuff repair and can compromise healing.

- 4. STRENGTHENING:** Strengthen the shoulder using yellow or red theraband and isometric exercises that the physical therapist shows you (e.g. scapular adduction and shoulder extension with elbow slightly abducted to avoid substitution). No elbow flexion against gravity unless assisted and no resistive exercises in elbow flexion until 6 weeks post-op. ***Forward flexion or scaption resistive exercises are to be avoided until Phase 3.*** The goal of strengthening in the early phase of rehabilitation is to center the humeral head in the glenoid fossa. The rotator cuff is protected during rotational resistance exercises by flexing the arm to 90 degrees in the scapular plane and performing isometrics with manual resistance (“rhythmic stabilization”). ***Resistance exercises should be done in a mid range and should cause no pain.***
- 5. WOUND CARE:** You may get the incisions wet, in a shower, 10 days after surgery, if there is no drainage. Do not soak the shoulder in a bathtub, hot tub, or swimming pool until at least 3 weeks after surgery. Don’t be surprised if bruising develops 3 to 7 days after the operation in the upper arm or even to the elbow.
- 6. GOAL:** By 3 weeks, the shoulder should move past 90 degrees flexion (scaption), but may still be sore, stiff, and swollen. Gain full elbow extension with the forearm supinated. The goal is to lessen patient guarding or resistance and to have no increase in pain during or after exercise. Do not be discouraged if some swelling persists.

#### **WEEKS 4-6 Early Activity Phase**

- 1. PAIN & SWELLING:** Continue to use necessary **modalities** as needed to promote healing and progress complete recovery. In general, **heat** helps with muscle spasm, especially before exercise; **ice** helps with pain & swelling, especially after exercise.
- 2. RANGE OF MOTION:** Increase ROM using the exercises your therapist recommends. Shoulder should move past 120 degrees flexion (scaption) at the end of 4 weeks.
- 3. STRENGTHENING:** Continue with twice a day theraband exercises, cane press, free weight (not against gravity), and gain 3+ /5 strength supraspinatus with no substitution.

4. **GOAL:** By 4 weeks the shoulder should move nearly equal to the opposite shoulder (PROM). It is not unusual to still have some discomfort in the shoulder, which may limit motion. It is also not unusual to still have difficulty reaching behind the back (internal rotation/ extension).
5. **ACTIVITY:** You may use the arm for personal hygiene as your comfort permits. You should be tapering your use of prescription pain pills and discontinuing their use by 4-6 weeks after surgery.

### **WEEKS 6-10 Progressive Strengthening and Activity Phase**

1. **PAIN:** Continue to use modalities as needed.
2. **RANGE OF MOTION:** Continue to increase ROM to improve quality of shoulder movement and eliminate substitute shoulder movement.
3. **STRENGTHENING:** You may use any exercise equipment available to you in your home, gym, and health club. Use lower weight and a higher number of repetitions (20 to 30) to build endurance. Repetitions should be done slowly until you are certain you can do the exercise comfortably. Try to exercise 1 hour a day (breaking it up into comfortable intervals), at least 3 to 5 times per week.
4. **GOAL:** By 10 weeks the range of motion of the shoulder should equal the normal side and feel well enough to resume light activities such as tennis (no overhead serves until comfortable), golf, shooting baskets, and throwing. Do not attempt to lift anything heavy overhead. Don't reach and lift, check the weight before lifting, and keep the object close to your body. You should have full ROM including reaching behind the back.
5. **ACTIVITY:** You will have a doctor's visit to check on your progress.

### **WEEKS 11-16**

1. **PAIN:** Continue to use modalities as needed.
2. **STRENGTHENING:** Continue to use any exercise equipment available to you in your home, gym, and health club. Increase the weight and resistance on the exercise machines. Simulate and train in the sports you wish to participate in. Throwing and racquet sports are encouraged. It's usually safe to begin unrestricted use of the arm at home and work.
3. **GOAL:** By 16 weeks, the shoulder should feel well enough to resume full unrestricted activities and sports including tennis, racquet ball, football, baseball, softball, basketball, soccer, wrestling, volleyball, boxing, and water and snow skiing as long as you don't experience pain during and after the activities.
4. **COMMENT:** It may take between six months and a year to regain full confidence in the operated shoulder. Confidence can only be regained by using the shoulder and subjecting it to the demands of the sport that you desire to return to.

### **ANSWERS TO COMMON QUESTIONS:**

**How long will I be in the hospital?**

Surgery is performed as an outpatient. Patients go home 3-4 hours after surgery when they can eat and are comfortable.

**How long does the surgery take to perform?**

The surgery usually requires 1 hour to perform. Sometimes there are spurs under the acromioclavicular joint that cause impingement, requiring an extra 15 minutes to remove a small portion of the end of the collar bone.

**When can I drive a car?**

When you feel safe and confident behind the wheel so you can avoid getting into an accident. Generally, driving is often resumed within the first 2-4 weeks after surgery, but may take longer if you require pain medication frequently. Do not drive when you are taking pain pills.

**When can I return to work or school?**

Motivated people who have a sitting or desk job can usually be back at work by 7-10 days after surgery. Construction workers take 3-4 months.

**What is the success rate of the surgery?**

90% of patients will have relief of pain and function equal to normal and will be able to return to full unrestricted activities.

**Can I re-injure the shoulder?**

Remember that the operation removes bone spurs that impinge on the rotator cuff and repairs tears in the rotator cuff but does not replace worn parts. Yet if you pay attention to discomfort in your shoulder you should be able to tell when you are overdoing it without re-injuring the shoulder.

**Can my therapist watch the operation?**

Yes, the therapist can call 724-6169, ext. 203, and let our medical assistant know that they would like to observe the surgery. It is a hospital policy that non-medical personnel are not permitted in the operating room; this includes family and friends.

**If you have any more questions, please write them down in the space below and call 724-6169 for our medical assistant, or ask Dr. Abrahamsen at your next office visit.**