**Biceps Tenotomy vs Tenodesis in Patients with Partial Thickness Rotator Cuff Tears**

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**INTRODUCTION:** Patients with partial-thickness rotator cuff tears (PTRCT) often present with concurrent pathology of the long head of the biceps (LHB) tendon. To address both conditions simultaneously, LHB tenotomy or tenodesis can be performed during arthroscopic rotator cuff repair (RCR). This study aims to compare postoperative shoulder active range of motion (AROM) and complications following transtendinous RCR with concurrent LHB tenodesis or tenotomy.
**METHODS:** A total of 90 patients with PTRCT who underwent primary transtendinous RCR were included in this study. Patients were propensity-matched 1:1:1 on age, sex, and smoking status. Primary outcome measures included AROM in forward flexion, abduction, external rotation, and internal rotation at 6 weeks, 3 months, and 6 months postoperatively. The development of severe stiffness and rates of rotator cuff retear at final follow-up were recorded.
**RESULTS:** When comparing the tenotomy and tenodesis cohorts, tenotomy patients were found to have increased AROM at 3 months in forward flexion forward flexion (153.2° vs 130.1°, p=0.004), abduction (138.6° vs 114.2°, p=0.019), and external rotation (60.4° vs 43.8°, p=0.014), with differences in forward flexion remaining significant at 6 months (162.4° vs 149.4°, p=0.009). There were no significant differences in interval rates of recovery in any plane between the biceps operation cohorts. Additionally, there were no significant differences in rates of severe postoperative stiffness (p=0.066) or symptomatic retears between groups (p=0.458) (Table 1).
**Conclusion:** Despite significant differences in absolute AROM between cohorts, the decision to perform tenotomy or tenodesis was not found to differentially affect patients' rate of AROM recovery in the setting of concomitant arthroscopic transtendinous RCR for PTRCT. Notably, however, transient stiffness complications were more commonly observed in smokers, and data trends suggested an increased risk of stiffness for patients undergoing LHB tenodesis, as well.
**SIGNIFICANCE/CLINICAL RELEVANCE:** Overall, postoperative stiffness is likely multifactorial and attributable to both patient- and procedure-specific factors, and LHB tenodesis may be more appropriate for patients with an otherwise minimal risk profile.

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**Table 1.** Logistic regression evaluating postoperative stiffness based upon baseline demographics and arthroscopic procedures performed.

| Parameter | Odds Ratio (95% CI) | *P* Value* |
|---|---|---|
| **Age**, *years* | 1.01 (0.93 - 1.09) | 0.808 |
| **Sex** | | |
| Female vs Male | 1.42 (0.23 - 8.62) | 0.702 |
| **BMI** ($kg/m^2$) | 1.00 (0.82 - 1.23) | 0.975 |
| **Smoking Status** | | |
| Current/Former vs. Never | 13.69 (1.89 - 99.37) | 0.010† |
| **LHB Procedure Performed** | | |
| Tenotomy vs Control | 0.58 (0.04 - 8.16) | 0.688 |
| Tenodesis vs Control | 8.30 (0.94 - 73.55) | 0.057 |
| **Rehabilitation Protocol** | | |
| Accelerated vs Standard PT | 0.10 (0.01 - 1.22) | 0.072 |

*All *P* values adjusted for age, sex, smoking status, LHB procedure performed, and rehabilitation protocol.
†Statistically significant (α=.05); CI, confidence interval; BMI, body mass index; kg, kilogram; m, meters; LHB, long head of the biceps; PT, physical therapy.