de Carli A, Vadala A, et al. Reparable rotator cuff tears with concomitant long-head biceps lesions: tenotomy or tenotomy/tenodesis? Knee Surg Sports Traumatol Arthrosc 2012;20:2553–2558.

Design: Randomized clinical trial

Study question: In patients with repairable rotator cuff tears accompanied by degeneration of the long head of the biceps (LHB), is there a difference in outcomes between tenotomy alone and tenotomy with tenodesis?

Population/sample size/setting:

- 65 patients (48 men, 17 women, median age 58) treated for rotator cuff tears and a degenerative lesion of the LHB at the orthopedics department in the University of Rome, Italy
- Eligibility criteria were an intra-operative diagnosis of a small to large rotator cuff tear and an associated lesion of the LHB (including degenerative tears, tenosynovitis, subluxation on the medial head of the bicipital groove, and SLAP lesions)
- Exclusion criteria were age over 65, previous surgery on either shoulder, and grade 3 or grade 4 fatty degeneration by the Goutallier system (50% or more fatty degeneration)

Main outcome measures:

- All patients had arthroscopic surgery with cuff repair and a procedure on the LHB
- Randomization was to tenotomy/tenodesis of the LHB (Group A, n=35) or to tenotomy alone (Group B, n=30)
    - In group A, the tenodesis was done by suturing the LHB to the cuff tendons
- Followup was done at a median time of 24 months (range 19-26 months)
- Two patient-centered outcomes were assessed: the Constant score and the simple shoulder test (SST)
    - Both scores were similar at followup in the two groups: Constant score for group A was 97.2$ and for group B the score was 94.6%
    - The SST was 11.7 in Group A and 10.6 in Group B
- There were additional evaluations done by examiners, including strength assessed by dynamometry and vascularization of the repaired cuff tendons; there were no group differences in these outcomes
- A Popeye deformity was noted by the physician examiner in 17% of the patients treated with tenotomy alone

Authors' conclusions:

- The main finding was the small difference between groups in functional recovery, patient satisfaction, and evaluation scale scores
- The Popeye deformity in the tenotomy group did not significantly affect the final patient evaluation, which was similar between groups
- Tenodesis does not appear to lead to greater functional capacity at 2 year followup than tenotomy alone

Comments:

- The random allocation of treatment appears to have been done intra-operatively, which is when the inclusion criteria of a small to large cuff tear and a lesion of the LHB were established; this is an acceptable equivalent of allocation concealment and controls problems arising from selection bias
- There is no information about operating room time, which is expected to be longer for tenodesis than for tenotomy alone
- There is no information about postoperative rehabilitation and whether it was similar between groups; it is questionable to assume that the programs were the same
- The time of followup ranged from 19 to 26 months; while not exactly the same for all patients, the range is narrow enough to lead to comparable followup times
- While the physician assessments of strength are not clearly blinded, it is not clear what kind of bias may arise from this lack; in general, lack of blinding is expected to inflate group differences and not to reduce these differences, but this is not certain in this case
- Table 2 with the dynamometric data has some misprints in the second row with extension shoulder results; for Group A on the operated side, it is 121 (likely a misprint for 12.1), and for Group B it is 1.7 (perhaps a misprint for 10.7)
- The term “null hypothesis” in the final sentence is used in a confusing manner as being the hypothesis that tenotomy would be better than tenodesis (the scores are unequal); in general use, “null hypothesis” means that the scores are the same
- In spite of some shortcomings, the Constant scores at followup are very close, and the advantage of tenodesis over tenotomy is likely to have been very small and not significant

Assessment: Adequate for some evidence that in the setting of repairable rotator cuff tears with lesions of the LHB, there is little difference in functional outcome at two years between tenotomy and tenotomy accompanied by tenodesis