Return to Play Following Anterior Shoulder Dislocation and Stabilization Surgery

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KEYWORDS

• Shoulder • Dislocation • Subluxation • Instability • Return to play • Sports • Bankart

KEY POINTS

- Athletes, especially contact, collision, and overhead athletes, are an at-risk population for anterior glenohumeral instability and their treatment depends on a variety of factors, including acuity, time in season, and long-term career goals.
- In-season athletes may be initially treated nonoperatively with an accelerated rehabilitation protocol if they meet specific criteria to complete their season. Nonoperative treatment, however, has a high rate of recurrence despite return to play.
- Arthroscopic and open Bankart repair are both reliable treatment options with a trend towards decreased recurrence using open Bankart repair for contact and collision athletes.
- Open osseous augmentation procedures should be used for athletes with greater than 20% to 25% glenoid bone loss.

INTRODUCTION

The shoulder represents the most mobile joint in the body of the athlete, providing the greatest arc of motion across multiple planes with a combination of static and dynamic stabilizers necessary for maintenance of joint congruity. However, with such range of

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motion, the osseous architecture is relatively unconstrained and shallow, allowing both translation and rotation, thus leaving the glenohumeral joint at risk for dislocation.[1] Glenohumeral joint instability, including both dislocation and subluxation, accounts for the most common joint instability (17 per 10,000 per year) and very commonly occurs in young, especially male, athletes.[2,3] Most of these events are anterior inferior subluxations or dislocations. Management of athletes and returning them to play in an expeditious but safe manner includes both nonoperative and operative modalities based on thorough discussion of expectations, limitations, level of play, and time left in season.[4,5] The authors briefly review the anatomy and pathologic condition of anterior shoulder instability, and the workup and diagnosis of anterior shoulder instability in the athlete. Finally, the authors review return to play (RTP) outcomes for these athletes given the various treatment options: nonoperative, arthroscopic repair, open repair, and open osseous augmentation.

Anatomy

The glenohumeral articulation relies on both the osseous structure and soft tissues surrounding the shoulder for static and dynamic restraint. The relatively convex pear-shaped glenoid and spherical humeral head articulate similar to a golf ball on tee, affording stability through concavity compression generated through surrounding soft tissues and negative joint pressure.[6,7] In addition to the concave nature of the glenoid, the labrum provides increased depth in static stabilization of the humeral head.[8] The glenohumeral ligaments are important static stabilizers and provide restraint throughout the arc of motion (**Table 1**). The anterior band of inferior glenohumeral ligament is the primary static restraint to anterior translation of the abducted and externally rotated arm.[6,8] Dynamic stabilizers include the rotator cuff, long head of the biceps, deltoid, and muscles of the scapula.

Pathoanatomy

Traumatic anterior dislocation can injure both bone and soft tissue restraints. The Bankart lesion (avulsion of the anterior inferior glenoid labrum), described in 1923,[9] has been shown by Arciero and Taylor[10] to have an incidence as high as 97% in collegiate athletes with a 90% incidence of Hill-Sachs lesions. Biomechanical testing with a sectioned labrum leads to decreased force to cause dislocation by up to 20%.[11] Similarly, a first-time traumatic anterior subluxation event has been shown to result in high rates of Bankart lesions (96%), described by Owens and colleagues.[12] Whether acute or repetitive in nature, anterior shoulder dislocation may also lead attritional bone loss with multiple recurrences.[10,13,14] Bone loss greater than 20% to 25% risks continued instability with arthroscopic stabilization techniques and has been traditionally considered an indication for open stabilization with bone augmentation. Biomechanical testing of this critical limit of bone loss has shown a significant destabilization of the glenohumeral joint and risks continued instability. In contact athletes,

Table 1
Glenohumeral ligament functions

Ligament	Arm Position	Prevents Translation
Superior	Adducted	Anterior or inferior
Middle	45° abducted	Anterior or inferior
Anterior-inferior band	90° abducted or external rotation	Anterior
Posterior-inferior band	90° abducted or internal rotation	Posterior