**AOCPMR Student Council: December Journal Club**

**Title:** Rehabilitation of the Overhead Throwing Athlete: There is More to it Than Just External Rotation/Internal Rotation Strengthening

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**Discussion by:** Casey Salandra, OMS-III

**Discussion:**

 The goal of this paper is to review the rehabilitation of shoulder injury in overhead throwing injuries. Shoulder injury is common in overhead throwing athletes, such as baseball players, because throwing places tremendous force on the glenohumeral joint – which must be loose enough to throw but strong enough to stabilize the joint. Injury is common in young athletes, and athletes that throw frequently or throw a high-volume.

 Many current rehabilitation techniques focus on strengthening external and internal rotation at the glenohumeral joint; however, this article argues that other factors are important in shoulder injury rehabilitation including proper shoulder mobility, a functional scapular base of support, neuromuscular control, and core, hip and leg strength. This article proposes a 4-phase rehabilitative process consisting of the acute phase, the intermediate phase, the advanced strengthening phase, and the return to throwing phase.

The acute phase aims to decrease pain and inflammation, normalize motion, correct posture, normalize muscle balance, restore proper muscle activation, and re-establish baseline dynamic joint stability. Common findings may include loss of internal rotation and horizontal adduction, posterior rotator cuff tightness, posterior capsule tightness, an anteriorly tilted scapula, lower trapezius weakness or pectoralis minor tightness. This phase of rehabilitation should focus on AROM, PROM, manual stretches and mobilization techniques. The intermediate phase aims to increase flexibility, mobility and ROM and to enhance the athlete’s neuromuscular control. Programs generally use the “Throwers Ten” to strengthen around the shoulder potentially progressing to doing the exercises on stability balls to increase core strength and adding in lower body strengthening. The advanced strengthening phase aims to initiate aggressive strengthening, augment power and endurance, advance functional drills, and gradually initiate throwing. Strengthening includes the Advanced Throwers Ten and focuses on increasing endurance and neuromuscular control as the muscles begin to fatigue. Plyometrics are started here to increase dynamic stability and proprioception. At this phase, the interval throwing program will be introduced to gradually increase quantity, distance, intensity and types of throwing in the athlete. Lastly, the return to throwing phase will continue to progress the interval throwing program to allow for unrestricted throwing activities. The athlete should be continuing upper extremity strength, core, lower extremity strengthening, power and endurance exercises. The athlete should also be asked about participating in a year-round conditioning program to prevent further injury.

In conclusion, the study aimed to discuss unique findings in overhead throwing athletes with shoulder injury and address and comprehensive rehabilitation program for their specific needs.

**Discussion Question:**

1. What unique challenges might you encounter in rehabilitation of an overhead athlete with shoulder injury?

2. How could you incorporate this knowledge into your practices as a physician since you are not actively rehabilitating the patient with the physical therapist?

3. Which findings can you look for on physical exam if one of these athletes came into your clinic to help steer the rehabilitation to be personalized for the patient’s specific needs?

4. What might you do if this program fails your athlete and they are still having shoulder pain?

5. This paper discuss the importance of full body rehabilitation – do you think it is important to examine the patient’s whole body when they come into your office for pain or an injury?

6. How can we help this athlete prevent injury in the future?