

# Effects of Mobilization with Movement on Shoulder Pain and Range of Motion among the Patients with Shoulder Impingement Syndrome

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**Abstract:** *Background of the study:* Shoulder impingement syndrome, the most common diagnosis of shoulder dysfunction, is often described as shoulder pain exacerbated by overhead activities. The most common symptoms in impingement syndrome are pain, weakness and a restricted movement at the affected shoulder. Various physiotherapy approaches are available to treat the patients with shoulder impingement syndrome. This study was an attempt to find an effects of mobilization with movement on shoulder pain and range of motion among shoulder impingement syndrome patients. *Objective of the study:* The objective of the study was to find the effects of mobilization with movement on shoulder pain and range of motion in shoulder impingement syndrome patients. *Methodology:* 20 patients with shoulder impingement syndrome were selected based on the inclusion and exclusion criteria. They were treated with mobilization with movement technique. The pain was measured by VAS scale and range of motion of shoulder internal rotation and horizontal adduction is measured by goniometer. *Conclusion:* Mobilization with movement technique shows significant reduction in shoulder pain and increased range of motion in shoulder impingement syndrome patients.

**Keywords:** Shoulder Impingement syndrome, Mobilization with movement, Visual analogue scale, Goniometer.

## 1. Introduction

Shoulder pain is the second most common problem of the musculoskeletal system affecting approximately 16-21% of the population (1). The most frequent cause of shoulder pain is Shoulder impingement syndrome accounting for 44-60% of all complaints of shoulder pain (2). This syndrome occurs when the tendons of the rotator cuff impinge under the coracoacromial arch. Most commonly supraspinatus or infraspinatus tendons are impinged. The syndrome can be caused due to some factors like imbalance of the rotator cuff muscles, weakness of scapular muscles, pathology in tendon or varied shape of the acromion process (3). Impingement syndrome often restricts the shoulder motion and interferes with the patient's ability to perform daily activities (4). Studies have found that individuals with shoulder impingement often have a tight posterior capsule resulting in altered glenohumeral arthrokinematics and a decrease in glenohumeral internal rotation range of motion (5). Mobilization with movement is a widely used manual therapy technique given by Brian Mulligan, which is beneficial in reducing pain and improving functional independence (6). The purpose of the study is to find the effects of mobilization with movement on shoulder pain and range of motion among shoulder impingement syndrome patients.

## 2. Methodology

Review Board of Kanyakumari Medical Mission, C. S. I Hospital has approved this two group pre and post-test experimental study and a written consent was obtained from the participants after giving clear instructions regarding the treatment procedure and its implications. The study was conducted in Physiotherapy outpatient department,

Kanyakumari Medical Mission C. S. I Hospital, Neyyoor, Kanyakumari, Tamil Nadu, India.

Twenty Shoulder Impingement syndrome patients age between 20 to 30 were selected for the study and treated with mobilization with movement technique. The therapist stood behind the patient on the opposite side to the affected shoulder. One hand was placed over the scapula and another hand was placed over the anterior aspect of the head of the humerus. A sustained posterolateral glide was then applied to the head of the humerus, while the patient was asked to simultaneously elevate the affected arm into abduction till the point of perceived pain. Three sets of ten repetitions were given with rest period of 30 seconds between each set. The treatment was given daily once, for six days (7). Pain and shoulder internal rotation and horizontal adduction range of motion was measured before and after intervention by visual analogue scale and goniometer.



Figure 1: Mobilization with movement technique

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### 3. Data Analysis and Results

The study aims to find the effects of mobilization with movement on shoulder pain and range of motion in the management of shoulder impingement syndrome patients.

**Table 1:** Mean value, Mean Difference, Standard deviation and Paired 't' value of Pain, Shoulder internal rotation and horizontal adduction among Shoulder Impingement Syndrome patients.

	Pre-test	Post-test	Mean Difference	Standard deviation	Paired 't' value
Pain	6.85	3.45	3.4	1.04	14.52*
Shoulder internal rotation	37.8	46.35	8.55	1.31	29.27*
Shoulder horizontal adduction	14.95	22.85	7.9	1.25	28.21*

0.005 level of significance

In subjects for pain, shoulder internal rotation and horizontal adduction range the calculated paired 't' values are 14.52, 29.27 and 28.21 respectively and the 't' table value is 3.250 at 0.005 level. Since all the calculated 't' values are more than the 't' table value, there is significant difference between pre and post test scores of pain, Shoulder internal rotation and horizontal adduction range of motion following mobilization with movement among shoulder impingement syndrome patients.

### 4. Discussion

Result of the present study shows that there is a significant reduction in pain and improvement in shoulder range of motion following mobilization with movement technique among shoulder impingement syndrome patients.

Mobilization with movement allays pain by activating the analgesic descending pathway of the central nervous system such as endorphins (8). Apart from acting through pain gate mechanism, mobilization with movement also alleviates pain and improves range of motion by reversing the positional fault or the mal-tracking precipitated by an injury or strain (9).

### 5. Conclusion

There is significant reduction in shoulder pain and improvement in shoulder internal rotation and horizontal adduction range of motion following six days of mobilization with movement technique in shoulder impingement syndrome patients.

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