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# Effect of Dry Needling on Compensatory Trigger Points in Overhead Athletes with Supraspinatus Tendonitis

YUKTA SINGH[1], JASOBANTA SETHI[2], ZAHEEN KHAN[3]

## ABSTRACT

**Introduction:** Shoulder injuries, particularly supraspinatus tendonitis, are very common among athletes involved in overhead sports such as Cricket, basketball, volleyball, and badminton, due to the repetitive nature of these activities. Such injuries are frequently complicated by the formation of compensatory trigger points within adjacent musculature, slowing the recovery and performance in athletics. There is evidence to suggest that management of these secondary muscular malfunctions may include Dry Needling (DN) that targets myofascial trigger points, but with limited evidence. The present study undertakes research on the clinical effectiveness of DN in the line of treatment of supraspinatus tendonitis among compensatory trigger points in overhead athletes.

**Aim:** This study aims to assess the effect of DN on compensatory trigger points in overhead athletes with supraspinatus tendonitis.

**Materials and Methods:** A single-blind, parallel-group Randomised Controlled Trial (RCT) conducted on 52 overhead athletes aged 18-35 years with clinically confirmed supraspinatus tendinitis and active or latent MTrPs in the upper trapezius, infraspinatus, or levator scapulae were randomised (lottery method with opaque sealed envelopes) to two groups of 26 each. Control Group (n=26) received conventional physiotherapy for 4 weeks (5 sessions/week): pulsed ultrasound (1 W/cm$^2$, 1 MHz, 7 min), interferential current therapy (50 Hz, 15 mA, 15 min), and a structured rehabilitation programme including active-assisted ROM exercises, Thera-band strengthening, and progressive loading. Experimental Group (n=26) received dry needling along with conventional therapy of compensatory MTrPs (upper trapezius, infraspinatus, levator scapulae) using sterile filiform needles with the pistoning technique to local twitch response, 1-2 sessions per week for 4 weeks. Assessed at baseline and at 4 weeks. Outcome measures included pain intensity and shoulder Range of Motion (ROM).

**Results:** The experimental group demonstrated statistically superior improvements across all clinical parameters compared to the control group. Following the intervention, NPRS scores in the Experimental Group decreased from 7.58±0.5 to 2.35±0.69 (p=0.001), while the Control Group showed a minor reduction from 7±0.8 to 4,73±0.96 (p=0.04). Range of motion (ROM) in the Experimental Group also showed highly significant gains (p=0.001), with flexion increasing from 121.15°±1.67 to 166.27°±2.75, abduction increasing from 109.08°±1.72 to 154.5°±2.53, external rotation increasing from 45.46°±0.95 to 68.27°±1.56, and internal rotation increasing from 46.1±1.8 to 65.08±1.9.

**Conclusion:** The results of this pilot study indicate that the integration of DN with conventional physiotherapy is significantly more effective than physiotherapy alone in treating overhead athletes with supraspinatus tendinitis. The experimental group achieved superior outcomes in pain reduction and joint mobility. These findings suggest that addressing compensatory myofascial trigger points through dry needling can accelerate the rehabilitation process and improve overall shoulder performance in this population.

**Keywords:** Dry needling, Overhead athletes, Shoulder rehabilitation, Supraspinatus tendonitis, Trigger point.

**PARTICULARS OF CONTRIBUTORS:**
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Alpine Physiotherapy Clinic, Sector-12, Noida, Uttar Pradesh, India.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in