

## Clinical Outcomes Similar Using Open or Arthroscopic Biceps Tenodesis Techniques

Written by Nicola Parry

Brian C. Werner, MD, University of Virginia School of Medicine, Charlottesville, Virginia, USA, presented data from a study conducted to compare the clinical outcomes of open subpectoral biceps tenodesis (OSPBT) and arthroscopic suprapectoral biceps tenodesis (ASPBT). The results showed that OSPBT and ASPBT both produce excellent clinical and functional results for the management of isolated SLAP (superior labral tear from anterior to posterior) or long head of the biceps (LHB) injury.

Although injury of the LHB is not uncommon, the optimal surgical technique for its repair remains controversial. Biceps tenodesis is an accepted treatment option, but despite the extensive availability of literature describing OSPBT and ASPBT and examining the biomechanical features of tenodesis locations or implant types, there is a lack of data comparing clinical outcomes of these 2 techniques to help guide surgeons' decision making.

With this in mind, Dr. Werner and colleagues conducted a retrospective cohort study to directly compare clinical outcomes of OSPBT and ASPBT with an interference screw. The study included patients with an isolated SLAP or biceps injury who underwent either OSPBT or ASPBT for superior labral or LHB pathology, with a minimum follow-up of 2 years. Exclusion criteria included significant concomitant shoulder procedures (eg, rotator cuff repair), preoperative range-of-motion deficits due to frozen shoulder or glenohumeral arthritis, or contralateral shoulder injury or surgery. Surgeries were performed by 4 sports fellowship-trained surgeons, 2 of whom predominantly performed OSPBT and 2 of whom predominantly performed ASPBT.

The 2 cohorts were similar in terms of age, sex, body mass index, smoking, and workers' compensation status. Questionnaires and physical examination (including range of motion and strength) were used to assess various clinical outcome measures among study participants (n=82) following OSPBT (n=50) or ASPBT (n=32). Between the groups, 70.0% of OSPBT patients (n=35) and 84.4% of ASPBT patients (n=27) returned for follow-up (mean=3.1 years).

Regardless of the tenodesis technique used, patients performed very well after surgery with respect to average Constant-Murley scores (91.8 vs 90.7; p=.755) and American Shoulder and Elbow Surgeons scores (88.4 vs 90.1; p=.735), with no significant difference between the techniques.

Range-of-motion and strength measurements were normalized to the asymptomatic nonoperative shoulder. At a minimum of 2 years of follow-up, there was no statistically significant difference in range of motion (including forward flexion and abduction) or elbow strength (including flexion strength and extension strength) between the 2 groups (Table 1).

Table 1. Mean Range of Motion and Elbow Strength Among Study Participants

Examination	OSPBT, %	ASPBT, %	p Value
Abduction	98.1	94.4	0.299
Forward flexion	98.1	95.9	0.424
Rotation			
ER0	99.4	94.6	0.283
ER90	96.9	92.1	0.222
IR90	94.5	95.2	0.810
Elbow			
Flexion	99.4	97.2	0.134
Extension	99.6	99.4	0.693
Supination	100.0	98.0	0.219
Pronation	100.0	99.1	0.089
Strength			
Flexion	100.0	91.1	0.192
Extension	100.0	91.8	0.119

ASPBT=arthroscopic suprapectoral biceps tenodesis; ER0=external rotation at the patient's side; ER90=external rotation with the arm abducted at 90°; IR90=internal rotation with the arm abducted at 90°; OSPBT=open subpectoral biceps tenodesis.

In terms of complications, in the early postoperative period, 6.0% of OSPBT patients and 9.4% of ASPBT patients experienced stiffness that required further rehabilitation and intra-articular corticosteroid injection. There was no evidence of deformity or surgical failure.

While most published clinical studies include patients with concomitant rotator cuff repair, this study is unique in that it involves a more homogeneous population by excluding such individuals and also reports final range of motion and elbow strength. However, prospective studies involving randomized surgical techniques, implants, and tenodesis location will be necessary to validate these findings.