

treatment with persistent painful restricted motion. Conservative treatment consisted of oral anti-inflammatory medication, lifestyle modifications to avoid offending activities, and supervised physical therapy. The procedure consisted of manipulation under anesthesia and concomitant arthroscopy to assess and address co-existent pathology. Results: There was 100% follow-up at an average of 17.3 months. There were 8 females and 1 male with an average age of 43.7 years. Radiographs were normal in 8 cases and revealed mild degenerative disease in the one male patient. 8 patients had an intra-articular injection of anesthetic which provided temporary relief of their symptoms. Among 7 MRIs, 2 demonstrated an effusion and 1 revealed evidence of an articuloabral lesion. Among 7 MRAs, 2 demonstrated evidence of labral pathology. None of the studies revealed evidence suggesting adhesive capsulitis. Examination under anesthesia revealed restricted rotational motion in all patients with an average loss of 19.4° external rotation and 5.6° internal rotation. Full range of motion was regained with manipulation. Arthroscopy revealed characteristic findings of adhesive capsulitis including hemorrhagic fibrinous debris within the pericapsular recesses and acetabular fossa. Other co-existent intra-articular pathology was present in 6 cases and included 5 articular lesions, 3 labral tears, and 1 partial disruption of the ligamentum teres. The average preoperative score was 53.7 and postoperative 86.7, representing an average improvement of 28 points (range 6-43). There were no complications. Discussion and Conclusions: Adhesive capsulitis of the hip is not as rare as would be suggested by the paucity of available literature. The clinical characteristics are similar to those commonly attributed to this condition in the shoulder, principally consisting of painful restricted motion and a clear predilection for middle aged females. It may occur with or without associated intra-articular pathology. It is likely that many of these may respond to conservative treatment. Recognizing the existence of this process will assist the physician in counseling patients and structuring a conservative recovery program. Arthroscopy can be beneficial in the treatment of recalcitrant cases but may assume less of a role with improved diagnostic skills essential to implementing a proper management strategy.

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### **Runner's Hip: The Possible Association Between Running and the Development of Degenerative Acetabular Labral Tears (SS-35)**

The increasing use of hip arthroscopy has helped delineate intra-articular pathology to a new level. One group

of patients that are prone to hip difficulties is runners. The subtle development of degenerative changes may be a result of the repetitive impact loading associated with running, leading to degeneration accelerated by subtle acetabular deformities and possibly instability. In this series, we present eight cases of acetabular labral tears in high level runners and delineate a common constellation of intra-articular pathology. Materials: From a series of 162 hip arthroscopies, eight high level runners with an average age of 36 (range 19-45) were seen for complaints of increasing hip pain with running with no history of macrotrauma. Medical records, imaging studies, and arthroscopic findings were reviewed. Patients were also administered the WOMAC survey at follow-up. Clinical and radiographic follow-up ranged from 3 to 29 months. Results: All cases were unilateral with respect to the complaints of pain and catching. All of the patients had either run several marathons (4), were triathletes (1), Olympic middle distance runners (1), or had run more than ten miles per week for greater than 5 years (2). All of the patients complained of pain beginning at the start of their runs and progressing in severity with increasing mileage. Two were unable to run altogether as a result of pain. Physical examination was consistent only for pain with forced internal rotation of the affected hip. Plain radiographic analysis revealed no degenerative changes and an average center-edge (CE) angle of 36.7° (range 28°-44°). Six patients underwent preoperative MRI with intra-articular gadolinium. All of these studies revealed anterosuperior labral tears. The two studies without contrast showed no labral tear. All patients underwent hip arthroscopy with labral debridement, with all being in the 10 to 2 o'clock (right hip) region. In six patients, there was also a chondral injury of the acetabular cartilage underlying the labral tear. These lesions were all grade III. In addition, three cases revealed ligamentum teres disruptions. All patients completed the WOMAC scoring scale postoperatively at an average of 9 months (range 3 to 29). The average value was 94. All patients were able to return to their previous running levels. Discussion: The hip joint is exposed to an inordinate amount of force during athletic activities. Few studies have examined the exact role of the labrum in extreme positions, but it is clear that episodic or repetitive maneuvers at the extremes of motion are responsible for some labral pathologies. It is possible that the development of these tears is due to subtle instability which is made worse with the repetitive impact of running, eventually leading to labral tearing and possible ligamentum teres disruption. While this study does not confirm an association between running and the development of labral tears or chondral

lesions in the hip, it certainly questions whether there is an injury pattern that is common to this population.

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### **Retrograde Drilling of Osteochondral Lesions of the Talus (SS-36)**

**Summary:** Osteochondral lesions of the talus that maintain an intact articular surface may be successfully treated with retrograde decompression of the cystic lesions utilizing a novel cannulated system. The surgical management of symptomatic osteochondral defects of the medial talar dome is difficult. When the articular surface is intact retrograde drilling through the body of the talus is accepted as one alternative to stimulate bone healing for stabilization of the OCD fragment. Between 1999 and 2001, eight consecutive patients underwent surgical treatment for symptomatic posterior medial OCD lesion of their talar dome. All patients underwent arthroscopy of the ankle followed by retrograde drilling of the talar lesion. A novel cannulated system was used to target the lesion, remove the necrotic segment and then backfill using Grafton. The average age of the patients was 36 years old (range 12 - 49 years). Follow-up ranged from 8 months to 44 months (mean 24 months). One patient was lost to follow-up. Of the remaining seven, outcomes were assessed with a modified American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Scale and the SF-12 general health survey. Four patients have repeat MRI scans at one year follow-up. The preoperative AOFAS scores from the modified hindfoot scale ranged from 0 to 41 (mean 22). Postoperative scores ranged from 52 to 68 (mean 56). Mean improvement of 34 points. The SF-12 has two components: the Physical Component Score (PCS) and the Mental Component Score (MCS). Mean preoperative and latest follow-up SF-12 PCS were 35.8 and 44.0, respectively. Mean preoperative and latest follow-up SF-12 MCS were 40.7 and 52.8 respectively. In this limited series, this technique appears to give comparable short-term results to previously described techniques. The new cannulated system simplifies the surgical procedure allowing the expansion of the technique to the general orthopedic surgeon and potentially greater safety. Overall, this procedure offers decreased operative time and maximizes safety and accuracy with retrograde talar drilling.

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### **Ulnar Collateral Ligament Reconstruction in Elite Throwing Athletes: Minimum 2-Year Follow-up (SS-37)**

**Objective:** Ulnar collateral ligament (UCL) injuries may result in disabling valgus instability in throwing athletes. We evaluated the "docking technique" for UCL reconstruction, and describe a modification to the technique. **Methods:** UCL surgery was indicated in 19 high-level baseball players (11 professional, 8 collegiate) with medial elbow pain preventing effective throwing, medial pain with valgus stress, and MR arthrogram. Mean age was 21.8 (17.9-26.2). 1 had previous UCL reconstruction. 1 had previous arthroscopic elbow debridement. Reconstruction was performed using a muscle-splitting approach and the docking technique with palmaris or semi-tendinosus graft. Initially, a 2-strand construct was used; but during the study period we developed and began using a 3-strand construct using a doubled anterior bundle and a single posterior bundle. The ulnar nerve was not routinely transposed unless there were preoperative ulnar nerve symptoms (2 patients). 2 had osteophyte debridement. 1 had removal of a loose body. **Results:** Patients were followed for an average of 37 months, with a minimum 2 year follow-up. 18 returned to previous or higher level of participation. Three were collegiate infielders/occasional pitchers who did not wish to return to pitching but continued to play other positions. They were clinically and functionally asymptomatic. One player was lost to follow-up, and could not be identified on a professional roster. The average time to return to play was 15 months (6.5-27.8 months). Using the Timmerman-Andrews 100-point subjective scoring system, the average preoperative score was 81.5 (65-85); average postoperative score was 97.7 (80-100). Using the Conway-Jobe scoring system, 15 were excellent, 3 good. 1 patient underwent subsequent ulnar nerve transposition, and returned to previous level of professional play. **Conclusions:** UCL reconstruction with the docking technique can reliably return athletes to a high level of participation. This technique allows ease of graft handling and tensioning. The modification of a doubled anterior bundle increases the amount of collagenous tissue in a critical area, and may allow more accelerated rehabilitation.

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### **Lateral Epicondylitis: An Evaluation of Three Methods of Operative Treatment (SS-38)**

**Objective:** The purpose of this study was to evaluate the clinical results of three surgical methods in treating recal-