

This protocol provides appropriate guidelines for the rehabilitation of patients following arthroscopic biceps tenodesis/transplantation surgery. The protocol draws evidence from the current literature and accounts for preferences of the surgeons at Summit Orthopedics. The program may be modified by the referring provider for an individual patient. If questions arise regarding the utilization of the protocol or the progress of the patient, contact Summit Orthopedics: **(651) 968-5200**

PRECAUTIONS

Biceps Tenodesis/Transplantation

No elbow flexion or supination against resistance until 6 weeks post-op.

If the following procedures were also completed, adhere to the additional precautions below:

AC Joint Resection/Distal Clavicle Excision

No cross-body adduction until 2-3 weeks post-op or pain-free.

No internal rotation behind the back until 2-3 weeks post-op or pain-free.

PT FREQUENCY & DURATION

- » Eight to 12 physical therapy visits over 5-16 months.
- » Begin physical therapy 4-6 weeks after surgery as instructed by surgeon.

REHAB PRINCIPLES

- » Focus on active engagement of the patient through patient education and therapeutic exercise. Establish a home exercise program that can be progressed gradually throughout the postoperative period.
- » Respect tissue healing. The surgeons at Summit Orthopedics uniformly prefer a slow progression of post-op patients with minimal postoperative pain.
- » Postoperative pain may be experienced. However, physical therapy, including the home exercise program, should result in minimal to no symptom exacerbation. The patient should call the PT for recommendations if pain increases during or after exercise.
- » The therapeutic exercises listed in this protocol convey the appropriate load for the shoulder given the time elapsed since surgery in regard to tissue healing. It is acceptable for a patient to progress more slowly. However, it is not acceptable for a patient to progress more quickly unless directly indicated by the surgeon.
- » Recommended max of 6 exercises for home exercise program. Select a well-rounded program that targets each area of insufficiency identified during physical exam.

MODALITIES

Cold Therapy/Ice: Use ice daily until pain-free or 8 weeks after surgery.

Other Modalities: DO NOT USE

MANUAL THERAPY

- » No passive range of motion (physiologic/long arc).
- » Joint mobilization to address shoulder hypomobility after 12 weeks ONLY if prescribed by surgeon.
- » Soft tissue techniques to upper trapezius/levator scapula/pect minor are permitted.

THERAPEUTIC ACTIVITY & PATIENT EDUCATION

Patient education is very important in getting the patient to take an active role in therapy and recovery. Educate the patient at the appropriate level regarding:

- » Anatomy of the shoulder girdle.
- » Basics of surgical procedure in layman's terms.
- » Surgical precautions.
- » Shoulder girdle mechanics: typical and pathomechanical.
- » The inhibitory effect of pain on the rotator cuff.
- » Avoidance of pain-provoking activities.
- » Effect of posture on shoulder girdle mechanics.
- » Preferred positioning of the shoulder during sleep.

THERAPEUTIC EXERCISE

- » **Free Weights:** Use only as directed throughout protocol.
 - » **For patients over 60 years old:**
No external weights for rotator cuff strength/conditioning.
(Examples: Side lying external rotation, full can.)
 - » **For patients aged 40-60:**
Progress from 2 ounces to 4, then a max of 8 ounces for rotator cuff strength/conditioning.
 - » **For patients under 40 years old:**
Progress from 2 ounces to 4, then 8 ounces. A max of 16 ounces can be used for rotator cuff strength/conditioning.
- » **Exercise Band:** DO NOT USE
The use of Yellow Theraband®, the least resistive color in the Theraband series, results in 2.9 pounds of resistance when elongated by 100%. In addition, length-tension principles of muscle function do not align with exercise band properties; the muscle is asked to provide maximum force at a shortened and inefficient length. Therefore, exercise band use is not permitted for use during rotator cuff conditioning.
- » **Pulleys:** DO NOT USE

REHABILITATION PROGRESSIONS

For the biceps tenodesis, the surgeon determines the length of time in a sling based on basic principles of tissue healing and tissue quality. Four weeks in a sling is typical after a biceps tenodesis. However, the surgeon may extend the time in a sling to protect the biceps. If the patient is instructed to wear a sling for more than 4 weeks, the therapist should delay this protocol by the number of weeks in a sling beyond four.

Page numbers below reference the Therapeutic Exercise Handout. The PDF for the Therapeutic Exercise Handout file containing instructions and pictures for each exercise can be printed from the Summit Orthopedics website: www.summitortho.com/provider/michael-q-freehill-m-d/

WEEK 0-4 (CONTINUOUS USE OF SLING):

After surgery, patient receives post-op instructions that include:

- » Wear sling continuously for 4+ weeks as instructed by surgeon. Sling may be removed to shower and dress.
- » Begin pendulum exercises the day after surgery. Ten reps in each direction four times per day.
- » AROM of the elbow, wrist, and hand.
- » Application of ice with shoulder ice wrap (Bird & Cronin).
- » Remove wound dressing 2 days after surgery (or as instructed). Leave Steri-Strips in place.
- » OK to drive once off narcotic pain medication. Check with auto insurance regarding driving in sling.
- » OK to write, type, eat, shave, wash face, brush teeth within pain tolerance.

WEEK 5-6:

- » Begin physical therapy 0-2 weeks after discontinued use of sling.
- » Educate the patient regarding:
 - » Allowable ADLs (writing, typing, self-cares, not to lift anything heavier than a coffee cup).
 - » No overhead reaching.
 - » Surgical precautions (see page 1).
- » If early postoperative stiffness is noted, contact the surgeon.
- » HEP 5-7x/week (up to two days off per week to allow for good/bad days).
- » Ice after PT/HEP.
- » Appropriate exercises:

| PAGE | EXERCISE | DOSE |
|-------------|--|---|
| 12 | Ceiling Punch (active or active assisted) | 2x10 with goal of 2x20 |
| 13 | Reverse Codman (active or active assisted) | 2x10 with goal of 2x20 |
| 10 | Seated ER (to neutral) | 2x10 with goal of 2x30 |
| 11 | Wings | 2x10 with goal of 2x30 |
| 13 | Table Circles | 10 with goal of 20 clockwise and counterclockwise |
| 6 | Prayer Stretch | 5x10" with goal of 10x10" |
| 16 | Supination-Pronation | 20x — active without resistance |

WEEK 7-11:

- » Continue physical therapy.
- » Educate the patient regarding:
 - » Allowable ADLs (not to lift anything heavier than one pound).
 - » Limited overhead reaching — max of one plate/cup.
- » If postoperative stiffness is noted, contact the surgeon.
- » HEP 5-7x/week (up to two days off per week to allow for good/bad days).
- » Ice after PT/HEP.
- » Appropriate exercises (if exercises from week 5-6 result in a max of 3/10 pain):

| PAGE | EXERCISE | DOSE |
|------|--------------------------------|-----------------------------------|
| 12 | Ceiling Punch (active) | 2x10 with goal of 2x20 |
| 13 | Reverse Codman (active) | 2x10 with goal of 2x20 |
| 7 | Supine Protraction | 2x10 with goal of 2x20 |
| 10 | Seated ER (full pain-free ROM) | 2x30 |
| 11 | Wings | 2x30 |
| 13 | Table Circles | 20 clockwise and counterclockwise |
| 6 | Prayer Stretch | 5x10" with goal of 10x10" |
| 8 | Table Press | 20x3" |
| 16 | Supination-Pronation | 20 |

3-4 MONTHS:

- » Continue physical therapy.
- » Educate the patient regarding:
 - » ADLs as pain-free.
 - » Gradual return to activities as directed by surgeon.
- » If postoperative stiffness is noted, contact the surgeon.
- » HEP 3-4x/week (every other day).
- » Ice after PT/HEP as needed.
- » Appropriate exercises (if exercises from week 8-16 result in a max of 3/10 pain):

| PAGE | EXERCISE | DOSE |
|-------------|-----------------------|--|
| 10 | Side Lying ER | 2x30 with goal of 2x50 |
| 11 | Bear Hug | 20x3 seconds with gentle pressure |
| 8 | Lower Trap Retraining | 20 |
| 8 | Prone I | 20 |
| 9 | Prone W | 1-2x20 |
| 9 | Prone Superman | 1-2x20 |
| 13 | Wall Circles | 20 clockwise and counterclockwise with towel |
| 3 | Sleeper Stretch | 3x30 seconds |

5+ MONTHS:

- » Continue physical therapy.
- » HEP 3-4x/week (every other day).
- » Ice after PT/HEP as needed.
- » Appropriate exercises (if exercises from 3-4 months result in a max of 3/10 pain):

| PAGE | EXERCISE | DOSE |
|------|-----------------|---|
| 10 | Side Lying ER | 2x50. See page 3 for max weights |
| 11 | Bear Hug | 20x3 seconds with moderate pressure |
| 11 | Belly Press | 20x3 seconds |
| 12 | Full Can | 2x30 only when scap mechanics are good |
| 12 | Flexion | 2x30 only when scap mechanics are good |
| 9 | Prone W | 1-2x20 |
| 9 | Prone Superman | 1-2x20 |
| 13 | Wall Circles | 20 clockwise and counterclockwise with ball |
| 14 | Bird Dog | 2x30-60 seconds |
| 14 | Front Plank | 2x30-60 seconds |
| 14 | Side Plank | 2x30-60 seconds |
| 3 | Sleeper Stretch | 3x30 seconds |

- » After discharge from formal physical therapy, continue with HEP 2x/week until two-year anniversary of surgery.

RETURN TO SPORT

WEIGHT TRAINING

- » Return to modified program when rotator cuff strength is 5/5 in all planes and cleared by physician.
 - » Upper body weight training no more than 2x/week.
 - » First do rehab exercises as part of upper body warm-up.
 - » Lift appropriate weight for 2-3 sets of 15.
- » Acceptable Upper Body Lifts
 - » **Biceps:** Curls with free weights, elbows at sides, scap set throughout.
 - » **Triceps:** Press down with V rope on cable column.
Bent over kick back with free weights.
No “skull crusher” variations.
 - » **Row:** Seated row with cable column.
Bent over row with free weights.
Scap set during pull phase, elbows never behind body.
 - » **Lat Pull-downs:** Lean slightly back and pull bar to chest.
- » Advise the patient that the following exercises should NEVER be completed after rotator cuff repair unless specifically cleared by the physician:
 - » Dips
 - » Shrugs
 - » Incline Press
 - » Military Press
 - » Bench Press
 - » Push-ups
 - » Lateral Raise
 - » Pect Fly

THROWING

If applicable, begin return to throw program at 6+ months when rotator cuff strength is 5/5 in all planes and cleared by physician.

COLLISION SPORTS

Six to nine months as determined by surgeon.

YOGA

- » Patient may begin a modified yoga practice consisting of non-weight-bearing movement patterns when scapular mechanics are good and AROM is pain-free and without compensatory shoulder hiking.
- » Begin weight-bearing postures at 5+ months once cleared by the physician.
- » Instruct that during the sun salutation/chaturanga, the patient should bypass the low plank (downward dog » high plank on knees » hold high plank [while others in class pass through low plank] » upward dog).

OTHER SPORTS

When cleared by physician.