

SLAP Lesions in Overhead Athletes: Non-Operative Management and Return to Sport

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Objectives

1. Review anatomy of the glenohumeral joint and etiology of SLAP lesions
2. Discuss factors to consider for surgical vs. non-operative management of SLAP lesions in overhead athletes
3. Compare and contrast surgical success rates for SLAP repair vs. conservative management in overhead athletes
4. Identify negative prognostic factors for non-operative rehabilitation
5. Review non-operative rehab protocol for a SLAP lesion
6. Review return to sport criteria and return-to-throwing progressions

Case Scenario

- 20 y.o. outfielder, college sophomore
- Pain & feelings of instability during cocking phase of throwing
- (+) Biceps Load II
- (+) O'Brien's
- MRI reveals Type II SLAP tear

Consider:

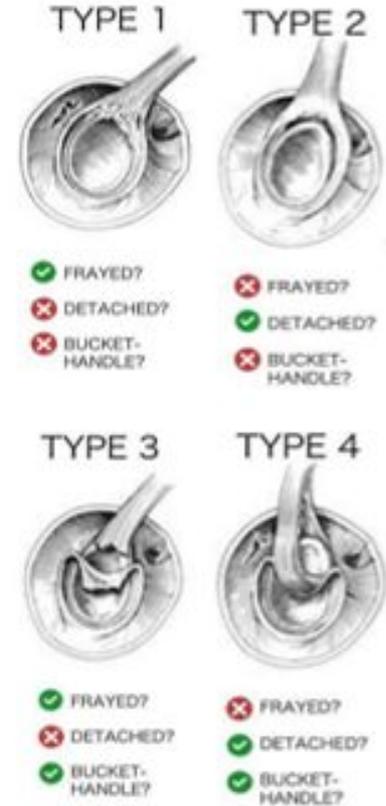
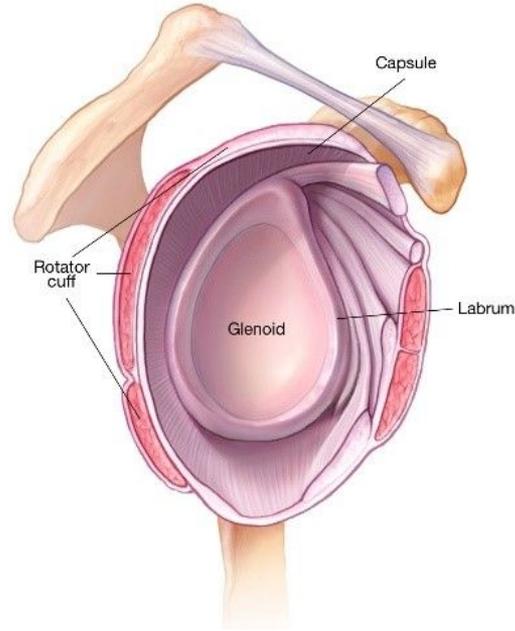
- Surgery or Conservative Management?
- Risk factors for failure of conservative tx
- Return to sport criteria



Image: carolinabaseballcamps.com

Anatomy Review

- Glenohumeral Joint Stability
- 4 Types of SLAP Lesions
(Malal et al. 2013)
- MOI (Malal et al. 2013)
 - Traumatic
 - Chronic



Diagnosis

- Asymptomatic subjects often present with superior labral tears (Mathew and Lintner 2018)
 - Not all lesions require surgery (Mathew and Lintner 2018)
- *Thorough H&P*
 - GIRD, Posterior Capsule Tightness
 - Posterior Pain with Late Cocking Phase
 - Scapular Dyskinesia

Surgical or Non-Operative Management?

- Efficacy of Surgical Management (Steinmetz et al. 2022)
 - Average of 79.5% of athletes return to sport following surgical management
 - Approximately 50% return to sport following a conservative approach
 - Increases to 78% if the pt is able to complete their rehab protocol

Surgical or Non-Operative Management? (Sayde 2012)

- Sayde et al. 2012: Systematic Review
 - 14 studies, 506 athletes with SLAP repair (various fixations)
 - 198 overhead athletes, 81 baseball pitchers
 - 73% of all athletes were able to return to previous level of play
 - Only 63% of overhead athletes were able to return to previous level of play

Surgical or Non-Operative Management? (Jang 2016)

- Jang et al. 2016: Retrospective Case-Control Study
 - Follow-up of 63 patients who initially underwent non-operative treatment for isolated type II SLAP tear
 - 45 (71.4%) = successful nonoperative treatment
 - 18 (28.5%) = failure group
 - 5 patients dissatisfied with nonoperative treatment
 - 11 patients ended up having arthroscopic surgery
 - 2 patients unable to return to previous activities
- Bottom line: SLAP tears are difficult to come back from (for overhead athletes)

Surgical or Non-Operative Management?

Risk Factors for Failure of Non-Operative Treatment (Jang 2016, Steinmetz 2022)

- Participation in overhead sports
- History of trauma
- (+) Compression-Rotation Test
- Rotator Cuff Pathology
- Older Age
- Length of Career
- Patient Expectations
- Bennett Spur

Non-Operative Treatment Approach

General Considerations for the Throwing Athlete (Reinold 2010)

- Maintain ROM
- Maintain Strength of the GH and Scapulothoracic Musculature
- Emphasize Dynamic Stabilization and Neuromuscular Control
- Core and Lower Body Training

Non-Operative Treatment Approach (Jang 2016)

- Phase I (Acute Phase) (1-3 Weeks)
 - Goals
 - Pain and Inflammation Management
 - Activity Modification
 - ROM
 - Interventions
 - Rotator Cuff Isometrics
 - Scapular Stabilization
- Phase II (Intermediate Phase) (3-6 Weeks)
 - Goals
 - Integrated Force Couple Control
 - Strength Progression
 - Interventions
 - Progression of Scapular Stabilization, Rotator Cuff Exercises

Non-Operative Treatment Approach (Jang 2016)

- Phase III (Advanced Strengthening Phase) (6-12 weeks)
 - Goals
 - Strength and Endurance Progression
 - Restore Neuromuscular Control
 - Interventions
 - RTC/Scapular Exercises
 - Biceps Strengthening
- Phase IV (Return to Activity Phase) (3-6 months)
 - Goals
 - Advanced Strengthening and Functional Exercises
 - Return to Sport

Return to Sport Criteria

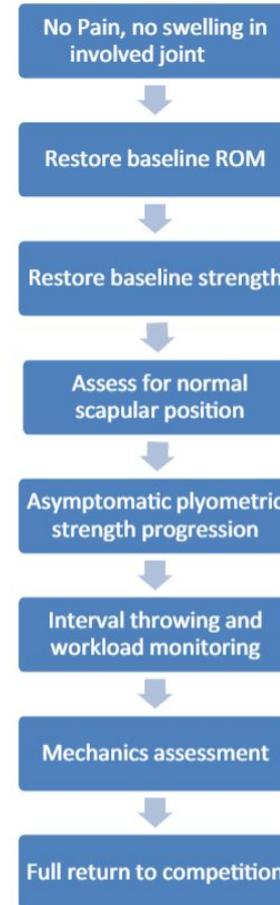
- General criteria for RTS after SLAP Repair: (Wilk 2013)
 1. Full functional ROM
 2. No signs or symptoms of instability
 3. No pain or tenderness
 4. Adequate strength and dynamic stability

- Typical timeframe for RTS*
 - Surgical Repair: 9-12 months (Wilk 2013)
 - Non-Surgical Treatment: 3-6 months (Jang 2016)
 - ****will vary depending on any concomitant shoulder injuries or procedures***

Return to Throwing

- **Advanced Thrower's Ten Program**
 - General scapular strengthening and neuromuscular control

- **Interval Throwing Programs**
 - Gradual, graded return to throwing with analysis of mechanics and technique



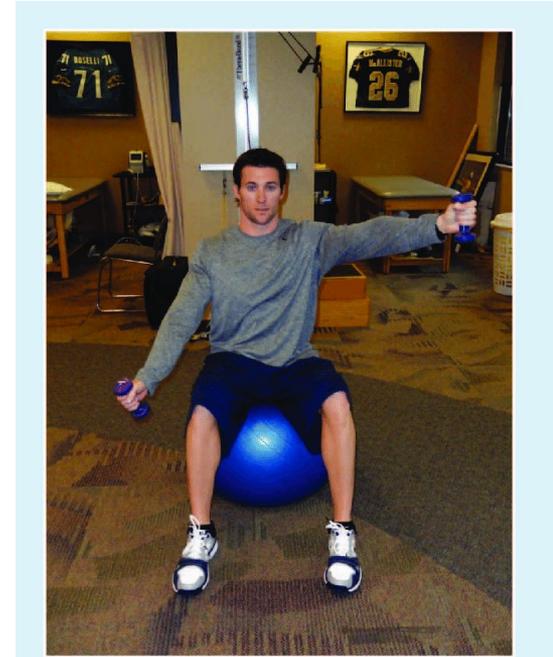
Advanced Thrower's Ten Program

Table 2. Advanced Throwers Ten Exercise Program

- IR/ER tubing at 0° of abduction seated on stability ball^a
 - Full can seated on stability ball^a
 - Lateral raise to 90° of abduction seated on stability ball^a
 - Side-lying external rotation^a
 - T raises prone on stability ball^a
 - Y raises prone on stability ball^a
 - Prone row into ER on stability ball^a
 - Lower Trapezius 5 Series
 - Shoulder extension in ER seated on stability ball
 - Shoulder extension at 45° in ER seated on stability ball
 - Standing wall circle slides
 - Standing low row
 - Standing table press-downs with scapular depression
 - Biceps curls/triceps extensions seated on stability ball
 - Wrist flexion/extension and supination/pronation
-

^aExercises in which sustained holds are utilized. Exercises are performed incorporating 3 sets of 10 repetitions. Exercises are performed (3-set sequence) 2 times.

Abbreviations: ER, external rotation; IR, internal rotation.



Interval Throwing Program

Chang 2016

Phase 1: Throwing on Flat Ground

- Throwing on flat ground
- Begin from 45' and gradually progress to 60, 90, 120, 150, 180 feet

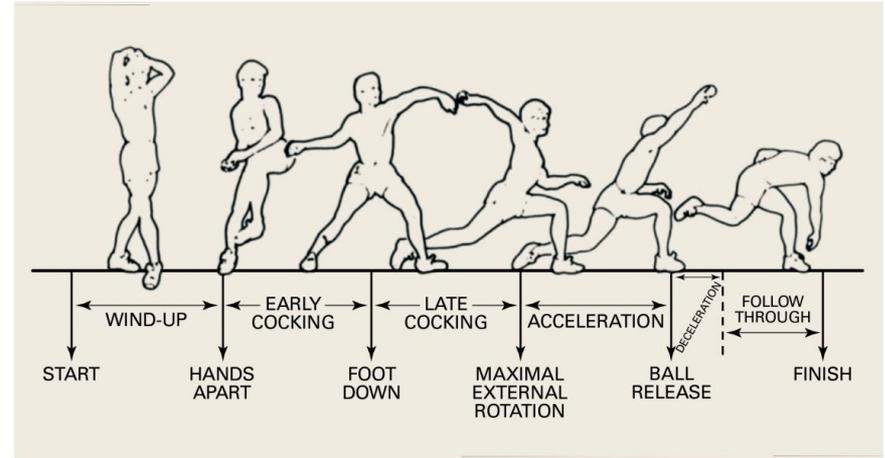


Figure 1. Six phases of overhead throwing.

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Phase 2: Throwing off the Mound

- Begin with fastballs at 50% effort, progressing to 75% and 100% effort
- Gradually increase volume of pitches and effort
- May progress to breaking ball pitches
- Phase concludes with simulated games

Additional Resources

Evaluation of the Overhead-Throwing Athlete:

- Reinold, M. M., & Gill, T. J. (2010). Current concepts in the evaluation and treatment of the shoulder in overhead-throwing athletes, part 1: physical characteristics and clinical examination. *Sports Health*, 2(1), 39–50. doi: 10.1177/1941738109338548

Advanced Thrower's Ten:

- Wilk KE, Yenchak AJ, Arrigo CA, Andrews JR. The Advanced Throwers Ten Exercise Program: a new exercise series for enhanced dynamic shoulder control in the overhead throwing athlete. *Phys Sportsmed*. 2011;39(4):90-97. doi:10.3810/psm.2011.11.1943

Interval Throwing Program:

- Chang ES, Bishop ME, Baker D, West RV. Interval throwing and hitting programs in baseball: biomechanics and rehabilitation. *Am J Orthop*. 2016;45(3):157-162.

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