

otic and antibiotic plus ATL146e treated knees indicating clearance of bacteria. Knees in the antibiotic plus ATL146e knees appeared normal with no effusion or loss of motion. Average WBC counts from the synovial fluid aspirates significantly decreased with treatment of antibiotics alone and antibiotics plus ATL146e. IL-8 assay results revealed considerably increased synovial fluid content compared to baseline values, but treatment with antibiotics plus ATL146e significantly decreased the IL-8 content when compared to other treatment groups ($P < .001$) indicating inflammatory response suppression. Histologic grading using Salter's scale (0 = best, 15 = worst) resulted in significantly improved scores in the antibiotic plus ATL146e group (2.79) compared to no treatment (6.70), ATL146e only (6.61), and antibiotics only (5.10) ($P < .00000001$). GAG assay revealed no significant difference among treatment groups. Discussion: Results of this study show the addition of an adenosine-2A agonist to antibiotic therapy diminishes WBC chemotaxis and inflammation in the joint, while not compromising the clearance of intra-articular bacteria. Early bacterial clearance with modulation of the inflammatory response may prevent the long-term arthritic effects of joint sepsis. Results of this study influence the future treatment of septic arthritis and prevent the associated morbidity.

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Osteochondral Graft Transplantation: Relationship between Graft Insertion depth, Insertion Forces, Cell Death, and Matrix Degeneration (SS-41)

Purpose: The objective of this study was determine the range of forces encountered during surgical insertion of osteochondral autografts and the effect on cellular viability and matrix degeneration. **Methods:** Osteochondral graft transplantation was performed in fresh frozen cadaveric knees. Forces required to extrude the cartilage from the harvester device, seat the cartilage flush with the surrounding cartilage and recess the cartilage 2 mm into the recipient site were measured using a uniaxial load cell. These forces were then applied to osteochondral grafts obtained from six fresh human femoral condyles harvested from total knee arthroplasty cases and one fresh normal knee. Applied loads varied from zero (sham) to 800 newtons. Chondrocyte viability and glycosaminoglycan release was determined at 48 and 120 hours post impact. **Results:** Graft insertion forces were relatively low (<400 newtons) during insertion or seating the graft compared to recession of the graft in the

recipient site (max 800 newtons). A mean of 91% of the cells were viable in unimpacted grafts from the total knee specimens and nearly 100% for the fresh normal knee. Total knee specimens demonstrated 50% decreased in viability at 800N ($P < .01$). The fresh normal specimen demonstrated a significant decrease in viability approaching 20% at 400N and 800N ($P < .01$) at 120 hours post impact. Glycosaminoglycan release did not correlate significantly with insertion loads although there was a trend toward increased release with higher loads at 120 hours. **Conclusions:** Typical insertion loads for osteochondral grafting may not be immediately harmful to the cartilage implant but recession or placement of a graft into a relatively shorter recipient hole may reduce cellular viability in the graft.

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Synovial Shelves of the Knee: Association With Chondral Lesions (SS-42)

Even though certain types of the knee plica are well recognized as being pathological, the long-term effects of such plicae upon the articular cartilage have not been quantitatively evaluated. Indeed, the majority of studies regarding plica deal mainly with the acute plica syndrome itself. The objectives of the present study were to evaluate how synovial shelves of the knee might predispose to chondral lesions and to determine which types of the plica are significant risk factors for articular damage. Data was collected prospectively from 1000 consecutive knee arthroscopies. Of the 1000 patients who had knee arthroscopy, 321 (32.1%) patients were found to have knee plicae. The mean age of the patients at the time of the procedure was 37.4 years (33.4 years for the patients with plicae and 39.2 years for the patients without synovial shelves). Patients details (age, sex, duration of symptoms, injuries, and possible mechanism of injury), operative details (types and number of portals, equipment used), intra-articular findings (articular, meniscal and synovial lesions, and stability characteristics) and procedures performed were recorded on a special database. Synovial shelves of the knee were recorded using a modification of the Sakakibara classification (Types A1-D3). Articular lesions were noted on anatomic articular maps of the different functional zones using a system which presaged the current ICRS system. From these maps it was then possible to evaluate the proportions of each articular lesion as well as its position. The Outerbridge classification was used for the evaluation of the