

Surgical Arthroscopy of Shoulder with Open Biceps Tenodesis

Definition: An open sub-pectoral biceps tenodesis is a procedure which involves removing the long head of the biceps from the glenohumeral joint and fixing it the humerus deep to the pectoralis major tendon. The advantages of open biceps tenodesis over biceps tenotomy (release) are:

- 1) Establishment of a new bony origin
- 2) Maintenance of elbow flexion and supination strength
- 3) Improved cosmesis compared to potential “Popeye deformity”

Phase I: Immediate Motion Phase (Week 1 to Week 4)

Goals: Allow healing of soft tissue, early-protected ROM, retard muscle atrophy, decrease pain/inflammation

Sling for 4 weeks (removed 2-3 times per day in order to perform the exercises that follow). **Sling must be worn during sleep for the first 4 weeks.**

Week 1

- 1) Pendulums
- 2) Wrist and hand AROM and gripping
- 3) Modalities prn for pain and inflammation

Weeks 2-4

- 1) Continue previous exercises
- 2) Initiate gentle pain-free PROM for shoulder forward elevation and external rotation; may progress to AAROM
- 3) Initiate gentle elbow ROM; may progress to AA elbow flexion

Any strengthening activities related to elbow flexion, supination, or forward elevation of the arm with the elbow extended should be restricted until 9 weeks following biceps tenodesis.

Phase II: Intermediate Phase (Week 5 to Week 8)

Criteria: Minimal pain and inflammation, stable shoulder

Goals: Gradual increase in ROM, improve strength, decrease pain/inflammation

Discontinue sling during day and night.

- 1) Continue previous exercises
- 2) Initiate scapular strengthening with scapular retractions
- 3) Initiate AROM of elbow – pronation, supination, flexion, and extension
- 4) Gentle passive stretching at end of elbow ranges to maintain or increase flexibility
- 5) Initiate AROM of forward elevation in scapular plane beginning with gravity-eliminated positions (supine and side-lying) and progressing according to quality of motion (semi-recumbent, standing). Begin with elbow flexed and progress to elbow extended.
- 6) Isometrics with the arm at the side for rotator cuff or deltoid strengthening; may be advanced to elastic band with least resistance at week 7

Any strengthening activities related to elbow flexion, supination, or forward elevation of the arm with the elbow extended should be restricted until 9 weeks following biceps tenodesis.

Phase III: Strengthening Phase (Week 9 to Week 12)

Criteria: Normal ROM, minimal pain

Goals: Improve strength and neuromuscular control, normalize arthrokinematics

- 1) Continue previous exercises
- 2) Initiate biceps isometrics; may advance to LIGHT (less than 1 lb) resisted biceps at week 10
- 3) Strengthening of triceps, rotator cuff, deltoid, and scapular stabilizers should be performed 3 times per week

Stay high rep and low resistance with above exercises or any that affect the glenohumeral joint and may fire the biceps.

Phase IV: Return to Activity Phase (3 months)

Criteria: Full painless ROM, satisfactory clinical exam, muscle strength that fulfills work/sport requirements

- 1) Continue previous exercises
- 2) Advance biceps strengthening to 2 lb. or greater
- 3) Progress previous strengthening program; continue to increase weight resistance with isotonic
- 4) Focus exercises on eccentric strengthening of post. rotator cuff and scapular muscles
- 5) Add total body conditioning, including strength and endurance training if appropriate
- 6) Initiate sport/work specific drills or activities

Initiate appropriate interval throwing, pitching, tennis, and golf program as appropriate at 12 weeks.

Return to sport, work, and prior activity level unrestricted based on physician approval and completion of rehab

Red Flags:

OK to have mild discomfort with exercises, but if it persists > 1 hr., the intensity of the exercises must be decreased.

If there is an increase in night pain, the program must be altered to decrease the intensity.