

# **The Effect of Neuromuscular Training and Scapular Stabilization Exercises in a Young Active Male with Anterior Shoulder Instability: A Case Report**

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## ***Background***

Glenohumeral joint instability is a condition of the shoulder that leads to pain and decreased function. Glenohumeral instability is a common condition in young, active athletes, particularly in males who participate in collision sports. The causes, management and sequelae of shoulder instability are well documented in the literature and indicate that traumatic shoulder dislocation or subluxation may lead to recurring events of instability which could necessitate surgical management<sup>1,2</sup>. However, there have been studies investigating the outcomes for nonoperative management of this condition, which include exercise rehabilitation with emphasis on strengthening shoulder muscles and scapular stabilizers. The aim of this case report is to demonstrate a conservative multimodal physical therapy treatment approach for a former high school football player with history of shoulder injuries and subsequent instability.

## ***Purpose***

The purpose of this case report is to demonstrate the effectiveness of conservative management of anterior shoulder instability.

## ***Methods***

A 22-year-old Caucasian male former high school football player and current college student with poor posture and rounded shoulders presented to the outpatient physical therapy clinic seeking conservative management of left shoulder instability. Patient's past medical history included right shoulder labrum injury, 6 diagnosed concussions, chronic migraines and an inguinal type groin hernia on the right side. The patient had undergone MRI of his left shoulder, revealing a small labral tear and the appearance of instability as a result of repetitive shoulder trauma during collision sports. The patient's chief complaint was of the sensation of left shoulder instability and episodes of his left shoulder "popping out." He identified difficulty with activities that required upper extremity weight bearing and overhead lifting. This patient was a good candidate for conservative care because of the success he had with a prior shoulder injury with the same treatment approach. The treatment was delivered 2-3 times per week for 7 weeks.

Rehabilitation exercises were used to increase shoulder and scapular strength, muscle coordination and endurance, glenohumeral joint stability and core stability. These interventions were implemented in two progressive phases: phase 1: neuromuscular facilitation and phase 2: functional training. Phase 1 focused on enhancing scapulohumeral rhythm during functional movement patterns such as shoulder flexion and abduction. Phase 2 focused on applying these new movement patterns during upper extremity weight bearing and during functional activities in all planes of motion.

## **Results**

The patient demonstrated significant improvement in strength, range of motion, pain scores and overall functional ability as defined by PSS (Penn Shoulder Score). The patient reported 90% improvement in the left shoulder during functional movements while performing ADLs when compared to when he was at his worst.

## **Discussion and Conclusion**

There is conflicting evidence on when/if surgical intervention is warranted, however, conservative treatment approach in patients with shoulder instability can be effective in young male patients who focus on strengthening rotator cuff muscles and scapular stabilizers in conjunction with neuromuscular reeducation for proper scapulohumeral rhythm. Adherence to HEP and patient education is imperative to prevent further injury and gain improvements in upper extremity function.

## **Citations**

1. Gibbs D, Lynch S, Nuber E, et al. Common shoulder injuries in American football Athletes. *Curr Sports Med Rep*. 2015;14:413-419.
2. Hayes K, Callanan M, Walton J, et al. Shoulder instability: management and rehabilitation. *J Orthop Sports Phys Ther*. 2002;32:497-509.