



EFFECTIVENESS OF SPENCER TECHNIQUE ALONG WITH CONVENTIONAL THERAPY ON SCAPULAR MOBILITY IN STAGE II FROZEN SHOULDER PATIENT AN EXPERIMENTAL STUDY

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Abstract: the aim of study to see the effectiveness of spencer technique along with conventional therapy on scapular mobility in stage II frozen shoulder patients at the end of the 3 weeks

A total of 34 individual of unilateral frozen shoulder falling between age group 40-60 years were the subject population of this study

Lateral scapular slide test were used to compare the effectiveness of spencer technique along with conventional therapy, Lateral scapular slide test were assessed before and after intervention to evaluate scapular mobility all The participant had significant decrease in scapular dyskinesia hence spencer technique had significant effect on scapular mobility in stage II frozen shoulder patient

Index Terms: Spencer technique, Frozen shoulder, LSST, Scapular mobility

INTRODUCTION

Frozen shoulder is a condition characterized by painful, progressive and disabling loss of active and passive range of motion of glenohumeral joint in multiple planes.

Approximately 2% to 5% of people between age 40 to 60 develop adhesive capsulitis.

It is commonly classified as Primary if it occurs independent of other pathologies and Secondary if it occurs after trauma or is associated with another condition.

Frozen shoulder is characterized by the development of dense adhesions, capsular thickening, and capsular restrictions

Symptoms include deep dull aching pain around the shoulder and interactive night pain , progressive loss of active moments and passive movements. leading cause of upper limb disability involving activities of daily living mainly overhead activities

Adhesive capsulitis typically progresses through a series of stages

1. PAINFUL OR FREEZING STAGE
2. FROZEN OR STIFFNESS STAGE
3. THAWING OR RECOVERY STAGE

Spencer technique is a common osteopathic manipulative treatment that focuses on glenohumeral and scapulothoracic joint mobilization. It aids in the improvement of restricted joint function

Spencer technique is a 7-procedure articulatory approach for treating shoulder limitation caused by frozen shoulder.

NEED OF THE STUDY

Frozen shoulder also known as adhesive capsulitis is soft tissue disorder that causes pain, stiffness and progressive loss of active and passive range of motion in glenohumeral joint mobility

It can lead to compensatory movements and altered mechanics in scapulothoracic joint this contribute to scapular dyskinesis

There are scarcity of researches on effectiveness of spencer technique along with conventional therapy on scapular mobility in frozen shoulder patient

Therefore purpose of study was to assess effectiveness of spencer technique on scapular mobility in stage II frozen shoulder patient

RESEARCH METHODOLOGY

- **Study design** – Experimental study
- **Sample size** – 34
- **Sampling method** – Convenient Sampling
- **Study population** – Individual age group 40-60 years having stage II unilateral frozen shoulder
- **Study setting** – Outpatient physiotherapy in and around pune
- **Study duration** - 6 Months

CRITERIA

- **Inclusion criteria:**

Age -40-60 years

Both male and female

Stage II unilateral frozen shoulder patient

Condition present for more than 3 months

Controlled Diabetes

Positive lateral scapular slide test

Restriction in shoulder ROM

● **Exclusion criteria:**

Recent surgery of shoulder

Rotator cuff tear

Rheumatoid arthritis and gouty arthritis

Tumors of shoulder

Acute inflammation

Recent shoulder dislocation

Neurological deficits affecting shoulder function.

Pain or disorders of cervical spine, elbow, wrist or hand on affected side.

MATERIALS

Data collection sheet, Plinth, Pen, Wand, Towel, Measuring tape

OUTCOME MEASURES

Lateral Scapular Slide Test

The scapular position is measured by taking the side-to-side differences between both sides in all 3 test positions. The measurements are taken from the inferior angle of the scapulae to the spinous process of the thoracic vertebrae on the same horizontal plane.

The test is done in 3 positions. With the arm abducted to 0, 45 and 90 degrees in the coronal plane.

The test is positive when there is a difference of 1.5 cm when measurements are compared bilaterally.

PROCEDURE

Study was started with synopsis presentation in front of ethical committee in PES modern college of physiotherapy Pune and ethical clearance was obtained from committee.

Subjects was selected on the basis of inclusion and exclusion criteria., Subjects was divided into two groups A and B by odd – even chit method, Subjects was seated comfortably during which the study was explained to the individuals, consent was taken and assessment form was filled.

Subjects was assessed for Scapular mobility

Individuals belonging to group A treated with spencer technique along with conventional therapy and Individuals belonging to group B was given conventional protocol.

After 3 weeks Scapular mobility will be measured and data was analyzed.

TREATMENT PROTOCOL

1. SPENCER TECHNIQUE

Shoulder extension, circumduction with compression, shoulder flexion, circumduction with distraction, abduction, adduction with internal rotation, and glenohumeral pump were the exercises performed.

The patients were advised to employ their muscle energy technique against the small resistance provided by the therapist for 3–5 seconds throughout each movement Over the course of 5 weekly sessions for 3 weeks, the exercise was done 3 times with rest periods

2. CONVENTIONAL TREATMENT

1. Modality: hot pack (10 minutes)

2. Exercises:

Codman’s exercises

Scapular setting exercises shoulder shrugs, shoulder retraction

Isometric strengthening exercise of flexor, extensor, abductors, adductors, external rotators, internal rotators.

Active free exercises using wand.

Self stretching exercise –Wall stretch, Towel stretch

All the Exercises were performed for all movements namely flexion, extension and abduction-adduction, external and internal rotation.

One sets of each 10 repetitions within pain-free range. 5 session per week (total conventional treatment time is 30 minutes)

Data Analysis and Interpretation

The study included 34 participants

Paired t-test was used to compare the value of LSST before and after the treatment in group A and B

Unpaired t-test was used was used to compare the value of post LSST between group A and B

Various statistical measures such as mean standard deviation, test of significance were utilized to analyze the data the results were concluded to be statistically significant if p value is less than 0.05 the data was represented in both tabular and graphical format

Statistics

Gender distribution chart

Total	34	%
Female	19	56%
Male	15	44%

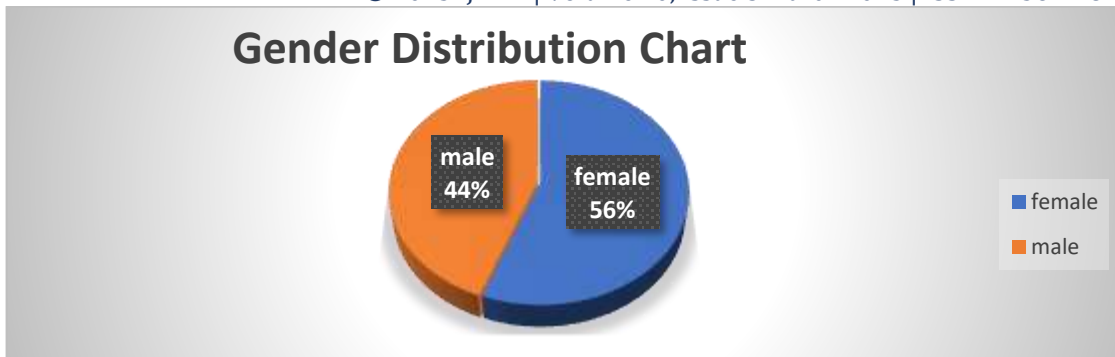
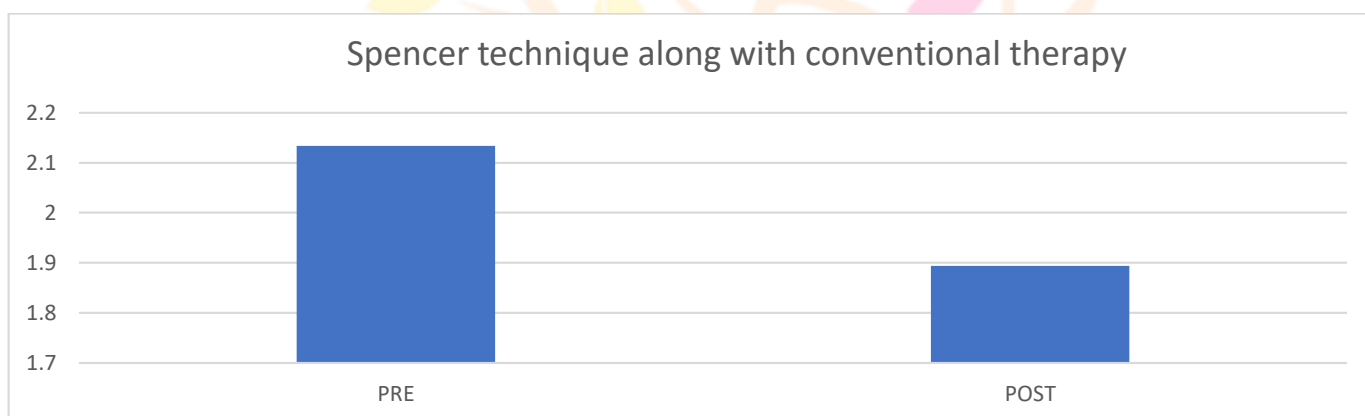


Table no.1 showing pre and post comparison of LSST for Spencer technique along with conventional therapy group A

LSST	mean	SD	t value	p value	result
PRE	2.13333333	0.542755316	3.082	0.0025515	significant
POST	1.89411765	0.52865596			

Table no.1

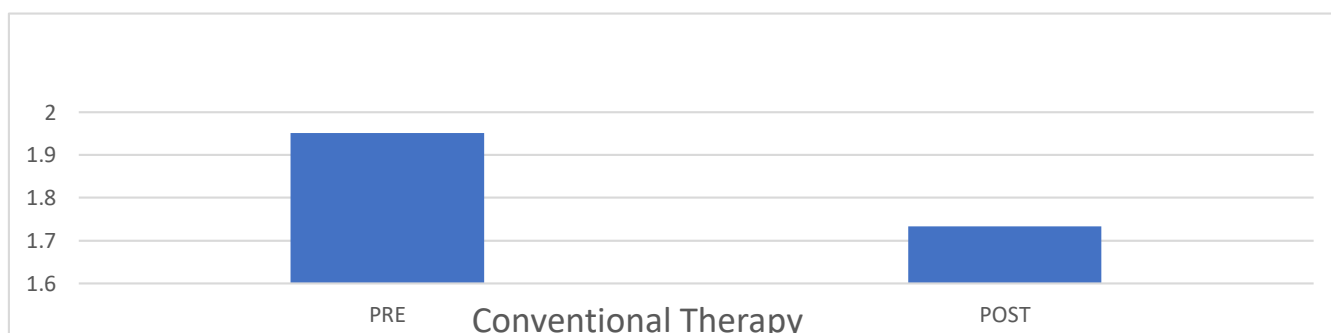


The result obtained for spencer technique along with conventional therapy to decrease the scapular dyskinesis in stage II frozen shoulder patient was measured by lateral scapular slide test suggest significance as p value was (<0.05) and t value was (3.082)

Table no.2 showing pre and post comparison of LSST for conventional protocol group B

LSST	mean	SD	t value	p value	result
PRE	1.95098039	0.423792016	3.15225	0.002155161	significant
POST	1.73333333	0.41866189			

Table no.2

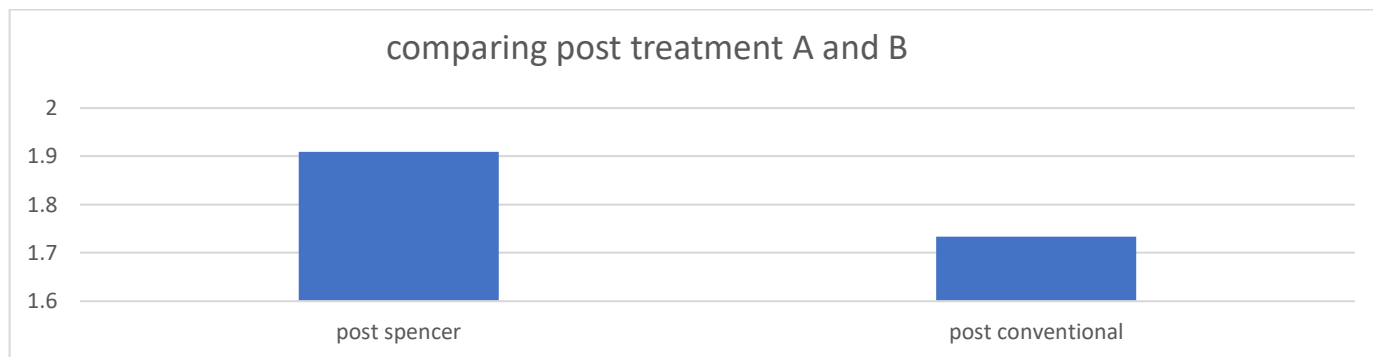


The result obtained for conventional therapy to decrease the scapular dyskinesis in stage II frozen shoulder patient was measured by lateral scapular slide test suggest significance as p value was (<0.05) and t value was (3.15225)

Table no.3 showing post spencer and post conventional comparison of LSST

LSST	mean	SD	t value	p value	result
post spencer	1.90883	0.52866	2.042272	0.02613	significant
post conventional	1.73333	0.4186619			

Table no.3



Result

34 participants are included in study

Paired t-test was used to compare the value of LSST before and after the treatment in group A and B

Unpaired t-test was used to compare the value of post LSST between group A and B

The p value obtained was 0.002 i.e significant in group A with pre treatment value **2.13 ± 0.54** and post value as **1.89 ± 0.52**

The group B before treatment was **1.95 ± 0.42** and post treatment value **1.73 ± 0.41** as the p value was i.e 0.002 significant for group

Comparison of of LSST value of A and B were analysed and mean of group A was **0.23 ± 0.014** while that group B was **0.21 ± 0.009**

The t value obtained was 3.082 and p value was p<0.05 indicating the value was more significant for group A

Discussion

The prevalence of scapular dyskinesia in patient with shoulder pain is 54.8%

Frozen shoulder also known as adhesive capsulitis is soft tissue disorder that causes pain, stiffness and progressive loss of active and passive range of motion in glenohumeral joint mobility , It can lead to compensatory movements and altered mechanics in scapulothoracic joint this contribute to scapular dyskinesis

Objective of current study to find out the effectiveness of spencer technique along with conventional therapy on scapular mobility in stage 2 frozen shoulder patients.

This study result shows that the spencer technique is effective on scapular mobility , Imbalance between the muscle that stabilize and move the scapula may contribute development of scapular dyskinesis

Laudner et al. have been identified both the muscles that surround the scapula and rotator cuff muscle as important factors in the development of altered scapular mechanics. [3]

In recent studies, especially the shortness/stiffness of the muscles around the scapula has been shown to be effective in the development of scapular dyskinesia. In a study, the stiffness of the latissimus dorsi has been reported to affect the rotation of the scapula and pull the scapula upward.[4]

Lopes et al. have stated the trapezius and the serratus anterior muscles have been linked to the development of scapular dyskinesia in shoulder instability. [5]

Recent study found statistically significant shortness and weakness were found in the pectoral, latissimus dorsi, and rhomboids muscles in the group with scapular dyskinesia.[6]

Spencer's method improves pain-free movement by stretching the capsule of the shoulder and constricted soft tissues, regaining specific joint mobility while reducing pain by modifying the circulatory pain biomarkers. This method enhances lymphatic flow away from the area of treatment. This technique restores the joint's normal range of motion and resets neural reflexes. The joint structure's nutrition, such as the capsule, glenoid labrum, articular surfaces, circulation, and lubrication, is improved by passive, repetitive translation movements, traction, or gliding. Arthokinematic glide and roll motion are regained, and the pathomechanical alterations in the joint are repaired. Increased accessory movement, such as gliding, promotes the recovery of shoulder mobility by allowing the osteokinematic glenohumeral rotation to return to normal biomechanics [7]

Spencer technique is useful for improving scapular mobility although the technique primarily targets the shoulder joint but it indirectly improve the scapular motion by enhancing the flexibility, strength and coordination of muscles around the shoulder joint including those control scapular movement such as the trapezius, serratus anterior , rhomboids and levator scapulae

In Spencer's technique, there are seven steps as follows: shoulder extension along with elbow flexion, shoulder flexion with elbow extension, circumduction with compression, circumduction with distraction, shoulder abduction and internal rotation with elbow flexion, shoulder adduction and external rotation with elbow flexion, stretching tissue and pumping fluids with the arm extended which mobilize the glenohumeral joint and scapulothoracic joint promoting improved shoulder mobility and scapular mobility

CONCLUSION

There is significant effect of spencer technique along with conventional therapy on scapular mobility in stage II frozen shoulder patient

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References

1. Chaitow L. Muscle energy technique. 4th ed. London: Churchill Livingstone Elsevier; 2013; P.-334.
2. Iqbal M, Riaz H, Ghous M, Masood K. Comparison of Spencer muscle energy technique and passive stretching in adhesive capsulitis: A single blind randomized control trial. J Pak Med Assoc. 2020;70(12(A)):2113-8. doi: 10.5455/JPMA.23971, PMID 33475581

3. Laudner KG, Williams JG. The relationship between latissimus dorsi stiffness and altered scapular kinematics among asymptomatic collegiate swimmers. *Phys Ther Sport* 2013;14(1):50–3. [\[CrossRef\]](#)
4. F, Roby-Brami A, Yazbeck C, Hanne-ton S, LefevreColau MM, Gautheron V, et al. Three-dimensional scapular kinematics and scapulohumeral rhythm in patients with glenohumeral osteoarthritis or frozen shoulder. *J Biomech* 2008;41(2):326–32. [\[CrossRef\]](#)
5. Lopes AD, Timmons MK, Grover M, Ciconelli RM, Michener LA. Visual scapular dyskinesia: Kinematics and muscle activity alterations in patients with subacromial impingement syndrome. *Arch Phys Med Rehabil* 2015;96(2):298–306. [\[CrossRef\]](#)
6. Gonca sađlam, Hilal Telli The prevalence of scapular dyskinesia in patients with back, neck, and shoulder pain and the effect of this combination on pain and muscle shortness
7. Phansopkar P, Qureshi MI An Integrated Physical Therapy Using Spencer’s Technique in the Rehabilitation of a Patient With a Frozen Shoulder: A Case Report
8. Phansopkar P, Qureshi MI Impact of Spencer Technique on Pain, Range of Motion, and Functional Disability in Patients With Frozen Shoulder: A Pilot Study
9. Jehaman. I, Berampu Sabirin. Benefits of giving manual therapy and Codman pendular exercise on functional activities of Frozen shoulder patients. *Jurnal Pengabdian Kepada Masyarakat* e ISSN: 2775-2437 Edisi Juni 2021. Vol. 1

