

contracted capsule was found only in group 3 patients (3 out of 6 patients). Acromioplasty and an arthroscopic RCR was performed in all cases. There were no manipulations under anesthesia, nor any capsular releases except to improve cuff mobility. One year postoperatively, TROMD in group 1 was reduced to an average of 4°, in group 2 to 12°, and in group 3 to 31°. However, three patients in this group required a second arthroscopy with a capsular release in order to achieve their final level of improvement. The release was performed at an average of 5 months postoperative after poor return of ROM. All had intact repairs and did well after capsular release. All 3 patients had thick, contracted capsules at the time of the initial RCR and at the time of capsular release. Based on this study, patients with TROMD up to 75° will do well with rotator cuff repair and postoperative rehabilitation. Even patients with greater than 75° TROMD will do well if they do not have true capsulitis. Stiff RCT patients who have capsulitis will not do well. We are currently performing a simultaneous RCR and complete capsular release on these patients with very good early clinical results.

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Rotator Cuff Repair: The Effect of Double-Row Fixation Versus Single-Row Fixation on Three-Dimensional Repair Site (SS-03)

In rotator cuff surgery, increasing emphasis is being placed on maximizing the repair site contact area, thereby increasing the tendon-bone interface to potentially enhance more complete healing. Previous studies have demonstrated that traditional repairs using a single row of suture anchors or trans-osseous sutures fail to reproduce the area of the native supraspinatus tendon insertion or "footprint" on the greater tuberosity. The purpose of this study was to demonstrate the superiority of a double-row fixation technique in restoring the normal area of the supraspinatus footprint. Materials and Methods: A cadaveric study was performed using 7 fresh frozen shoulders. Rotator cuff tears were created and then repaired using several techniques: single-row suture anchor fixation (SRSA) using Mitek Fastin RC anchors (Mitek Worldwide, Norwood, MA), double-row suture anchor fixation (DRSA), and trans-osseous suture technique (TOS). The repair footprint area was determined for each technique by three-dimensional digitation, using a MicroScribeG2X digitizer (Immersion Corp, San Jose, CA). The area of the original tendon insertion site was also assessed for comparison. The data was processed using Rhinoceros NURBS modeling software (McNeal and Associates, Seattle, WA) and the repair site areas

were compared for the different repair techniques. Appropriate power analysis was performed to insure adequate sample size and a 2 tailed paired Student *t* test was performed to reveal statistical significance of detected differences. Results: The footprint area of the DRSA technique was larger than that of the other two techniques. These findings were statistically significant ($P < .05$). Furthermore, the DRSA technique consistently reproduced 100% of the original supraspinatus footprint area. Both the SRSA and TOS technique failed to do so. On average, the TOS technique reproduced only 71% of the original insertion site and the SRSA technique reproduced 46%. The differences between the area of the original footprint, TOS and SRSA were all statistically significant ($P < .05$). Conclusions: Double-row fixation in rotator cuff repair reproduces 100% of the supraspinatus footprint while traditional single-row techniques fail to do so. Double-row fixation may be a superior technique by providing a tendon-bone interface better suited for biologic healing and restoring normal anatomy.

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Outcome of Arthroscopic Repair of High-Grade, Bursal-Sided, Partial Rotator Cuff Tears (SS-04)

The natural history of the high-grade, partial tear of the bursal surface of the rotator cuff is not clearly understood. Recent evidence suggests that arthroscopic subacromial decompression or debridement alone can lead to poor outcome and may allow further deterioration of the rotator cuff. These tears may be particularly well-suited for an arthroscopic repair because of the presumably lower fixation demands afforded by the intact portion of the rotator cuff. We sought to evaluate the outcome of patients who've undergone arthroscopic repairs of high-grade bursal-sided rotator cuff tears. Methods: Between January 2000 and December 2002, 27 patients who had an intact articular surface, but a high-grade bursal-sided tear (>7 mm of exposed tuberosity) were treated with a subacromial decompression and an arthroscopic rotator cuff repair. All patients had a single row repair with at least one suture anchor. No lesion was completed to a full-thickness tear. Outcomes were assessed by serial examination and the L'Insalata shoulder rating questionnaire. Results: Mean follow-up was 24.5 months. 24 of the 25 patients were satisfied. L'Insalata scores increased from 34.7 to 85.1 ($P < .001$). Analysis of variance showed significant increases in abduction postoperatively ($P = .004$). Internal and external rotations were not significantly altered. Conclusions: Arthro-