study. Average follow up was 15.6 months (range, 6-32). All underwent postoperative MRIs at an average of 4.5 months (range, 3-10) after surgery. A total of 17 patients (Groups 1) had platelet rich plasma sutured at the repair site. 59% (10 of 17) had persistent tendon defects on MRI. Group 2 included 17 patients without a PRP sutured globule sutured into the tendon repair site (control group). 94% (16 of 17) of Group 2 demonstrated a persistent tendon defect on MRI ($p < 0.01$). There was no significant difference between Groups (1 and 2) for ASES (95.7 and 90.0; $p=0.13$), Rowe (94.5 and 88.5; $p=0.09$), SANE (91.1 and 87.7; $p=0.51$), Simple Shoulder Test (11.3 and 10.9; $p=0.36$), and Constant (89.4 and 83.5; $p=0.16$) scores.

Conclusion: Patients whose arthroscopic cuff repairs included a PRP globule demonstrated fewer retears (56%) than cuff repairs without PRP globules (94%). However, there was no clinical difference using standard outcome measures.

Augmentation of Tendon Healing with Butyric Acid-Coated Suture: Biomechanical Evaluation in a Rabbit Model (SS-09) *Bryan T. Leek, M.D., James P. Tasto, M.D., Michael P. Linn, M.D., Robert Healey, M.S., John P. Brady, M.D., David P. Amiel, Ph.D.*

Introduction: Butyric acid (BA), in the appropriate concentration, has been shown to be angiogenic and to enhance transcriptional activity in tissue. These properties of BA have the potential to augment biologic healing in a repaired tendon. The purpose of this study is to evaluate this possibility through the comparison of biomechanical properties of healing tendons repaired with BA-coated suture versus control suture.

Methods: A rabbit Achilles tendon model was used to evaluate the biomechanical strength of tendon healing at six weeks in twenty-three rabbits repaired either with BA-coated Ultrabraid (Smith & Nephew Endoscopy, Andover, MA) suture ($n=14$), or control Ultrabraid suture ($n=9$). Unilateral tendon defects were created in the middle bundle of the Achilles tendon of each rabbit, which were repaired equivalently with either BA-coated suture or control suture. The samples were harvested at six weeks post-repair and biomechanically tested using Video Dimension Analysis to determine sample stiffness.

Results: At six weeks after repair, the tendon samples repaired with BA-coated suture had significantly increased stiffness relative to the tendons repaired with control suture. The Young's modulus was 84.9 ± 11.5 MPa in the BA group and 58.8 ± 15.2 MPa in the control group ($p<0.05$).

Conclusion: Tendons repaired with BA-coated sutures demonstrated improved biomechanical properties at six weeks in a rabbit model. These findings are encouraging as a relatively simple alteration of suture material may augment early tendon healing to create a stronger repair construct during this time.

A Prospective, Randomized Evaluation of Acellular Human Dermal Matrix Augmentation for Arthroscopic Cuff Repair (SS-10) *F. Alan Barber, M.D., Joseph P. Burns, M.D., Allen Deutsch, M.D., Marc R. Labbe, M.D.*

Introduction: Tendon tears or tissue failures after rotator cuff repair are reported to occur for some age groups in as many as 60%. In an effort to avoid retears, augmentation of the deficient rotator cuff repair with the incorporation of a biologic tissue scaffold has been advocated. The purpose of this study was to prospectively evaluate the effectiveness of arthroscopic acellular human dermal matrix augmentation on rotator cuff repair and to determine whether rotator cuff repair augmentation differs with respect to safety, when compared to standard suture and anchor repair.

Methods: 47 patients were prospectively randomized by means of sealed envelopes opened at the time of surgery to rotator cuff repair with acellular human dermal matrix augmentation (Group I) or repair without augmentation (Group II). In addition, each participating investigator in this multicenter study performed the rotator cuff repairs exclusively by an arthroscopic approach throughout the entire enrolment period. Preoperative and postoperative functional outcome assessments were obtained using the Constant-Murley and American Shoulder and Elbow Surgeons (ASES) scales. MRI evaluation of these repairs was also obtained at 12 months. Patients were followed for a minimum 12 months after surgery. Adverse events were recorded.

Results: There were 24 patients in Group I and 23 in Group II with a mean age of 56 years. 33 were male and 14 female. 32 had acute cuff tears and 15 chronic tears. The Constant-Murley scores were 89.6 (SD 9.4) for Group I and 85.7 (SD 9.9) for Group II. ASES scores were 95.1 (SD 4.8) for Group I and 93.2 (SD 7.9) for Group II. There were no significant differences between the two groups for either the Constant-Murley scores or the ASES scores. One retear was documented by MRI in each group. Adverse events in Group I included recurrent shoulder bursitis and one rotator cuff retear. Group II adverse events included cellulitis in 2, shoulder bursitis, post-traumatic fibrosis, one rotator cuff retear, and a