A Preliminary Report of Acute and Subacute Arthroscopic Repair of the Radial Ulnohumeral Ligament After Elbow Dislocation in the High-Demand Patient

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Purpose: The purpose of this study was to evaluate functional outcomes, range of motion (ROM), elbow stability, and time to return to full activities after acute and subacute arthroscopic repair of a simple elbow dislocation in high-demand patients. Methods: “High-demand patients” were defined as in-season athletes and individuals who required use of both hands for their profession and believed that they could not miss the 6 weeks of work that may be required with conservative treatment in an elbow brace. We retrospectively reviewed 14 consecutive patients with a simple elbow dislocation who underwent arthroscopic repair of the radial ulnohumeral ligament from 2008-2012. Outcomes measures included the Mayo Elbow Performance Score (MEPS), elbow ROM, elbow stability, and time to return to full activities. Each patient was contacted once by telephone to determine the current activity level and presence of any pain or functional limitations. Results: The mean patient age was 25 years, with telephone follow-up at a mean of 30 months and clinical examination after a minimum of 6 months. The postoperative MEPS was excellent (mean, 99.6; range, 95 to 100) for all 14 patients, and all returned to their preinjury level of function with no restrictions or instability. Final ROM averaged $-3^\circ$ of full extension to greater than $130^\circ$ of flexion. The mean time to return to full activities in and out of a brace was 2.7 weeks and 6.6 weeks, respectively, in the acute group and 4.6 weeks and 8.9 weeks, respectively, in the subacute group. All patients were satisfied with their outcome. Conclusions: Conservative management remains the gold standard for most simple elbow dislocations. We believe that certain high-demand patients may be candidates for acute arthroscopic ligamentous repair. Our preliminary data show that acute arthroscopic repair of the radial ulnohumeral ligament is a safe, effective procedure that restores stability to the elbow and allows patients to quickly return to full activities. Level of Evidence: Level IV, therapeutic case series.

Elbow dislocations are a relatively rare but debilitating injury. The elbow is the second most frequently dislocated joint of the upper extremity, and simple dislocations account for 10% to 30% of all injuries to the elbow. Stoneback et al. recently reported that the incidence of elbow dislocations in the United States was 5.21 per 100,000 person-years, and nearly half of those dislocations were associated with athletic activities. The pathoanatomy was elucidated in a classic article by O’Driscoll et al. in 1992. Soft-tissue failure initiates on the medial side with tearing of the medial ulnar collateral ligament (MUCL) and then propagates across the anterior capsule to the lateral side with tearing of the radial ulnohumeral ligament (RUHL) and lateral capsule as the elbow dislocates posterolaterally. Complete elbow dislocations may cause rupture of both the medial and lateral ligamentous structures. Josefs-son et al. surgically explored 31 pure elbow dislocations and found complete rupture of the medial and lateral ligaments in every case, usually from the humeral origin.

Conservative treatment of simple elbow dislocations is successful in most clinical scenarios but is not without risk. Persistent problems such as pain, stiffness, and instability may result, and time missed from work or sport while protecting the elbow in a brace may have a significant burden for the in-season athlete or
high-demand professional. Mehlhoff et al.\(^1\) reported that up to 60% of patients complain of residual symptoms; 45% complain of pain and 15% have development of flexion contractures greater than 30°. Stiffness is more likely to persist if immobilization occurs for greater than 3 weeks. Approximately 60% of patients believe that the injured elbow does not function as well as the contralateral side,\(^5\) and mechanical testing has confirmed a 15% average loss of elbow strength.\(^6\) Kesmezacar and Sarikaya\(^10\) found that only 19% of patients reported a feeling of full recovery at a mean of 34 months after elbow dislocation. These symptoms may persist for many years. Anakwe et al.\(^11\) recently reported that 56% of patients have residual stiffness and 62% have residual pain at a mean of 88 months after conservative treatment of a simple elbow dislocation.

Although pain and stiffness are the most common complications of simple elbow dislocations, residual instability has also been reported. Instability detected on clinical examination has ranged from 19% in the study of Kesmezacar and Sarikaya\(^10\) to 35% in the series of Mehlhoff et al.\(^1\) Specifically, chronic posterolateral rotatory instability (PLRI) of the elbow, as described by O’Driscoll et al.,\(^12\) can result when the lateral ligamentous structures fail to heal. PLRI can occur in up to 7% of patients after a simple elbow dislocation.\(^11\) The diagnosis of PLRI is made by the patient’s history and physical examination, including the lateral pivot-shift test, as described by O’Driscoll et al.,\(^12\) and the chair push-up test or table-top relocation test previously described by Regan and Lapner.\(^13\) This instability pattern can cause pain and dysfunction with activities of daily living, making simple tasks, such as shaking hands, opening a door, lifting objects, or even rising from a chair, difficult and painful. The instability is magnified in athletes or high-demand professionals who rely on their arms to competently perform their jobs; PLRI can make activities for the high-demand patient impossible to perform.

In addition to the potential risk of residual instability, the risk of time missed from work or sport is certain. Recovery of functional motion may take 6 weeks or more with conservative methods such as bracing,\(^14\) and return to full activities may take even longer. Very little information exists in the literature regarding return-to-play guidelines for athletes after elbow dislocation. Rettig\(^14\) stated that return to sports may be expected within 5 to 7 weeks for lateral-sided tears and 8 to 10 weeks for both medial and lateral tears. Parsons and Ramsey\(^15\) reported that a short period of immobilization with early range of motion (ROM) limits disability and allows return to sport participation within 6 weeks. Their conclusion was based on the study of Protzman\(^16\) of 47 active individuals at a US military academy treated for a simple elbow dislocation. Protzman found that if patients were immobilized for less than 5 days, they had a 3° loss of extension and 6 weeks of disability before returning to full duty. However, some patients required 24 weeks of disability if immobilized for longer periods. There was a direct parallel between the duration of immobilization and both loss of extension and the period of disability. This time frame can be devastating for the in-season athlete, as well as the high-demand professional.

This situation led us to consider acute arthroscopic repair of the post-dislocation elbow in a very select subset of high-demand patients. Josefsson et al.\(^3\) found no functional benefit in early surgical repair when compared with nonoperative management. However, early surgical repair may allow individuals to return to full activities more quickly than conservative treatment in a brace because surgery should decrease the risk of recurrent dislocation and residual instability. Josefsson et al.\(^3\) found no cases of recurrence of instability after early surgical repair. Acute repair of the RUHL may be indicated in high-level athletes, who cannot afford to miss large portions of the athletic season, as well as high-demand professionals, who cannot miss substantial time away from work. Savoie and colleagues\(^17-19\) showed that arthroscopic repair is a safe procedure in the chronic setting; therefore it should be safe in the acute period as well.

The purpose of this study was to evaluate functional outcomes, ROM, elbow stability, and time to return to full activities after acute and subacute arthroscopic repair of a simple elbow dislocation in high-demand patients. Our hypothesis was that arthroscopic repair of the RUHL is a safe, effective procedure that restores stability to the elbow and allows high-demand individuals to quickly return to work and play.

### Methods

We retrospectively reviewed 14 consecutive high-demand patients who underwent arthroscopic repair of the RUHL for PLRI after elbow dislocation in the acute and subacute period. Inclusion criteria included all patients who sustained a traumatic simple elbow dislocation with residual instability and were in-season athletes or high-demand professionals. Exclusion criteria included open dislocations, associated fractures, nerve injuries, and pre-existing elbow pain or instability. “High-demand patients” were defined as individuals who required use of both hands for their profession and believed that they could not miss the 6 weeks of work that may be required with conservative treatment in an elbow brace. This included 2 construction workers and an ear, nose, and throat surgeon in our cohort. Tegner scores\(^20\) ranged from 5 (manual laborer) to 10 (professional athlete) and are included in Table 1.
Seven patients were identified in the acute period (<3 weeks) after elbow dislocation. Seven patients were referrals from their primary physicians and were treated in the subacute period (range, 5 to 12 weeks). Patients evaluated in the acute period were counseled on the time frame to return to full activities and potential complications with conservative treatment in a brace. Patients evaluated in the subacute period all reported functional impairment with loss of motion and apprehension during daily activities, as well as evidence of PLRI on examination, despite 4 to 6 weeks of immobilization in a hinged elbow brace. Each patient believed that conservative treatment was unacceptable because of considerations of functional impairment, collegiate athletic acceptance, or financial obligations. Therefore surgery for arthroscopic repair was offered as an option to potentially allow for a faster return to work and play. After a lengthy discussion of the risks and benefits of both operative and nonoperative treatment, each patient consented to undergo the surgical procedure.

A retrospective chart review was performed to document age, hand dominance, sport/profession, date of injury, mechanism of injury, and time to surgical repair. The preoperative Mayo Elbow Performance Score (MEPS) was calculated for patients in the subacute group (Table 1). Magnetic resonance imaging (MRI) was obtained for each patient in the subacute period. MRI, in each case, showed tearing of the RUHL and lateral collateral ligament (LCL) complex proximally off of the lateral epicondyle of the humerus. In addition, all patients had injury to the MUCL.

The final clinical examination included elbow ROM, stability testing, and strength testing. The MEPS (Fig 1) was calculated from information obtained at the final clinic visit and was used as the primary outcome measure for each patient. Time to return to full activities in and out of a hinged elbow brace was recorded. Patients were also contacted by telephone to confirm the time required to return to full activity participation, as well as to record any current elbow stiffness, limitations, or symptoms of instability. Approval for the review was obtained from our institutional review board.

### Surgical Technique

The surgical technique that we used for arthroscopic RUHL reconstruction for chronic PLRI of the elbow has been previously described. All surgical procedures were performed arthroscopically with patients in the prone position under general anesthesia. Routinely, an

<table>
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<th>Function</th>
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<th>Definition (Points)</th>
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</tr>
<tr>
<td>Stability</td>
<td>10</td>
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</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>Don shoe (5)</td>
</tr>
<tr>
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Fig 1. Definition of MEPS. The MEPS is classified as follows: 90 or greater, excellent; 75 to 89, good; 50 to 74, fair; and less than 60, poor. Reprinted with permission.
Interosseous nerve block was administered to the operative upper extremity. At the time of surgery, PLRI is confirmed with the prone lateral pivot shift test (Video 1, available on arthroscopyjournal.org). Diagnostic arthroscopy was performed, followed by arthroscopic repair of the RUHL and LCL complex by use of a combination of anchors and sutures.

Diagnostic arthroscopy begins in the anterior compartment with establishment of a proximal anteromedial portal. Fractures of the radial head and coronoid can be identified during diagnostic arthroscopy. In the acute setting, abundant hematoma is encountered in the elbow joint. Tears in the anterior capsule are readily evident at the base of the coronoid, with the muscle fibers of the brachialis visualized through the capsular tear.

A proximal anterolateral portal is established with an outside-in technique by use of a spinal needle for localization. A motorized shaver is introduced through the proximal anterolateral portal, and the hematoma is evacuated. During evacuation of the hematoma, great care is taken not to debride or resect the LCL complex, which can sometimes be flipped into the radiocapitellar joint. Loose bodies are removed when encountered.

On the lateral side, laxity of the annular ligament and LCL complex is evident in every case (Fig 3). It is important to critically assess the annular ligament for tears or laxity so that appropriate repairs can be performed. An arthroscopic pivot-shift test with valgus load and forearm supination demonstrates PLRI with the radial head subluxating off the capitellum, indicative of injury to the RUHL. The arthroscope can often be driven “around the corner” of the capitellum because of laxity in the LCL complex. On the medial side, an arthroscopic valgus stress test is performed to evaluate for incompetence of the MUGL.

Diagnostic arthroscopy continues in the posterior compartment. The arthroscope is placed into the posterior central portal, and the hematoma in the posterior compartment of the elbow is evacuated through a proximal posterolateral portal. Both of these portals need to be relatively proximal to allow for the later repair of the ligament, usually at least 3 cm above the tip of the olecranon. The medial gutter may show hemorrhage and, sometimes, tearing of the capsule near the posterior aspect of the medial epicondyle.

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The lateral gutter and capsule are evaluated next. The arthroscope is easily advanced down the lateral gutter because of incompetence of the LCL complex. Viewing down the lateral gutter may be facilitated by moving the inflow to a cannula in the proximal anteromedial portal. The flow of fluid from the anterior compartment up the lateral gutter helps to keep the lateral gutter expanded, facilitating visualization and identification of the torn RUHL complex (Fig 4).

One common finding is the ability to move an arthroscope placed down the posterolateral gutter from the posterior central portal straight across the ulnohumeral articulation into the medial gutter. This maneuver is not possible in a stable elbow and is termed the “drive-through sign of the elbow” (Fig 5). It is somewhat analogous to the drive-through sign in shoulder instability. The elimination of the laxity that

Fig 2. A view of the anterior ulnohumeral articulation of a right elbow from a proximal anteromedial viewing portal shows gapping of the coronoid (bottom) from the trochlea (top), resulting from ligamentous incompetence after an elbow dislocation. A chondral defect is present on the trochlea, and tears in the anterior capsule are readily evident at the base of the coronoid, with the muscle fibers of the brachialis visualized through the capsular tear. © Felix H. Savoie III.

Fig 3. Views from proximal anteromedial portal in a right elbow. (A) Laxity of the annular ligament and LCL is present on the lateral side of the elbow. Gapping is present between the annular ligament and the radial head, with the ligament drooping down to the radial neck. (B) Rotation of the forearm during an arthroscopic pivot-shift test produces subluxation of the radial head from under the capitellum, consistent with PLRI. © Felix H. Savoie III.
allows this maneuver is one of the key aspects of con-
firming an adequate arthroscopic reconstruction in
patients with PLRI.

In the acute setting, the origin of the LCL complex
on the posterolateral aspect of the lateral epicondyle can
be visualized as a bare area at which the ligament has
avulsed off of the humerus (Fig 6). The tear usually
begins on the lateral epicondyle just posterior to the tip
and then extends up the humerus to a point just lateral
to the olecranon fossa. This area on the posterior hu-
merus should be lightly debrided with a motorized
shaver.

Once the area of damage has been defined, a double-
loaded suture anchor may be placed arthroscopically
into the humerus at the site of origin of the RUHL
(Fig 7). A percutaneous suture passer is placed through
a lateral “soft spot” portal to retrieve the sutures distally

Fig 4. A view of the posterolateral gutter in a left elbow from a
posterior transtendon portal shows the avulsed LCL complex
displaced distally into the radiocapitellar joint. The shaver is
entering through a lateral soft-spot portal into the radiocapitellar
joint, with the radial head behind the shaver. The avulsed RUHL
with a small attached bone fragment is in the center of the image.
Care must be taken to not inadvertently remove the lateral lig-
ament with the shaver. © Felix H. Savoie III.

Fig 5. The drive-through sign of the elbow occurs with PLRI
when the arthroscope can be driven through the ulnohumeral
joint from lateral to medial. In this view of a left elbow from a
posterior transtendon viewing portal, the arthroscope is sitting
in the ulnohumeral joint. The bare area of the olecranon is at
the bottom of the screen, the articular cartilage of the distal
humerus at the top, and the radial head and proximal radi-
oulnar joint are on the left. This view is not possible in a stable
elbow. © Felix H. Savoie III.

Fig 6. Viewing from a posterior transtendon portal in a left
elevator, the site of avulsion of the humeral origin of the LCL
complex can be visualized on the posterolateral aspect of the
lateral epicondyle, just lateral and distal to the olecranon
fossa. The visualized bare area on the left side of the image is
where the ligament has avulsed off of the humerus. © Felix H.
Savoie III.

Fig 7. A view of the posterolateral epicondyle from a poste-
rior transtendon viewing portal in the same left elbow as in
Fig 6. A double-loaded suture anchor has been placed
percutaneously into the humerus at the site of origin of the
RUHL on the posterolateral aspect of the lateral epicondyle.
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at the level of the radiocapitellar joint. The limbs of the suture are retrieved to place 2 horizontal mattress sutures through the uninjured part of the ligament (Video 2, available from arthroscopyjournal.org). In the case of a bony avulsion of the RUHL, we place 1 set of sutures around the bone fragment (bottom left corner of image) and the other set distal to the fragment in the undamaged portion of the tendon. © Felix H. Savoie III.

In no case was the MUCL repaired. Even in cases of medial-sided instability, the MUCL was treated nonoperatively and allowed to heal with protected ROM in a hinged elbow brace.

**Postoperative Management**

After surgery, patients are immediately placed into a splint with the elbow in approximately 90° of flexion and full forearm pronation to relax tension on the repair. Fluoroscopy or radiographs can be obtained to check the reduction after the splint is applied. The first postoperative visit usually takes place within 3 to 5 days of the operation, and the patient is placed into a hinged elbow brace that allows comfortable movement. Physical therapy is initiated at the first postoperative visit to focus on elbow ROM in a pain-free range. Shoulder, periscapular, wrist, and hand strengthening exercises are allowed as long as they do not produce pain in the elbow.

The patient is seen at 1- to 2-week intervals, and motion is slowly increased as pain and swelling allow. Once the repair begins to mature, usually between 4 and 8 weeks, physical therapy is progressed to include more aggressive upper extremity and core strengthening exercises with the elbow brace in place. Full ROM of the elbow should be obtained by 6 weeks postoperatively, if not sooner. Depending on individual

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**Fig 8.** View of posterolateral gutter in a left elbow from posterior transtendon viewing portal. Suture anchors have been placed in the posterior aspect of the lateral epicondyle of the humerus. In the case of a bony avulsion of the RUHL, we place 1 set of sutures around the bone fragment (bottom left corner of image) and the other set distal to the fragment in the undamaged portion of the tendon. © Felix H. Savoie III.

**Fig 9.** A view of the posterolateral epicondyle in a left elbow from a posterior transtendon portal, showing a second suture anchor placed lateral to the olecranon fossa at the most proximal extension of the stripped area of the LCL origin. © Felix H. Savoie III.

**Fig 10.** View of anterior radiocapitellar joint of a right elbow from proximal anteromedial viewing portal. After completion of the RUHL repair, motion and stability are evaluated with the arthroscope back in the anterior compartment, confirming that tension has been restored to the annular ligament. The annular ligament now sits flush with the radial head, with no gapping and no drooping. © Felix H. Savoie III.
progression, patients are allowed to start strengthening exercises out of the brace at 6 weeks. They must be able to perform all strengthening exercises in a pain-free manner in the brace before progression out of the brace. Return to full activities is individualized for each patient depending on profession, ROM, strength, pain, and swelling. For example, an athlete with involvement of the nondominant arm may be allowed to return to full participation sooner than a construction worker with dislocation in the dominant arm. Sports and full activities in the brace are allowed at 2 weeks as long as pain and swelling have subsided and functional ROM is present. Full activities out of the brace are allowed at 8 to 12 weeks.

Results

Fourteen consecutive patients were identified who underwent arthroscopic repair of the RUHL for elbow dislocation and PLRI of the elbow from July 2008 through December 2012. Patients were aged 15 to 49 years (mean, 25.5 years) and included 6 football players; 2 construction workers; 1 competitive horseback rider; 1 basketball player; 1 collegiate wrestler; 1 collegiate cheerleader; 1 professional golfer; and 1 ear, nose, and throat surgeon (the 49-year-old patient). Tegner scores ranged from 5 (manual laborer) to 10 (professional athlete) and are included in Table 1. The mechanisms of injury comprised 6 football injuries, 3 falls from a height, 1 fall off of a horse, 1 motor vehicle accident, 1 tram-poline injury, 1 boating accident, and 1 wrestling injury. Seven patients underwent arthroscopic repair in the acute period (<3 weeks from injury), and 7 patients underwent repair in the subacute period (range, 5 to 12 weeks). Telephone follow-up was performed at a mean of 30 months (range, 6 to 56 months), with postoperative clinical examination after a minimum of 6 months (mean, 8.8 months; range, 6 to 18 months).

No valid preinjury MEPSs were available for the acute group because each patient’s initial evaluation occurred after the injury. However, all patients reported normal elbow function with no instability before the injury. Preoperative MEPSs for the subacute group averaged 64.3, with a range from 45 to 80 (Table 1).

Postoperative MEPSs were excellent (mean, 99.6; range, 95 to 100) for all 14 patients as calculated at the 6-month postoperative clinical visit. Final ROM averaged −3° of full extension to greater than 130° of elbow flexion (extension ranged from 0 to −20° and flexion ranged from 120° to 140°) and is listed in Table 2. All patients had a stable elbow and showed full strength with no deficits, equal to the contralateral side. No patient reported persistent instability in the elbow, and all patients were able to return to their preinjury level of function with no limitations. The mean time to return to full activity participation was 3.6 weeks in the brace and 7.7 weeks out of the brace. We further compared patients who underwent acute repair versus subacute repair (Table 2). The acute repair group returned to full activities at a mean of 2.7 weeks (range, 2 to 4 weeks) in the brace and at a mean of 6.6 weeks (range, 6 to 8 weeks) out of the brace. Athletes in the acute repair group returned to full activities more quickly than high-remand professionals (2 weeks vs 4 weeks). The subacute repair group returned to full activities at a mean of 4.6 weeks (range, 4 to 6 weeks) in the brace and at a mean of 8.9 weeks (range, 6 to 12 weeks) out of the brace. All patients were satisfied with their outcome and stated that they would undergo the procedure again. One postoperative complication occurred with anterior heterotopic bone formation that limited flexion to 125°. This patient reported stiffness.

Table 2. Postoperative Outcome Measures After Arthroscopic RUHL Repair

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NOTE. Patients 1 through 7 underwent repair in the acute period (<3 weeks), and patients 8 through 14 underwent repair in the subacute period (range, 5 to 12 weeks).

ENT, ear, nose, and throat; HS, high school; NA, not available; RTP, return to play; RTW, return to work.
with elbow flexion but did not wish to undergo any additional surgery.

**Discussion**

This study showed that arthroscopic repair of the RUHL in the acute and subacute period after simple elbow dislocation is a safe and effective procedure. This procedure is currently offered to a select group of in-season athletes and high-demand professionals who believe that they cannot miss a significant amount of time from work or sport while being treated conservatively in a brace. The preliminary data showed no cases of recurrent instability, and all individuals were able to return to sport and work within several weeks. To our knowledge, this is the first study in the literature to describe an all-arthroscopic technique used in patients for the early surgical treatment of elbow instability resulting from a recent dislocation.

A surgical technique for arthroscopic repair of the RUHL was described by Smith et al.19 and Savoie et al.,17,18 illustrating both open and arthroscopic methods. Savoie et al, reported that arthroscopic plication of the RUHL was a safe, effective treatment for chronic PLRI and the outcomes were equivalent to those of open reconstruction. This led us to believe that arthroscopic repair should be safe in the acute setting as well. In our series, repairs performed in the acute and subacute period both performed well, with excellent MEPSs in all 14 patients. More importantly, all patients returned to their previous level of activity with no recurrent instability. There were no nerve injuries and no infections. Final ROM averaged −3° of extension to 130° of flexion. Only 1 case of heterotopic bone formation developed, and although it limited elbow flexion, the patient was satisfied with the result and did not wish to undergo any further surgery.

Although early surgery may not have statistically significant functional benefits long-term, as shown by Josefsson et al.,7 it may allow patients to return to activities more quickly with no adverse outcomes. The mean time to return to full activities in a brace averaged 3.6 weeks and was faster in the acute group (2.7 weeks) versus the subacute group (4.6 weeks). These time frames are faster than the 6 weeks reported by Protzman16 in a military population, as well as Rettig14 and Parsons and Ramsey15 in athletes, for return to full activities after conservative treatment in a brace. Kenter et al.21 reported that professional football players in the National Football League missed an average of 0.64 games (range, 0 to 4 games) after an acute elbow injury. However, most of these injuries were on the medial side, with only 2.9% of injuries to the LCL complex and no report of PLRI.

There was a difference in return-to-play or return-to-work time between the acute and subacute groups in our study. This was likely because of the quality of the repaired tissue and acuity of the repair, with a more robust repair secured in the acute setting. There are no standardized return-to-play guidelines in the literature after an elbow dislocation, for either conservative treatment or surgical repair. Further study is needed to determine whether similar results can be reproduced by using a uniform postoperative rehabilitation protocol for both acute and chronic repairs, without individually tailoring return-to-play recommendations.

We recognize that the described treatment is not the preferred treatment for every patient. Conservative management remains the gold standard for treatment of the vast majority of simple elbow dislocations, and most patients will fare very well long-term with conservative treatment.1,6-8,11 However, pain and stiffness may persist in over 50% of patients even 7 years after injury.11 In addition, as hypothesized by Kesmezacar and Sarikaya,10 residual instability may not pose a problem in ordinary daily activities but may cause complaints during heavy labor and sports activities.

We believe that certain high-demand patients may benefit from a more aggressive approach and may be candidates for acute arthroscopic repair. Specifically, high-level athletes with in-season injuries may not be able to miss a significant portion of their season. Professionals who rely on the use of their hands may be candidates for early surgery because acute repair may cut their return-to-work time in half. These patients may not wish to chance the development of PLRI that may occur with conservative treatment.

A rational discussion of the inherent risks and benefits of both operative and nonoperative management must be had with each patient, athletic trainer, and family. Open lines of communication allow the patient to make an informed decision regarding treatment. In addition, the procedure requires familiarity with elbow arthroscopy. In the acutely injured elbow, lack of capsular integrity can lead to soft-tissue swelling and compartment syndrome if the procedure is not carried out expeditiously. Neurovascular structures may be more vulnerable to injury with disruption of the capsule. A concrete preoperative plan must be formulated and followed with adjustments made for arthroscopic findings.

**Limitations**

The current retrospective study has several limitations. Without a control group, it is impossible to prove that our patients returned to full activities any more quickly than they would have with traditional conservative care. We are basing our assumption of a faster return to activities on historical data. In addition, the excellent MEPS in all 14 patients also could have resulted with nonoperative treatment in a brace. All patients were able to return to their preinjury level of
function, but this outcome is not measured in the Mayo score. Furthermore, return-to-sport and return-to-work times were collected retrospectively during chart review and confirmed at the time of the telephone interview. This is a major weakness because the faster return to activities is the main focus of this study. The lack of preinjury assessment of elbow function in the acute group makes postoperative comparison difficult. Half of our patients were operated on in the subacute period between 5 and 12 weeks, after referral from their primary physician with PLRI evident on examination. This group likely differs from the acute group, who underwent surgery before the development of PLRI. Specific return-to-work and return-to-play guidelines were absent in our postoperative protocol, which explains the difference in return to activities between the acute and subacute groups. Further study with specific return-to-work and return-to-play guidelines is necessary to determine whether a faster return is reproducible across all groups.

Conclusions

Conservative management remains the gold standard for most simple elbow dislocations. We believe that certain high-demand patients may be candidates for acute arthroscopic ligamentous repair. Our preliminary data show that acute arthroscopic repair of the RUHL is a safe, effective procedure that restores stability to the elbow and allows patients to quickly return to full activities.

References