the double-row group, retears were found in 3 double tendon repairs. All 3 tears failed near the musculotendinous junction (Cho type 2). All clinical outcome measures were significantly improved from the preoperative level ($p<0.0001$), but there was no statistical difference between groups postoperatively

Conclusion: There is no MRI difference in 12 month rotator cuff retear rates between triple-loaded single-row repairs or suture-bridging double-row repairs. Double-row repairs failed at the musculotendinous junction while single-row repairs failed at the reattachment site. No difference could be demonstrated between in clinical outcome scores either.

The Effect of Medial Knots on Footprint Contact and Self-Reinforcement in TOE Rotator Cuff Repair

SS-08

April 14, 9:35 AM

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Introduction: Transosseous-equivalent (TOE) rotator cuff repair has been shown to demonstrate a self-reinforcing effect, providing a protective mechanism in the face of potentially destructive forces. A variant, which uses tape-type sutures, has been performed clinically with and without medial row mattress knots. This study assessed the effect of medial row knots at the tendon-footprint interface.

Methods: In 8 fresh frozen human shoulders, TOE supraspinatus repairs using tape-type sutures with (knotted) and without (knotless) two medial row mattress knots were performed in each specimen. A Tekscan pressure sensor was fixed at the tendon-footprint interface prior to all repairs. Parameters included footprint contact force, area, pressure and peak pressure. The supraspinatus tendon was loaded with 0, 15, 30, 45, and 60 N at 0° and 30° abduction, with 0° humeral rotation.

Results: Medial row knots did not significantly change footprint contact force, area, pressure, or peak pressure under all conditions. The knotted repair had increases in footprint contact pressure with increasing load at both abduction angles. The knotless repair demonstrated the same relationships for footprint contact pressure with increasing load. This relationship was also seen for footprint contact force for both repairs. With increasing load, the knotless repair had a significantly higher progression (slope) of footprint force and pressure ($P < 0.05$).

Conclusion: There is no measurable change in tendon-footprint contact force, area, pressure, or peak pressure with the addition of medial row knots at both abduction angles. In addition, the lower progression (slope) of footprint force and pressure seen with the addition of medial row knots demonstrates that they can inhibit the self-reinforcing effect of the TOE repair. Knotless TOE repair using tape-type sutures may provide superior tendon-footprint interface characteristics and improve healing potential under post-operative conditions, while avoiding the risk of medial over-tensioning, strangulation, and catastrophic failure at the medial tendon.

Cost-Effectiveness of Reverse Total Shoulder Arthroplasty vs Arthroscopic Rotator Cuff Repair for Symptomatic Large and Massive Rotator Cuff Tears

SS-09

April 14, 9:40 AM

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Introduction: The goal of this study was to compare the cost-effectiveness within the United States healthcare system of arthroscopic rotator cuff repair versus reverse total shoulder arthroplasty in patients with symptomatic large and massive rotator cuff tears without cuff-tear arthropathy.

Methods: An expected-value decision analysis was constructed comparing the costs and outcomes of patients undergoing arthroscopic rotator cuff repair and reverse total shoulder arthroplasty for large and massive rotator cuff tears. Comprehensive literature search provided input data to extrapolate costs and health utility states for these outcomes.

Results: Arthroscopic rotator cuff repair was the preferred strategy, superior to non-operative care, with an incremental cost effectiveness ratio (ICER) of $15,500 / quality adjusted life year (QALY), and dominant over primary reverse total shoulder arthroplasty. The results in favor of arthroscopic rotator cuff repair as the dominant strategy held as long as the lifetime progression rate from re-tear to end-stage cuff-tear arthropathy was less than 89%.

Conclusion: Arthroscopic rotator cuff repair — despite high rates of tendon re-tearing — for patients with large and massive rotator cuff tears presents as a more cost-effective initial treatment strategy when compared to primary reverse total shoulder arthroplasty.

Revision ACL Reconstruction in Children and Adolescents

SS-10

April 14, 11:30 AM

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Introduction: Results of revision ACL reconstruction in pediatric patients has not been well studied. The purpose