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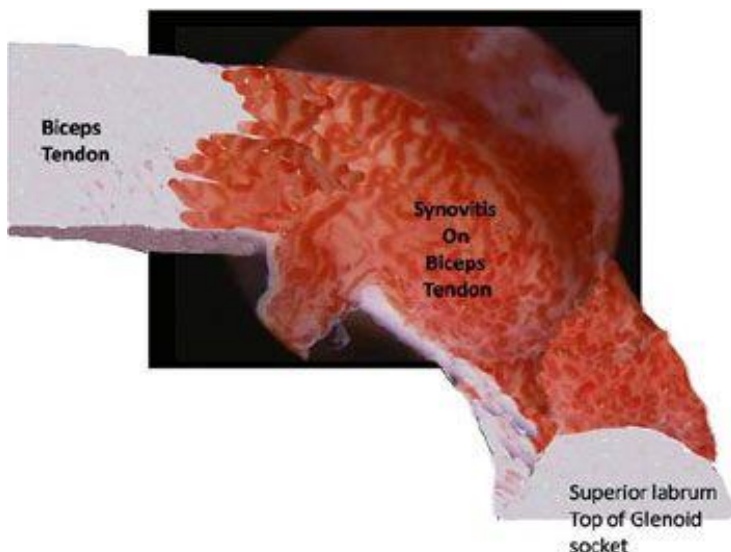
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Rehab after Biceps Tenodesis

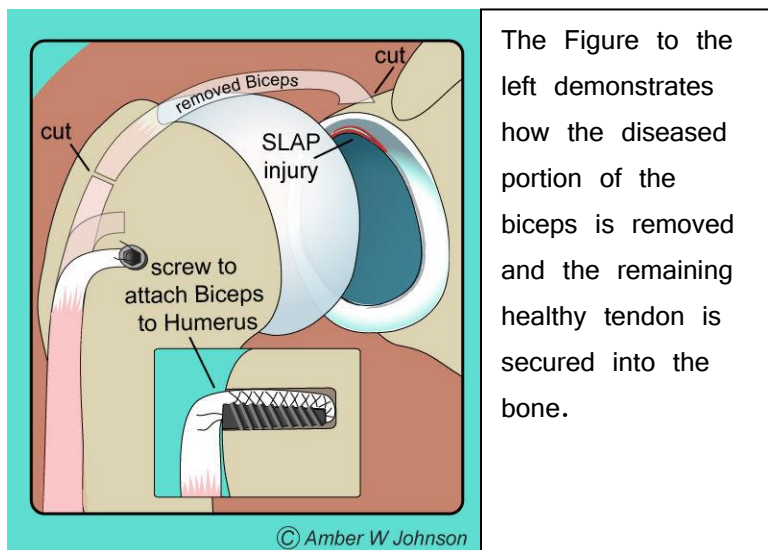
A biceps tenodesis is performed for patients who meet one or more of the following criteria: bicipital groove tendonopathy, significant tearing or dysfunction of the long head of the biceps tendon, a SLAP tear in a patient over the age of 40, after a subscapularis tendon tear of the rotator cuff, or failure to gain relief of pain after a SLAP repair.

Biceps problems are usually either the result of a repetitive motion associated with overhead work or an acute injury. When the biceps becomes inflamed as a result of chronic repetitive activities it is called tendonitis. Unfortunately, inflammation of the long head of the biceps does not tend to resolve on its own particularly well and oftentimes it may lead to tearing of the tendon over a period of time, continuing the pain cycle and limiting strength and functionality.



The figure to the left demonstrates inflammation, swelling and tearing of the long head of the biceps. These findings oftentimes lead to pain in the front of the shoulder with certain movements, such as overhead activity.

There are multiple techniques for performing this procedure. The purpose of the procedure is to remove pain and decrease the possible side effects of a biceps tenotomy (procedure where the long head of the biceps is released and not reattached). The tenodesis does not change strength or the cosmesis of the biceps tendon. The long head of the biceps tendon may be placed into the humerus through a drill hole and screw fixation at the top of the bicipital groove, in the bicipital groove or below it. In some instances it may even be incorporated into the rotator cuff tendon. It is important for both the patient and the therapist to speak with their surgeon to obtain a better understanding as to which technique will be performed.



Rehab Protocol:

***** It is important to emphasize to the patient to need to do their exercises at home as well as in PT. Post surgery rehab is a 5 day a week job. Anything less will lead to a less than satisfactory outcome.**

Phase I – Passive Range of Motion Phase (POD 1- 3 weeks)

Goals:

- Minimize shoulder pain and inflammatory response
- Gentle PROM of the shoulder
- Begin scapula-thoracic stabilization

Precautions/Patient Education:

- No active range of motion (AROM) of the elbow
- Limit external rotation to 40⁰
- Sling is to be worn for 2 weeks for protection
- No lifting of objects with operative shoulder or elbow anything heavier than a coffee cup
- *Patient education regarding limited use of upper extremity despite the potential lack of or minimal pain or other symptoms*

Activity:

- Pain-free gentle PROM elbow flexion/extension and forearm supination/pronation
- AROM wrist/hand
- Home Pendulum exercises 3 times daily out of sling
- Scapular retraction and clock exercises for scapula mobility progressed to scapular isometric exercises
- Ball squeezes
- May return to computer based work or desk job
 - No running jumping or swimming

Phase II – Active Range of Motion Phase (Post op week 4- week 6)

Goals:

- Minimize shoulder pain and inflammatory response
- Facilitate full PROM
- Achieve gradual restoration of AROM
- Begin light waist level functional activities
- Discontinue Sling

Precautions:

- No lifting with affected upper extremity
- No friction massage to the proximal biceps tendon / tenodesis site

Activity:

- Patient may begin active assisted lying forward flexion of the arm twice daily at home (lying flat forward flex the operative arm to a comfortable point. Next take the non-surgical arm and cup the elevated arm's elbow. Gently push the operative arm farther overhead another 10-15°.
- Progress shoulder PROM to active assisted range of motion (AAROM) and AROM all planes to tolerance
- Lawn chair progression for shoulder
- Active elbow flexion/extension and forearm supination/pronation (No resistance)
- Scapulothoracic and Glenohumeral stabilization techniques
- Cross body adduction stretch
- Side lying internal rotation stretch (sleeper stretch)
- Ultrasound and Ice therapy for pain control (TENS if ROM below desired levels)
- AROM should be at or near full prior to progression to phase III
 - Stationary bike and Core strengthening may begin
 - For sit-up place arms across chest (eliminate behind head sit-ups)

Phase III - Strengthening Phase (Post Op Week 7-9)

Goals:

- Normalize strength, endurance, neuromuscular control
- Return to chest level full functional activities
 - Full RTC strength at neutral position

Precautions:

- Strengthening or functional activities cannot begin until the patient has near full ROM in that plane of movement
- Tempered return to strength lifting with the operative arm
 - Low velocity movements only

Activity:

- Continue AROM of shoulder and elbow as needed/indicated
- Initiate biceps curls with light resistance, progress as tolerated
- Begin rhythmic stabilization drills
- External rotation (ER) / Internal Rotation (IR) in the scapular plane
- Flexion/extension and abduction/adduction at various angles of elevation
- Initiate balanced strengthening program
 - Initially in low dynamic positions

- Gain muscular endurance with high repetition of 30-50, low resistance 1-3 lbs)
- All activities should be pain free and without compensatory/substitution patterns
- Exercises should consist of both open and closed chain activities
- No heavy lifting should be performed at this time
 - Aggressive Core and Trunk Strengthening
 - Push up plus (wall, counter, knees on the floor, floor)
 - Cross body diagonals with resistive tubing
 - IR resistive band (0, 45, 90 degrees of abduction)
 - Forward punch
 - Ultrasound, TENS and Ice therapy may be used for pain/inflammation control
 - Running and jumping activities may begin in moderation- limit arm swing
 - No Swimming

Phase IV – Advanced Strengthening Phase (Post Op week 10-12)

Goals:

- Continue stretching and PROM as needed/indicated
- Maintain full non-painful AROM
- Return to full strenuous work activities
- Return to full recreational activities

Precautions:

- Avoid excessive anterior capsule stress
- With weight lifting, avoid military press, wide grip bench press or dumbbell forward raises above 90⁰ or with heavy weights.

Activity:

- Continue all exercises listed above
 - Initiate resisted supination/pronation
- Progress isotonic strengthening if patient demonstrates no compensatory strategies, is not painful, and has no residual soreness
- Strengthening overhead if ROM and strength below 90 degree elevation is 5/5
- Continue shoulder stretching and strengthening at least four times per week
- Progressive return to upper extremity weight lifting program emphasizing the larger, primary upper extremity muscles (deltoid, latissimus dorsi, pectoralis major)
- Start with relatively light weight and high repetitions (15-25)
 - Aggressive core and trunk strengthening
- May initiate pre injury level activities/ vigorous sports if appropriate / cleared by

Dr. Mc Millan.

Week 12 and beyond:

- Swimming and overhead activities (pull ups) and push ups may resume in a moderate manner.
- Higher Velocity activities may be gently increased under supervision.
- Complete return of strength should not be expected until the 6 month mark post surgery.

References:

1. Krupp RJ, Kevern MA, Gaines MD, Kotara S, Singleton SB. Long Head of the Biceps Tendon Pain: Differential Diagnosis and Treatment. *Jour Ortho & Sports PT*. Feb 2009; 39(2): 55-70.

2. Romeo AA, Mazzocca AD, Tauro JC. Arthroscopic Biceps Tenodesis. *Arthroscopy*. Feb 2004; 20(2): 206-213.

3. Ozalay M, et al. Mechanical Strength of Four Different Biceps Tenodesis Techniques. *Arthroscopy: Jour Arthro & Related Surg*. Aug 2005; 21(8): 992-998.

4. Lopez-Vidriero E, Costic RS, Fu FH, Rodosky MW. Biomechanical Evaluation of 2 Arthroscopic Biceps Tenodesis: Double-Anchor Versus Percutaneous Intra-Articular Transtendon (PITT) Techniques. *Am Jour Sports Med*. 2010; 38(1): 146-152.

5. Biceps Tenodesis Protocol
The Brigham and Women's Hospital, Inc. Department of Rehabilitation Services.