

Taping With Active Exercises Versus Active Exercise Alone In Management Of Shoulder Impingement Syndrome Subjects

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Abstract

Introduction

Background of study: Shoulder problems are common complaint of the musculoskeletal system. Of all the shoulder problems shoulder impingement syndrome is one of the common. Significant advances in the area of anatomy and biomechanics of human shoulder has led to the identification of different types of impingement. Primary impingement is due to compression of the rotator cuff tendons between the humeral head and the overlying anterior third of acromion, coracoacromial ligament, coracoids or acromioclavicular joint. Impingement can also be secondary to underlying instability of glenohumeral joint. Attenuation of static and dynamic stabilizers of the glenohumeral joint, due to the excessive order during throwing or overhead activities can lead to anterior instability of the glenohumeral joint. Due to increased humeral head translation, the biceps tendon and rotator cuff can become impinged secondary to the ensuing instability. One more type of impingement in overhead athletes is termed as internal impingement and is due to repetitive impingement of undersurface of rotator cuff.

Treatment of shoulder impingement symptoms commonly includes exercises at first instance. The exercises are given for neuromuscular control and strengthening. Rotator cuff concentric/ eccentric strength training and strengthening scapular stabilizers are routinely incorporated in active strategies. Additionally, scapular motor control training; resistance training program for trapezius and serratus anterior; manual scapular upward rotation and stretching of tight musculature (levator scapulae, rhomboids and pectoralis minor) are incorporated in active management strategies. Upper quadrant postural awareness plays a vital role in maintenance of the scapular position. Taping has been seen as an adjuvant treatment in SIS. Taping promotes proximal stability of scapula and controls the scapula

movement allowing the movement of humerus without pain during arm elevation and holds the scapula in proper position. Taping decreases the activity of upper fibers of trapezius and gives constant inputs to proprioceptive system of upper trapezius muscle activity. It improves the activity of lower trapezius fibers between 60 - 30 degrees of lowering phase of scaption and also increases posterior tilting. It increases shoulder range of motion and reduces pain and discomfort. Taping promotes passive support to the scapula in maintenance of ideal position, however, long term effects only due to taping have not been cited in literature. Active training of muscles with taping of scapula may enhance the motor control of scapula during active movements. This study aims to study the effect of taping of scapula and incorporating active exercises to improve the symptoms in shoulder impingement syndrome subjects.

Objectives of the study

- To determine the effects of taping with active exercises on shoulder function and pain in shoulder impingement syndrome subjects.
- To determine the effects of active exercises only on shoulder function and pain in shoulder impingement syndrome subjects.
- To compare the effects of two interventions on shoulder function and pain in the SIS subjects.

Methods: PARTICIPANTS in this quasi randomized study the subjects were recruited from outpatient department of HOSMAT hospital. The subjects referred to the physiotherapy department with diagnosis SIS were screened for inclusion-exclusion criteria. The participants were recruited from physiotherapy department of Hosmat hospital. The inclusion criteria for selection was, Age group- above 18 years, Sex- male/female, Shoulder impingement symptom lasting for

more than 1 (one) Month, Unilateral pain and painful arm, Positive for Hawkin Kennedy test and Neer's test, Asymmetry in scapular control (dyskinesia) – Lateral scapular slide test positive.

And the patients with conditions like Cervical or thoracic spine involvement,

- Stiff shoulder
- Calcific tendinitis confirmed by radiography
- Rheumatoid arthritis,
- polyarthritis or any degenerative joint disease in shoulder
- History of dislocation and surgery in shoulder or spine
- Any neurological deficit
- Complete rotator cuff tear
- Gleno-humeral joint instability determined by positive sulcus sign or positive load and shift test were excluded from the study

The subjects who qualified for the trial were explained the aim and objective of study. The subjects were requested to sign the consent form. The subjects were measured for their baseline outcome measures and then randomized into one of the two groups.

Randomization was done by coin toss method. Head of the coin represented Group A and tail represented Group B. The consecutive subjects were allocated into the other group, to minimize sample

size bias. The subjects were intervened, as follows.

- Group A – Taping with active exercises
- Group B – Active exercises only

The subjects were treated for 1 month duration and final outcome measures were measured at 4-week duration.

The primary outcome measures which were used for our study: Shoulder disability questionnaire (SDQ) and Visual analogue scale (VAS).

A total of thirty patients were diagnosed with shoulder impingement syndrome. Among which 27 (F=11(40.7%) M=16(59.3%)) stayed were assigned to one of two treatment groups. 15 subjects in group A were treated with

exercises along with some conventional pain modality (US or IFT). Subjects in group B (12) were treated with exercises along with the taping. Taping was done once a week. The active exercises included flexibility exercises, scapular muscle training exercises for upper trapezius, middle trapezius and serratus anterior. The other exercises included shoulder musculature and rotator cuff strengthening exercises. Resistance was given by using theraband or dumbbells.

Results:

Within group comparison was done using paired t-test and between groups comparison was done using independent t- test with p – values matched at less than 0.001.

There was significant improvement in SDQ and VAS in both groups. In group A SDQ improved from 59.53 ± 13.87 to 18.87 ± 15.32 and VAS decreased from 6.27 ± 1.44 to 2.00 ± 1.56 . And in group B SDQ improved from 62.70 ± 19.47 to 23.05 ± 19.33 and VAS score decreased from 6.75 ± 1.71 to 1.92 ± 1.62 .

There was some improvement in ROM scores of shoulder flexion abduction and scaption in both the groups but that was not a significant.

The study to our knowledge is the first one which compares the effect of taping along with exercise with exercise treatment only. Our findings suggest that both the approaches showed clinically important beneficial effects on self reported disability. The improvements were also accompanied by the improvements in pain during movements. But neither of the approaches was superior to the other.

Our results are also in agreement with the study of F. Struyf., et al. They assessed the patients with shoulder impingement syndrome who participated in muscle strengthening exercises focusing on scapula. The patients showed improvement in SDQ and VAS score. In our study, the improvement in SDQ and VAS is both clinically and statistically significant. But there is no significant contrasting between the two groups.

Conclusion

In conclusion there is promising evidence for efficacy of exercise treatment along with taping and other pain modalities in treatment of shoulder impingement syndrome. And it should be the choice of treatment in primary health care. However, when determine exercise along taping with exercises along with other

pain modality. There is no such difference that one treatment option is better than second.