SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

The following Shoulder Biceps Tenodesis Post-operative Guidelines were developed by HSS Rehabilitation. They can be used for patients undergoing biceps tenodesis as a single procedure. If the patient is undergoing a concomitant surgery such as a rotator cuff (RC) repair or SLAP (superior labrum anterior to posterior) repair, please refer to the clinical guidelines for those procedures while being mindful of biceps precautions until week 8.

Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression but do not replace clinical judgement.

FOLLOW SURGEON MODIFICATIONS AS PRESCRIBED

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

Phase 1: Weeks 0-2

PRECAUTIONS

- Sling for 1 – 2 weeks according to surgeon's recommendations
- Use sling at all times except when bathing, dressing, or performing home exercise program (HEP)
- No resisted elbow flexion or forearm elbow supination
- Avoid painful activities

ASSESSMENT

- Quick Disabilities of Arm, Shoulder and Hand (Quick DASH)
- American Shoulder and Elbow Surgeons (ASES)
- Numeric Pain Rating Scale (NPRS)
- Mental status
- Post-anesthesia neurovascular screening
- Wound status
- Edema
- Shoulder and elbow passive range of motion (PROM)
- Cervical mobility
- Static scapular assessment (Kibler grading)
- Functional status – activities of daily living (ADL) and mobility

TREATMENT RECOMMENDATIONS

- Edema control
- PROM of the shoulder in all planes within tolerance (avoid aggressive stretching)
- Elbow PROM according to surgeon's preference
- Scapular retraction
- Codman's exercises
- Wrist and hand active range of motion (AROM)

CRITERIA FOR ADVANCEMENT

- Safely transfers unassisted
- Independent with sling management, or caregivers independent in assisting
- Independent with ADL
- Independent with HEP

EMPHASIZE

- Protection of repair
- No resisted elbow flexion and supination

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

Phase 2: Weeks 2-6

PRECAUTIONS

- Use sling per surgeon guideline except when bathing, dressing or performing HEP
- Avoid painful activities
- No resisted elbow flexion or forearm elbow supination

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Wound status
- Edema
- Shoulder and elbow PROM
- Cervical mobility
- Static scapular assessment (Kibler grading)
- Functional status – ADL and mobility

TREAMENT RECOMMENDATIONS

- PROM by clinician: elbow, shoulder
- Shoulder external rotation (ER) and internal rotation (IR) rhythmic stabilization with clinician
- Scapular isometrics
- RC isometrics
- Prone row to neutral
- Shoulder extension to neutral with elastic band
- Row to neutral with elastic band

CRITERIA FOR ADVANCEMENT

- Full PROM and AROM shoulder

EMPHASIZE

- Protection of repair
- Shoulder PROM and AROM
- No resisted elbow flexion or forearm supination

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

Phase 3: Weeks 7-12

PRECAUTIONS

- No resisted elbow flexion and supination until 8 weeks

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Palpation
- Cervical mobility
- Thoracic mobility
- Shoulder and elbow PROM/AROM
- Shoulder manual muscle testing (MMT)
- Grip strength
- Static/dynamic scapular assessment (Kibler grading)

TREATMENT RECOMMENDATIONS

- Isometric RC exercises→ isotonic (e.g., elastic band IR/ER, side-lying ER)
- Isometric scapular exercises→ isotonic
- Continue elastic band row and elastic band shoulder extension
- Prone scapular exercises
- Scaption
- **8 Weeks:** Begin biceps activation exercises, progress with light weight
- **9-12 Weeks:** Progress strength exercises

CRITERIA FOR ADVANCEMENT

- Full pain free shoulder AROM
- Normalized scapula stabilization

EMPHASIZE

- Restoration of RC strength
- Avoid overuse
- Reduction of tissue irritability

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

Phase 4: Weeks 13-16

PRECAUTIONS

- Avoid tissue irritability

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Palpation
- Cervical mobility
- Thoracic mobility
- Shoulder PROM/AROM
- Shoulder MMT
- Grip strength
- Static/dynamic scapular assessment (Kibler grading)

TREATMENT RECOMMENDATIONS

- Continue shoulder RC and scapular stabilization exercises
- Shoulder 90/90 IR/ER
- Closed chain exercises: push-up progression
- Continue and progress all shoulder exercises
- Initiate plyometrics as tolerated
    - Plyometric progression (over a 4-week period)
        - Double hand chest pass
        - Double hand overhead soccer pass
        - Double hand chops
        - Single hand IR at 0° shoulder abduction
        - Eccentric catch
        - Single hand 90/90 IR
    - Endurance progression
        - Double hand overhead wall taps
        - Single arm 90/90 wall taps
        - Single arm 12 o'clock to 3 o'clock wall taps
        - Exercise blade at multiple angles

CRITERIA FOR ADVANCEMENT

- 5/5 MMT of RC muscles at 0º and 90º of shoulder abduction
- 5/5 MMT of all scapular stabilizers
- Full AROM of all elbow and shoulder motions
- Symptom-free progression through plyometrics and endurance program

EMPHASIZE

- Shoulder flexibility, strength and endurance
- Shoulder dynamic stability
- Pain-free plyometrics

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

Phase 5: Weeks 17+

PRECAUTIONS

- All progressions should be pain-free
- Monitor for loss of strength and flexibility

ASSESSMENT

- Quick DASH
- ASES
- NPRS
- Shoulder PROM/AROM
- Palpation
- Static/dynamic scapular assessment (Kibler grading)
- Cervical mobility
- Thoracic mobility
- Shoulder MMT
- Grip Strength

TREATMENT RECOMMENDATIONS

- Initiate interval sports programs at 4 months
- Continue with all upper and lower extremity flexibility exercises
- Continue with advanced shoulder and scapular strengthening exercises
- Gradually progress sports activities
- Monitor workload

CRITERIA FOR RETURN TO SPORTS PARTICIPATION

- Clearance from surgeon to return to full sport
- Symptom-free progression through interval sports program
- Independent with all maintenance exercises

EMPHASIZE

- Return to normal functional activities and sports participation

SHOULDER BICEPS TENODESIS POST-OPERATIVE GUIDELINES

References

1. Cassidy JT, Hurley ET, Moore D, Pauzenberger L Mullett H. The majority of patients return to athletic activity following biceps tenodesis. *Knee Surg Sports Traumatol Arthrosc*. 2020;29(1):216-222. https://www.ncbi.nlm.nih.gov/pubmed/32185452. doi:10.1007/s00167-020-05930-9.

2. Chalmers PN, Erickson BJ, Verma NN, D'Angelo J, Romeo AA. Incidence and Return to Play After Biceps Tenodesis in Professional Baseball Players. *Arthroscopy*. 2018;34(3):747-751. doi:10.1016/j.arthro.2017.08.251

3. Frantz TL, Shacklett AG, Martin AS, et al. Biceps Tenodesis for Superior Labrum Anterior-Posterior Tear in the Overhead Athlete: A Systematic Review. *Am J Sports Med*. 2021;49(2):522-528. doi:10.1177/0363546520921177

4. Ozalay M, Akpinar S, Karaeminogullari O, et al. Mechanical strength of four different biceps tenodesis techniques. *Arthroscopy*. 2005;21(8):992-998. doi:10.1016/j.arthro.2005.05.002

5. Zabrzyński J, Huri G, Gryckiewicz S, et al. Biceps Tenodesis versus Tenotomy with Fast Rehabilitation Protocol-A Functional Perspective in Chronic Tendinopathy. *J Clin Med*. 2020;9(12):3938. Published 2020 Dec 4. doi:10.3390/jcm9123938

Created: 12/2021