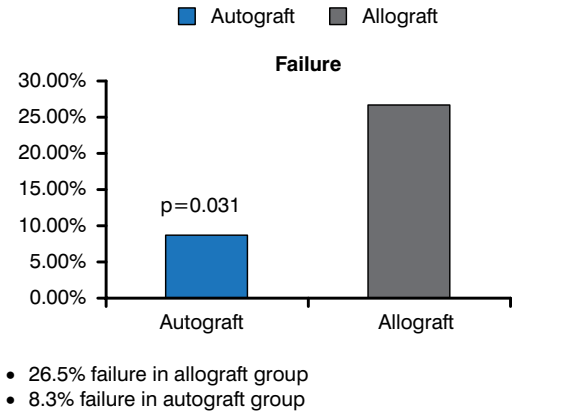
Figure 1. Comparison of Failure Rate Using Allograft Versus Autograft



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pointed out that although these findings are in contrast to previous reports of similar failure rates of autografts and allografts in a young, athletic population of patients, those data did not derive from randomized controlled trials.

In the remaining patients whose graft was intact, there was no difference in the mean Single Assessment Numeric Evaluation, Tegner, or International Knee Documentation Committee scores.

Dr. Bottoni acknowledged that some limitations of this study included the subjective assessment of graft stability as well as the fact that the study involved only the tibialis posterior type of allograft. Consequently, the results can be applied to only this type of allograft and cannot be extrapolated to other types of allografts. It is therefore possible that other types, particularly those with bone, such as the bone–patellar tendon–bone or Achilles grafts, may have resulted in different outcomes, concluded Dr. Bottoni.

Open Subpectoral Technique Improves Biomechanical Performance of Biceps Tenodesis

Written by Nicola Parry

Stephen F. Brockmeier, MD, University of Virginia, Charlottesville, Virginia, USA, presented data from a matched cadaveric study that was conducted to compare the arthroscopic suprapectoral and open subpectoral techniques for biceps tenodesis. The data showed that the arthroscopic suprapectoral biceps tenodesis (ASPBT) technique results in a more proximal tenodesis location, tends to overtension the biceps, and has a significantly reduced ultimate load to failure, compared with an open subpectoral biceps tenodesis (OSPBT) technique.

Tenodesis is an accepted treatment option in the management of pathology involving the long head of the biceps (LHB) tendon. However, although there is evidence that biceps tenodesis of the diseased tendon can improve patient symptoms, the optimal location for tenodesis remains controversial. The procedure can be performed open or arthroscopically, but there is a lack of evidence-based consensus available to guide surgeons' decision making.

With this in mind, Dr. Brockmeier and colleagues conducted a prospective study to directly compare the ASPBT using an interference screw implant and OSPBT for LHB tenodesis, particularly in terms of location, in vivo restoration of the LHB length-tension relationship, and the mechanical strength of the tenodesis.

The study included 18 matched cadaveric shoulder specimens randomly assigned to either ASPBT (n = 9) or OSPBT (n = 9). Surgery was performed by 2 sports fellowship–trained surgeons using identical techniques. A preoperative metallic bead was sutured in place 1 cm distal to the biceps musculotendinous junction, and preoperative fluoroscopy was used to measure bead location. Postoperative fluoroscopy was also performed to determine the location of the tenodesis and the metallic bead, and preoperative and postoperative fluoroscopic images were compared to determine tensioning. Biomechanical testing was then performed on a material testing system machine; the surgical constructs were subjected to cyclic loading (100 cycles), followed by load-to-failure testing.

The mean tenodesis location in the ASPBT group was 4.68 cm distal to the top of the humerus, compared with 7.46 cm in the OSPBT group ($p < .001$). According to Dr. Brockmeier, these results were similar to those obtained in a separate clinical study.

The ASPBT technique tended to overtension the biceps significantly more than the OSPBT technique (2.15 cm vs .78 cm; $p < .001$). The average load to failure in the ASPBT group was 138.7 N, compared with 197.5 N in the OSPBT group ($p < .001$), and implant pullout was significantly more common in the ASPBT (n = 7 of 9) compared to the OSPBT (n = 1 of 9) group.

The results of this study appear to favor the open technique for biceps tenodesis, showing a risk of significant biceps overtensioning per contemporary arthroscopic techniques. Compared with implants in the open technique, currently available arthroscopic tenodesis implants may be susceptible to pullout failure at lower loads, and improved implants are likely necessary to produce a construct of equivalent mechanical strength.