

operatively ( $p < 0.05$ ). The average ASES score improved from 61 preoperatively to 82 postoperatively ( $p < 0.05$ ). Average satisfaction with surgical outcome was 7.8 out of 10. There was an association with age at surgery and satisfaction with outcomes but not the ASES score. Patient's pain and function improved significantly postoperatively ( $p < 0.05$ ). Half of the patients were involved in sports and report their ability to compete improved significantly postoperatively ( $p < 0.05$ ).

**Conclusions:** The best treatment for articular cartilage defects in the shoulder remains unknown. Mcfx has been shown to be an effective treatment option for cartilage injuries in the knee. Outcomes after Mcfx in the shoulder have not been well studied. Our study shows that patients have less pain and improved shoulder function after surgical intervention, which included a Mcfx procedure. The Mcfx procedure can improve function and pain in shoulders with symptomatic, full thickness chondral defects.

**Chondroprotective Effects of Hyaluronic Acid Following Oxidative Stress (SS-49).** *Valentina Grishko, PhD, Albert W. Pearsall, MD, Glenn Wilson, MD*

**Summary:** The purpose of current study was to examine the mechanisms of chondroprotective effects of hyaluronic acid following reactive oxygen and nitrogen species -induced stress. We find that hyaluronic acid protects human chondrocyte mitochondria from oxidative stress by decrease of mitochondrial DNA damage and enhancing mitochondrial DNA repair. Hyaluronic acid pretreatment of human chondrocytes prevented mitochondrial transcription and ATP levels decrease following oxidative stress. Also hyaluronic acid prevented apoptosis induced in human chondrocytes following exposure to ROS and RNS by direct prevention of cytochrome c release and activation of caspase 9.

**Purpose:** The intra-articular injection of hyaluronic acid was originally used in the treatment of osteoarthritis to increase the viscosity of synovial liquid. However, recent findings suggest that the activity of HA cannot be solely explained by its biomechanical properties. Current study was performed to determine the mechanisms of chondroprotective action of hyaluronic acid on articular chondrocytes following reactive oxygen and nitrogen species generation as observed during osteoarthritis development. Chondrocyte mitochondrial function, apoptosis and viability following oxidative stress were main targets of present investigation.

**Methods:** All work was performed on primary articular chondrocyte cultures. Reactive oxygen species were generated by xanthine oxidase/hypoxanthine exposure,

reactive nitrogen species by peroxyxynitrite. DNA damage and repair were studied by quantitative Southern blot analysis; mitochondrial dysfunction was evaluated by Northern blot analysis of mitochondrial transcription and changes in ATP levels by bioluminescence assay. Apoptosis was evaluated by quantitation of apoptotic cells following DAPI staining, cytochrome c release, and caspases activation. Cell viability was evaluated by MTT assay.

**Results:** Hyaluronic acid protects human chondrocyte mitochondria by amelioration of mitochondrial DNA damage and enhancing mtDNA repair. Hyaluronic acid preserved mitochondrial transcription and ATP levels following oxidative stress. Also HA pretreatment led to increase of chondrocyte viability and decrease of apoptosis following xanthine oxidase/hypoxanthine and peroxyxynitrite treatment.

**Conclusions:** Mitochondria are important targets of hyaluronic acid chondroprotective action.

**Physical Exam and Magnetic Resonance Imaging (MRI) in the Diagnosis of Superior Labrum Anterior-Posterior (SLAP) Lesions of the Shoulder (SS-50).** *Nirav K. Pandya, MD, Anne Colton, MD, David Webner, MD, Brian Sennett MD, G. Russell Huffman, MD, MPH.*

**Introduction:** There is limited data comparing the sensitivity of physical examination and MR imaging in the diagnosis of arthroscopically confirmed glenoid labral lesions.

**Methods:** A review of 50 consecutive patients with arthroscopically confirmed superior labrum anterior-posterior (SLAP) lesions and no history of shoulder dislocation was performed. The study was prospectively designed with IRB approval. All patients underwent a standardized physical examination that was compared to the official radiologist's report of MR and/or MR arthrogram imaging. Sensitivity analysis was performed. To determine a difference in sensitivity of 8% between testing modalities, a pre-study power analysis determined that the minimal sample size was 25 patients (for a study with a power of 0.80 and an alpha of 0.05).

**Results:** The sensitivity of O'Brien's active compression test was 90%, whereas the Mayo (dynamic) shear was 80% and Jobe's relocation test was 76%. The sensitivity of a physical exam with any one of these three tests being positive was 100%; the sensitivity of requiring at least two positive tests ranged from 64% - 72%, and the sensitivity decreased to 58% if all three of these maneuvers was deemed necessary for the diagnosis. Neer (42%) and Hawkin's impingement tests (32%) each had low sensitivity for SLAP lesions. The sensitivity of MRI