

EFFECT OF TAPING IN SUBJECTS WITH SUPRASPINATUS TENDONITIS

Samreena Shamim¹, Khurram Hamidi², Syeda Farhat Fatima Rizvi³, Dr. Zuhaira Faruqui⁴,
Muhammad Usman Khan⁵ and Jharna Devi⁶

¹STUDENT, Email: sam-reena@hotmail.com

²Asst. Manager physiotherapy, Ziauddin Hospital Clifton, Email: khurram_hamidi74@hotmail.com

³Asst. Admin Manager physiotherapy, Ziauddin Hospital Clifton

⁴Senior Physiotherapist, Ziauddin Hospital Clifton

⁵Asst. Professor, College of physiotherapy, Ziauddin University, Email: m_khanusman@hotmail.com

⁶Manager physiotherapy, Ziauddin Hospital Clifton, Email: jdodani@gmail.com

Abstract

OBJECTIVE:

To study the effects of taping and general exercise therapy in subjects with supraspinatus in relations of strength, functional activities and pain.

Study design: *Randomized Control Trial*

Source of Data: *Study was conducted in Physiotherapy OPD in Ziauddin Hospital, Clifton.*

Duration of study: *06 months.*

Sampling Technique: *random sample technique*

Sampling Methods: *Subjects was randomly allocated into two groups i.e. group A and group B.*

Group A: *taping*

Group B: *exercise*

All patients was examined beforehand and afterward the treatment and then evaluate the findings. Pain intensity were be measured by Visual Analog Scale and Physical Function outcomes was measured by MASES (The .Modified .American .shoulder and .elbow .surgery (MASES) score.

Result: *Group A: The result shows that the mean pain score of VAS before treatment 5.88 ± 1.130 , but after treatment VAS score were decreased and intensity of pain was 1.80 ± 1.041 . P-value 0.006. Frequency of pain score is mentioned in Table 3.*

Group B: it has been observed that mean pain score of VAS before treatment was 6.56 ± 1.446 and after treatment it was decreased and new value 2.72 ± 1.208 . P -value=0.006. Table 03 present group B values.

Conclusion: This study supported the taping as a useful technique for relieving pain and improving strength in subject with supraspinatus tendonitis. It also revealed that taping is more effective in reducing pain in comparison with exercise therapy. This evidence will promote a more efficient treatment option for the management of supraspinatus tendonitis.

Key words: exercises therapy, supraspinatus tendonitis, shoulder impingement syndrome, rehabilitation.

Introduction

Shoulder is ranked as the second commonly occurring musculoskeletal disorder¹ among the population with point prevalence of 6.9% to 26% and life time prevalence up to 67%.² Shoulder pain costs so high in the society and last for longer duration up to months.³

A great number of patients i.e. 44-74% having shoulder pain actually suffer with subacromial pain.⁴ Which is referred as the pain caused by sub-acromial space structures. Various terms are given to the pain caused by supraspinatus tendonitis, namely subacromial impingement syndrome, subacromial bursitis, rotator cuff tendinopathy, rotator cuff syndrome and supraspinus tendinosis. The conditions diagnosed with a variety of labels that suggests uncertainty about the pathogenesis.⁵

Most frequently used label is sub acromial impingement syndrome for the pain arising from sub acromial bursa and the rotator cuff muscles.⁶

Structures like rotator cuff tendon and subacromial bursa are impinged between the head of humerus and acromian process (usually in overhead activity causes the pain which is referred in literature as subacromial impingement syndrome. Since sub-acromial space is limited, inferiorly by the head of humerus and superiorly by coraco-acromial arch and structures like rotator cuff tendon and sub-acromial bursa are present in this narrow space. Therefore, in overhead activities of arm this structures (* subacromial bursa and rotator cuff tendon) are more prone to be impinged.

Instead of being a single medical diagnosis this impingement may act as a consequence or cause for a number of rotator cuff disorder which include full thickness rupture of rotator cuff to the rotator cuff tendinopathy.

The primary recommended management of subacromial impingement syndrome focus on non-surgical technique and exercise.

Arthroscopic subacromial decompression surgery is recommended when the non-surgical intervention fails to meet desired results. Evidence based pre and post-operative treatment are still needed which standardize and describe the detailed guidelines for these patients in clinical practice.

Since the cause of subacromial pain based upon multiple factors, it is challenging task to find out optimal treatment plan for the patients. Exercises are recommended as the first alternative treatment intervention. A number of systemic reviews have reported that exercise therapy is very effective in improving shoulder mobility as well as in decreasing the intensity of pain among subacromial syndrome patients.

Exercise programs varies considerably and not potently described in detailed. Moreover, this variety of programs and different methodologies makes it difficult to conclude evidence based proper treatment. However, it requires several steps to develop such an evidence based exercise technique or program for clinical practice. To begin with, there is need of quality design to evaluate specific

strategies in detail contents, dosage and proportion in order to guide treatment for the patients with sub acromial pain. The recommended exercise plan includes endurance and resistive movements of supraspinatus and scapular stabilizers, and also focuses on flexibility of posterior shoulder and pectoralis minor. The idea behind it, is to stabilize caput humeri in glenoid cavity to correct scapular kinematics so that impingement is avoided and subacromial structures could be healed. The same concept provides basis for pre and post-operative exercise protocol for subacromial pain.

The aim of this research was to find out the effectiveness of taping and exercise program in the management of supraspinatus pain.

Strain in supraspinatus muscle or spasm in muscle is most of the time caused by repetitive movement or overuse of the shoulder and arm, usually in activities such as serving a tennis ball or reaching to put objects on a high shelf. Prolong computer users may also suffer from this pain.¹

Supraspinatus tendon lies just between acromion and humeral head. Repetitive movement some injuries or wargus overhead activities causes inflammation of tendon.²

Supraspinatus pain perspective agony will be regularly veiled by the ache from muscle focuses over the shoulder, trapezius, and infraspinatus muscles. It normally gets clear just after these other pain have been release.³

Activation of pain may takes place during muscular trauma or overload poor postures and positions. Chilling of a muscle and even emotional stress.^{7,8}

When pain is caused by a tendonitis at rest it is said to be severe condition. On palpation it is warm having a referred pain which is similar to one another to the patient's pain complaint.⁹

Referred pain is felt wide outside the locality of muscle origin. The soreness is often described as spreading or radiating.¹⁰

On assessment, tendonitis reported tenderness on antero-medial aspect. Diagnosis is on patients past history and objective assessment.¹⁴ Patient usually complain of pain, with initial few movements after rest than intensity is settle down gradually. Associated parenthesis is uncommon. Before come to the confirm diagnosis additional sources of pain are typically noticeable on the basis of medical record and objective examination.

Presently, no particular treatment has been found effective for the treatment of supraspinitis tendonitis. Now a day's many interventions are used including Electro physical agents. manual therapy, Stretching' Taping' Steroid injections, Surgery'

Ultrasound were be well-designed within these values: frequency of ultra sound is 1MHZ, continues mode, $2\text{w}/\text{cm}^2$ power' applied on supraspinatus for three minutes. the instrument transducer headstock continue stable, moved for few seconds, once pain or discomfort was informed, in demand to achieve waves of US concentration, hance reaching a focal application without produce unwanted effect on adjacent muscle.

The potency of this research work is supported in its unique features, randomized plan plus continuing follow-up accessible at 6months. Additionally, accurate participant insertion criterion was used. If participants do not show the typical warning signs of supraspinatus, as well as soreness amid the preliminary movement in the sunrise, they were excluded as from the research project. Additionally, participants amid constant indications intended for as a minimum 10 months be deliberately selected toward decrease outcome of a usual progress depending on the time, this is frequently noted in persons with acute supraspinatus tendonitis. Until now research limitations do survive. At this point slow destruction rates of approximately 20% at the four-week study phase plus another time at the one-year

transcribe assessment. This might have lead to modify outcomes. Another limitation is that the best point to accomplish effective stretch of supraspinatus is not approved.

Objectives:

1. To study the effect of Taping in subjects with supraspinatus tendonitis in terms of pain
2. To study the effect of Taping in subjects with supraspinatus tendonitis in terms of ADLs.

HYPOTHESIS:

There was no significant difference between the effectiveness of Taping and exercises for improving pain, strength and functional activities in subjects of supraspinatus tendonitis.

Alternate hypothesis H_a:

There was significant difference between the effectiveness of Taping and Exercises for improving pain, strength and functional activities in subjects of supraspinatus tendonitis.

OPERATIONAL DEFINITION:

MASES (American .shoulder and elbow .surgery)

The modified American Shoulder and Elbow Surgeon's (M-ASES) questionnaire is purported to be a non-region specific functional measure of the entire upper extremity. The M-ASES should be considered an excellent tool for measure of whole upper extremity dysfunction.

METHODOLOGY

Study design:

Randomized Control Trial

Source of Data:

Study was conducted in ziauddin hospital, physiotherapy department, Clifton.

Duration of study:

06 months

Sampling Technique:

Simple random sampling.

Sampling Methods:

Subjects was randomly allocated into two groups i.e. group A and group B.

Group A: taping

Group B: exercises

Sample Size:

There was 50 sample size that were divided into 25 participants in each group, estimated a priority, was depends upon the capability to perceive a least imperative difference on the Pain Scale between groups. We conventionally disregard the further accuracy supplied by the covariate examination while estimate sample size between-participants by using a continuous product we were needed to search for evidence that provides the Independent researchers performed data entry to group allocation. Mean and standard deviations of the outcome in both groups were taken. The difference between the two mean values and their particular variances states our evidence-based measure of effect which in turn leads to more accurate and perfect measures of effect.

An independent sample t-test was applied to found but some differentiation among grouping in the time period which was given to them with results and record times. Product information was evaluated by objective to manage and according to a pre-scheduled procedure. The results investigated to alter in pain (VAS Pain Scale), (pain disability index Questionnaire). We predict that the end results would be employed as the simply shown in investigation.

Inclusion Criteria:

1. Both male and female between 30 to 60 years of age.
2. Pain with 1 of the following positive tests: Neer impingement sign, Hawkins-Kennedy impingement test.

Exclusion Criteria:

1. History of previous surgeries or fracture at the shoulder joint.
3. Hypermobilityjoints.
4. Sensitive skin.
5. A recent steroid injection during last 3 months.

Data Collection Tool:

The M.A.S.E.S (Modifies American shoulder and elbow surgery SCORE)

Data Collection Procedure:

Group A and Group B.

Both groups were receiving the selected treatment for 1 session per day for 10 days continuously.

Data analysis procedure:

Data were entered in version 20 SPSS. Frequencies and percentages were taken out for all categorical variables. *P*-value less than 0.5 were considered significant.

Result:

During the 6 months' record assessment, whole statistics sets were attained from 50 participants (Group A and Group B consist of 25 members), Group A was managed with the kinesio taping, icepack and ultrasound, and Group B was directed by the stretching treatment plan. Notice the negative worth's replicate a decrease in pain scale results for every subject review. Subsequent achievement of the stretching course in all participants by 4 weeks, major progress in the pain scale was note down. This was examined from VAS Pain scale and the pain disability Index. The style of progress persist, and at the 6months transcribe stretching, icepack, ultrasound group had overall amounts of pain reduction compared with the kinesio taping, ice pack and ultrasound group. essentially, compare the effects at the four-week record.

30 individuals are male and 20 are female participant [mean age 37.62 year SD 7.44 (range 20-50 year)] were assigned. (Table 1).

Table 1

	Frequency	Percent
male	30	60%
female	20	40%
total	50	100%

Reassessment of all patients was done after the completion of treatment sessions. patients were divided into two groups, 25 patients in each group. (Table 2).

Table 2

	Frequency	Percent
Taping+Ex	25	50%
Exercise	25	50%
total	50	100%

Group A: The result shows that the mean pain score of VAS before treatment 5.88 ± 1.130 , but after treatment VAS score were decreased and intensity of pain was 1.80 ± 1.041 . P-value 0.006. Frequency of pain score is mentioned in Table 3.

Group B: it has been observed that mean pain score of VAS before treatment was 6.56 ± 1.446 and after treatment it was decreased and new value 2.72 ± 1.208 . P-value=0.006. Table 03 present group B values.

Table 3 VAS

	Group A BEFORE	Group A AFTER	Group B BEFORE	Group B AFTER
MEAN	5.88	1.80	6.56	2.72
SD	1.130	1.041	1.446	1.208
P-value	0.006		0.006	

Discussion:

This is the first randomized control trial to compare taping and stretching technique for supraspinatus pain. The difference between pre-and post-treatment is shown on Visual Analogue Scale and pain disability index scale the result for participants with supraspinatus has been calculated and is classically helpful. The huge prevalence, around 90%, contain declaration of the warning signs within ten months.^[26] Stretching exercises, while essential to the majority of treatment practices, have seldom been assessed in segregation or else for their long-standing settlement. In assessing the facts from the latest research study, in addition to initial clinical examination, we note down generally positive reaction to the supraspinatus pain stretch. We consider as to pain scale at the four-week transcribe assessment each group proved major improvement as of baseline favorable of the group deal with the taping program. At four weeks, every participant is specified the taping procedure and progress persist. At 6 months transcribe estimation; these modifications from baseline were important for every group. The potency of this research work is supported in its unique features, randomized plan plus

continuing follow-up accessible at 6months. Additionally, accurate participant insertion criterion was used. If participants do not show the typical warning signs of supraspinatus, as well as soreness amid the preliminary movement in the sunrise, they were excluded as from the research project. Additionally, participants amid constant indications intended for as a minimum 10 months be deliberately selected toward decrease outcome of a usual progress depending on the time, this is frequently noted in persons with acute supraspinatus tendonitis. Until now research limitations do survive. At this point slow destruction rates of approximately 20% at the four-week study phase plus another time at the one-year transcribe assessment. This might have lead to modify outcomes. Another limitation is that the best point to accomplish effective stretch of supraspinatus is not approved. Advance studies are required to establish most favorable shoulder patterns that will more purify the supraspinatus-precise stretch. In support of participants with chronic inflammation of supraspinatus tendon, this research project supports the worth of taping technique procedure. We think that it is a vital element of management, better than the conventional stretching of tendon. These consequences offer us amid an effectual, economical plus uncomplicated management procedure intended for management of persistent inflammation of supraspinatus tendon moreover it demonstrate that taping produces statistically helpful effect on pain in contrast with kinesio taping.

Numerous systematic reviews have shown that exercise treatment is very-effective in improving-shoulder function, mobility and decreasing shoulder ache with the individual who have sub-acromial pain.¹ Different exercise strategies have proved to be as active as surgical procedure at short- and long-term follow-ups and manual therapy in addition to exercises is more effective than exercises alone.² The components included in these exercise programs vary considerably and are seldom described in detail. Furthermore, the great variety of exercise protocols used and methodological concerns make it difficult to compare and conclude into evidence-based recommendations. Developing such an evidence-based, exercise program to recommend in clinical practice requires several steps. To start with there is a need for well-designed studies evaluating specific strategies described in detail considering content, dosage and progression to guide treatment for patients with sub-acromial pain.³ In the literature endurance and strengthening exercises for the rotator cuff muscles and scapula stabilizers along with flexibility exercises focusing on the posterior shoulder and the pectoralis minor muscle are recommended.⁴ The underlying idea is to improve stabilisation of the caput humeri into the glenoid fossa and normalise the altered scapular kinematics to avoid impingement and allow healing of the sub-acromial structures. Pre- and postoperative exercise treatments for persistent with sub-acromial ache are built on the same concept of effect mechanisms. Supraspinatus taping is a communal technique to support relieve the signs of shoulder pain. Taping is frequently being used to provide support and decrease level of stress on supraspinus tendon to reduce pain at shoulder joint and to prevent further damage, and other ailments related to painful condition. When the muscle is taped properly, the shoulder movement becomes limited. By limiting the shoulder movement, it becomes a way to keep the tendon from moving abnormally or stretching excessively and thus preventing tears from developing in the tissue.

Conclusion: This study supported the taping as a useful technique for relieving pain and improving strength in subject with supraspinatus tendonitis. It also revealed that taping is more effective in reducing pain in comparison with exercise therapy. This evidence will promote a more efficient treatment option for the management of supraspinatus tendonitis.

Ethical Consideration:

Privacy of patient, his/her hygiene factor and the relationship between patient, therapist and the environment of the place where we treat our patients were brought to the consideration.

REFERENCES:

1. B Brotzman, K E. Wilk, Clinical Orthopedics Rehabilitation, 1996; 2nd ed, Mosby.
2. Stasinopoulos D Stasinopoulos I Comparison of effects of cyriax physiotherapy a supervised exercise programed and polarized poly chromatic on –coherent light (Biooptron liight) for the treatment of lateral epicondylitis. Clin, Rehab. 2006; 20: 1223.
3. John Low, Ann Reed, Electrotherapy Explained, principles and practice. 3rd ed, 2000, Butterworth Heinemann.
4. O’Sullivan SB. Sschmitz TJ. Physical Rehabilitation: Assessment and Treatment. 5thEdn. Jaypee Brothers: New Delhi 2001: 316,825,937
5. Stratford, LevyD, GowlandC: Evaluative properties of measures used to assess patients with lateral epicondylitis at the elbow. Physiotherapy, Canada; 1993; 45, 160-164.
6. Ng GYF, Fan ACC. Does elbow position affect strength and reproducibility of power grip measurements, Physiotherapy. 2001; 87(2):pg 68-72
7. HBLEungCH Yen, PYT Tse, Reliability of HongKong Chinese version of the Patient-rated Forearm Evaluation Questionnaire for lateral epicondylitis, Hong Kong Med J Vol 10 No June 2004; 172-177.
8. Joy C. MacDermid. Patient Rated Tennis Elbow Evolution (PRTE), User manual dec2007.
9. De Bruijin R. Dep (1984) transverse friction: it’s analgesic effect. Intt jJ Sports Med 5: 35-36
10. StasinopoulosD, JohnsonMI (2004) Cyriax physiotherapy for tennis elbow/ lateral epicondylitis. Br J Sports Med 38: 675-677.
11. A Binder, GHodge. Is therapeutic ultrasound effective in treating soft tissue lesions. Br Medical Journal. 1985; 290:512-514
12. Gerold R, Ebenbichler, Celal b.E. ultrasound therapy for calcific tendinitis of the shoulder. The New England journal of medicine. Vol 340(20), 1999; 1533-1538.
13. Tim Noteboom, Rob Cruver, Tennis Elbow: A Review, JOSPT June 1994; Volume 19 Number 6.
14. Manias Stasinopoulos, A controlled clinical pilot trial to study the effectiveness of exercise as a supplement to the exercise program for the management of lateral elbow tendinopathy Br. J sports med 2006 Jan, 40(1):

15. Sodeirberg J, Grootein WJ, Ang BO, Effects of eccentric training on hand strength in subjects with lateral epicondylitis: a randomized-controlled trial, *Scan. J. sci. sport*, 2011
16. Soderberg J, Grooten W.J Ang B.O, Effects of eccentric training on hand strength in subjects with lateral epicondylitis: a randomized controlled trial, *Scan. J. sci. sport*, 2011.
17. Picavet HS, Schouten JS. Musculoskeletal pain in the Netherlands: prevalence, consequences and risk groups, the DMC(3)-study. *Pain* 2003;102:167- 178.
18. Luime J, Koes BW, Hendriksen IJ, Burodorff A, Verrhagen AP, Miedema HS, et al. prevalence and incidence of shoulder pain in the general population: a systematic review. *Scand. J. Rheumatol.* 2004;33:73-81.
19. Nygren A, Berglund A, von Korch M. Neck- & shoulder syndrome, an increasing problem. Strategies for using insurance material to follow trends. *Scand. J. Rehabil. Med. Suppl.* 1995;32:107-112.
20. Ostor AJ, Richards CA, Prevost AT, Speed CA, Hazleman BL. Diagnosis and relations to general health of shoulder disorder presenting to primary care. *Rheumatology (Oxford)* 2005;44:800-805.
21. Pribicevic M, Pollard H, Bonerlo R. An epidemiology survey of shoulder pain in chiropractic's practice in Austria. *J. Manipulation Physiotherapy.* 2009;32:107-117.
22. Michener LA, McCrae PW, Kardunna AR. Anatomically and biomechanical mechanism of sub-acromial impingement syndromes. *Clin. Biomech. (Bristol, Avon)* 2003;18:369-379.
23. Brossmann J, Preidler KW, Peadowitz RA, White LM, Trudel D, Reznick D. Shoulders impingement syndromes: influences of shoulder positions on rotator cuff impingement--an anatomic study. *AJR Am. J. Roentgenol.* 1996;167:1511-1515.
24. Hanratty CE, McVeigh JG, Kerr DP, Basford JR, Finch MB, Pendleton A, et al. The effectiveness of physiotherapy exercises in sub acromial impingement syndrome: a systematic review and meta-analysis. *Semin. Arthritis Rheum.* 2012;42:297-316.
25. Green S, Buchbinder R, Hettick S. Physiotherapy interventions for shoulder pain. *Cochrane Database Syst Rev.* 2003;(2):CD004258.
26. Kromer TO, Tautenhahn UG, de Beie RA, Staal JB, Bastiaenen CH. Effects of physiotherapy in patients with shoulder impingement syndrome: a systematic review of the literature. *J. Rehabil. Med.* 2009;41:870-880.
27. Senbursa G, Baltaci G, Atay A. Comparison of conservative treatment with and without manual physical therapy for patients with shoulder impingement syndrome: a prospective, randomized clinical trial. *Knee Surg. Sports Traumatol. Arthrosc.* 2007;15:915-921.

28. Hanratty CE, McVeigh JG, Kerr DP, Basford JR, Finch MB, Pendleton A, et al. The effectiveness of physiotherapy exercises in sub-acromial impingement syndrome: a systematic review and meta-analysis. *Semin. Arthritis Rheum.* 2012;42:297-316.
29. Cools AM, Declercq G, Cagne B, Cambier D, Witvrow E. Internal impingement in these tennis player: rehabilitations guidelines. *Br. Jo. Sport Medi.*2008;;42:165--171.
30. Kromer TO, Tautenhahn UG, de Bie RA, Staal JB, Bastiaenen CH. Effects of physiotherapy in patients with shoulder impingement syndrome: a systematic review of the literature. *J. Rehabil. Med.* 2009;41:870-880.
31. Senbursa G, Baltaci G, Atay A. Comparison of conservative treatment with and without manual physical therapy for patients with shoulder impingement syndrome: a prospective, randomized clinical trial. *Knee Surg. Sports Traumatol. Arthrosc.* 2007;15:915-921.
32. Hanraty CE, McVeigh JG, Kerr DP, Basford JR, Finch MB, Pendleton A, et al. The effectiveness of physiotherapy exercises in sub acromial impingement syndrome: a systematic review and meta-analysis. *Semin. Arthritis Rheum.* 2012;42:297-316.