Immediate Effect of Spencer Technique Versus Conventional Physiotherapy on Pain an Range of Motion in Patients with Frozen Shoulder

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A B S T R A C T

Background: Spencer technique is a muscle energy technique which is also known as an osteopathic manual technique used to reduce joint stiffness and improve joint range of motion in shoulder injuries. It has beneficial impacts on other emotional, social, and cognitive domains in addition to enhancing the functionality of limited joints. According to clinical results, the spencer muscle energy approach is a more effective means of improving shoulder range of motion than traditional physical therapy. A distinctive feature of Spencer muscular energy therapy is the client's participation in the procedure. Two steps are repeated seven times in this technique. The first phase is to oscillate rhythmically at the end of the range that is accessible, and the second is to contract the antagonist muscle isometrically at various ranges in order to create a new barrier.

Methods: 98 patients of frozen shoulder were evaluated by using Visual Analogue Scale for pain and Universal Goniometer for range of motion.

Result: As the normality was violated, Wilcoxon test was used for within the group comparison whereas Man-Whitney was for between the group comparison. VAS score showed significant difference in within group comparison but when between group comparison was done $p<0.102$ which was not significant. During flexion, abduction and lateral rotation $p<0.001$ which was highly significant while extension and medial rotation $p<0.102$ which was not significant.

Conclusion: The study concluded that Spencer's technique is a superior intervention for improving shoulder mobility, while offering no additional advantage over conventional therapy in immediate pain reduction.

Key words: Frozen shoulder, Spencer technique, Conventional physiotherapy, Visual Analogue Scale, Universal Goniometer.

Introduction

Frozen shoulder is a painful ailment that causes stiffness and makes it impossible to sleep on the affected side[1]. The pain and limitation of motion related to this illness can range from minor to severe; those who have it find it difficult to perform regular activities, including dressing, taking care of themselves, moving overhead, and getting enough sleep. It affects 2% to 5% of adults overall and 10% to 15% of those who have diabetes[2]. The Spencer approach is a widely used which has seven different treatment approaches used to treat adhesive capsulitis-related shoulder limitation[3].

Spencer muscle energy technique is an articulatory technique having seven different procedures where the therapist performs passive, smooth, rhythmic motion of the shoulder joint to stretch contracted muscles, ligaments, and capsule[4]. Whereas IFT is a medium frequency modality which works on pain gate theory. To preserve and restore ROM, physical rehabilitation and exercise are often

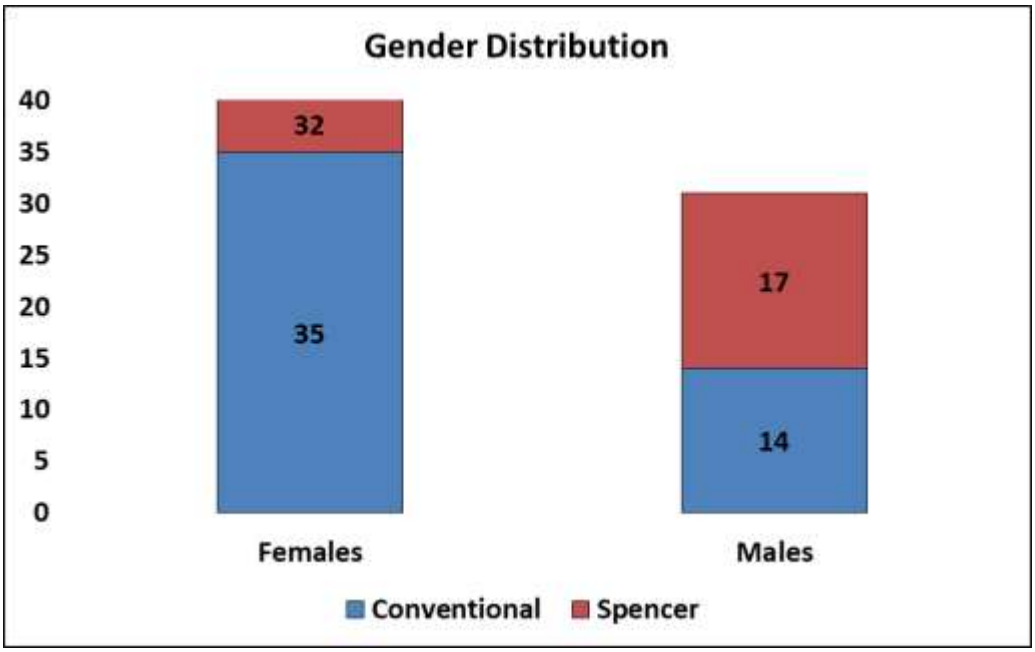
highly recommended[5]. There are very limited studies conducted on the immediate effect of spencer technique Also, there is a deficiency of adequate literature that compares the immediate effect of the Spencer technique with conventional physiotherapy for patients with frozen shoulder. So the aim of my study is to study the immediate effect of spencer technique versus conventional therapy on pain and functional mobility using VAS and Universal goniometer in frozen shoulder patients.

Materials and methods:

The study was carried out and the results were drawn by using visual analogue scale and universal goniometer as the outcome measures. 98 patients (67 females and 31 males) were included. For pain assessment VAS was used in patients with frozen shoulder. Pain was measured using Visual Analogue scale each subject was asked to mark to 10 cm horizontal line to indicate the perceived level of pain before and after treatment. No pain indicated with value 0 and extreme pain indicated with a value of 10. Universal Goniometer is a medical tool used to measure joint range of motion, consisting a protractor like body with a central hinge and degree markings. Pre treatment ranges of pain and joint range of motion were taken. Group A were given Spencer technique along with conventional physiotherapy and Group B were given conventional physiotherapy.

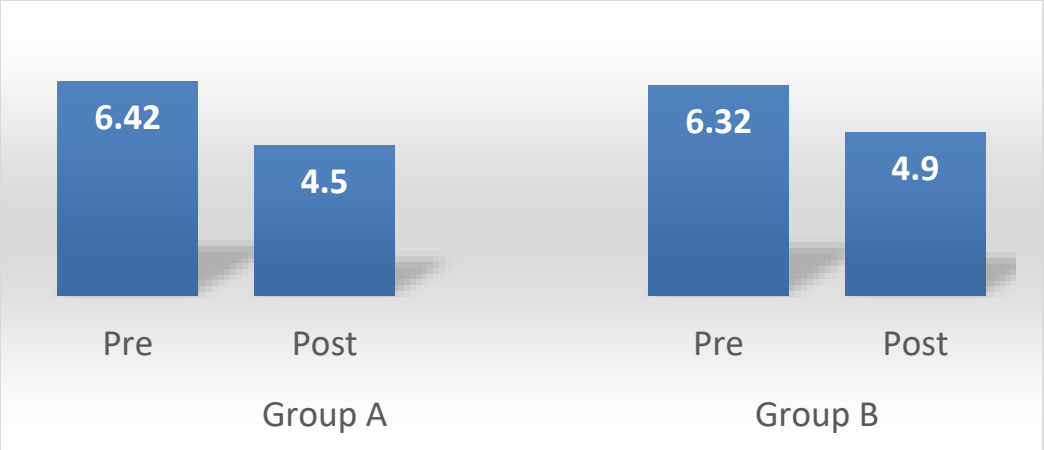
Post treatment ranges of pain and joint range of motion were taken. All the data were analyzed. Comparison between pre and post range of pain and range of motion were done within the group [pre and post treatment ranges] using Wilcoxon test and between the group [A and B] using Manwhitney U test.

Results:

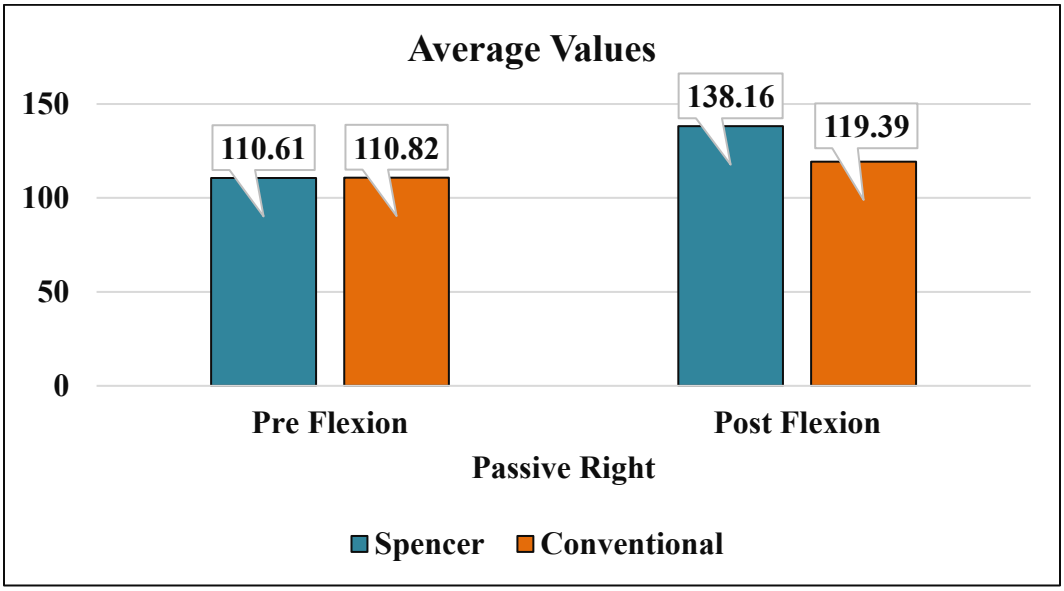


Out of 98 participants, 67 were female and 31 were male. Each group (Conventional and Spencer) had 49 participants, with a slightly higher proportion of females in both groups.

VAS

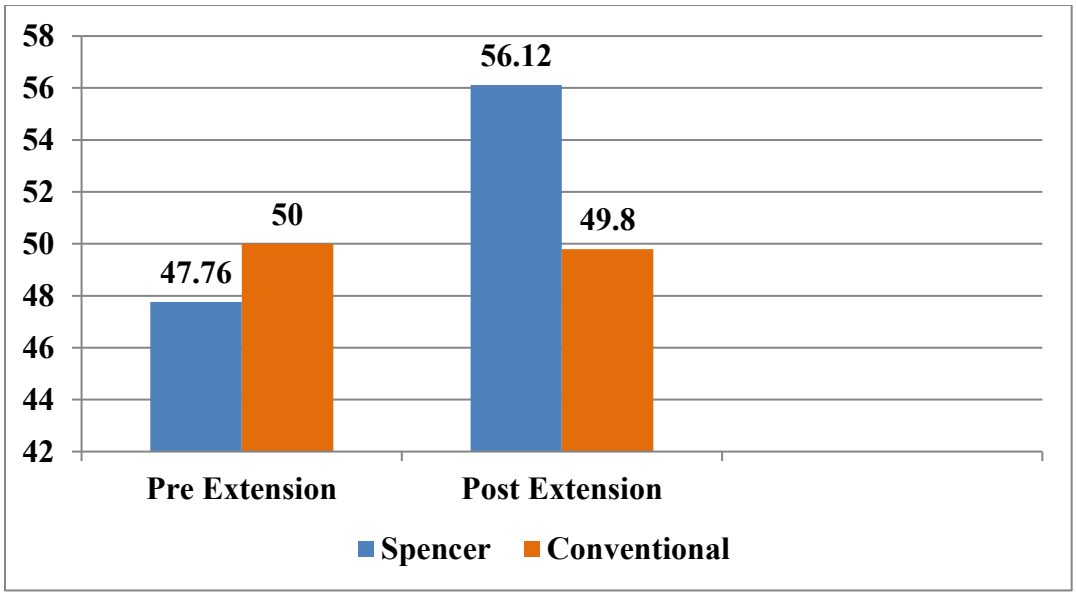


FLEXION SCORES



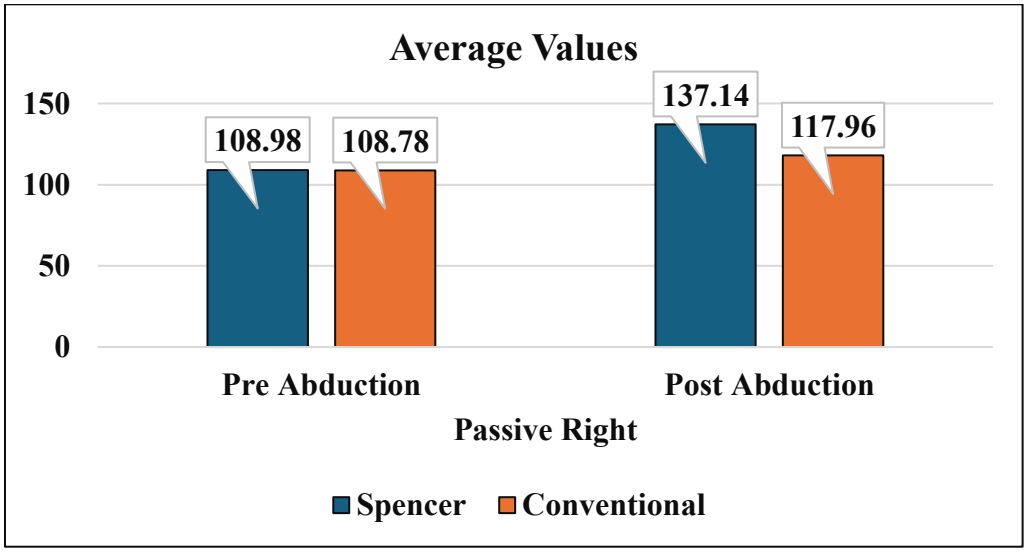
The improvement in Spencer group is over 3× greater than Conventional. Both interventions significantly improved flexibility, but Spencer produced a much larger average gain.

EXTENSION SCORES



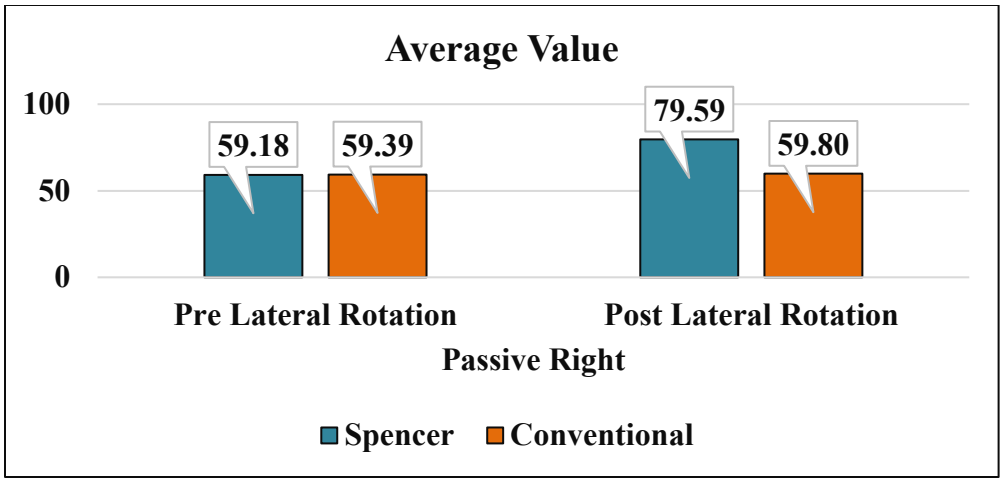
Interpretation: The results suggest that the Spencer method performed better after the extension compared to the Conventional method, which remained relatively unchanged.

ABDUCTION SCORES



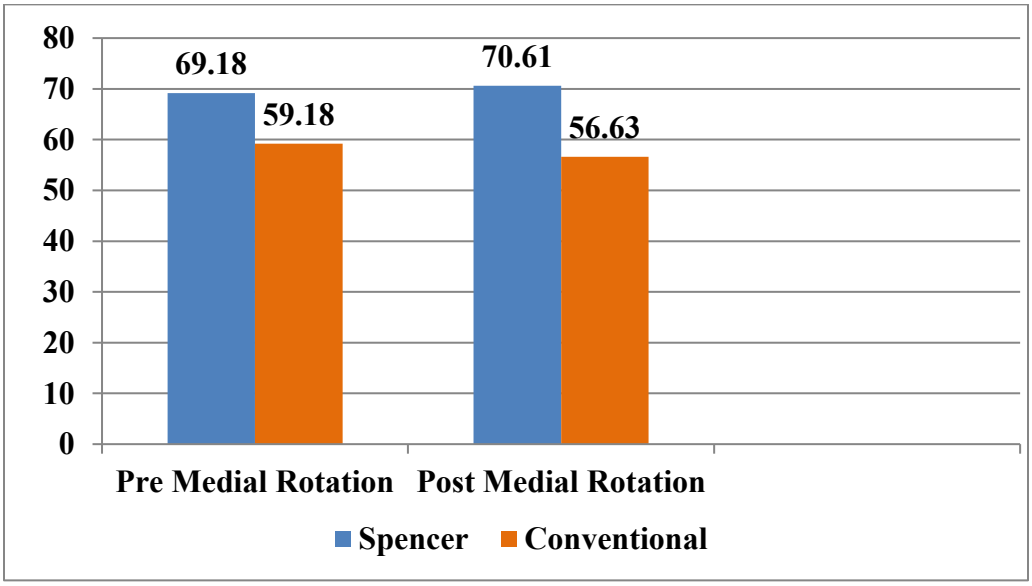
The Spencer technique produced a much larger gain. This is consistent with your Mann–Whitney confirming that the difference is statistically significant.

LATERAL ROTATION SCORES



In group B , using Wilcoxon P=<0.157 , which is not significant, Therefore, Spencer's technique is far more effective for improving passive lateral rotation.

MEDIAL ROTATION SCORES



Interpretation: medial rotation These results suggest the Spencer technique is more effective at improving medial rotation compared to the conventional approach, which may even lead to a slight reduction. Thus, the observed effect points toward greater efficacy for the Spencer technique in enhancing.

Discussion:

The study was carried out and the results were drawn by using visual analogue scale and universal goniometer as the outcome measures. 98 patients(67 females and 31 males) were included. For pain assessment VAS was used. All participants improved, with no decline or ties, indicating a uniform and very strong effect of spencer technique. The baseline treatment was Intereferential Therapy and conventional exercises which was common in both the groups. The results shows that after giving spencer along with conventional physiotherapy, there is increase in flexion, abduction as well as lateral rotation ranges while extension and medial rotation ranges remains unchanged. . The anterior- superior capsule/ rorator interval/ coracohumeral ligament are the first to contract, the motion most directly limited is external rotation when the arm is adducted. Once that is restricted, adduction/elevation are also affected. Internal rotation and extension are typically limited only once the posterior-inferior portion of the capsule are involved. This means internal rottion and extension may remain preserved until later[6].

Spencer's method restores specific joint motion by stretching the shoulder capsule and taut soft tissues, increasing the amount of pain-free ROM. When used, this method improves the lymphatic flow out of the treated area. This method resets neural reflexes and restores the joint's normal ROM[7]. Improved lubrication, nourishment, and circulation in the joint structures are achieved through passive repetitive translation movements, traction, or gliding[7,8]. It restores the joint's detrimental alterations and returns arthokinematic & osteokinematic movements to normal[8].

Curcio JE, Grana MJ, England S, et al. suggested that tissue alterations, pain, asymmetry, and restricted motion - physical markers of somatic dysfunction - are diminished through the Spencer approach. The basic mechanism for pain relief is altered by this manipulation method, which also changes the amounts of circulatory pain biomarkers.

Park KS, Jeong KY also proved that soft tissue stretching and fluid mobilization are two additional physiological mechanisms that contribute to the efficacy of the Spencer technique, enhancing glenohumeral and scapulothoracic joint mobility. To improve shoulder complex mobility, it addresses the motions that cause the least amount of pain first, followed by the most restriction.

Veera S., Chin J, Kleyn L, et al. proved that nociceptive inhibitors from the midbrain inhibit nociceptive impulses in the spinal cord's dorsal horn by shutting the gate. Consequently, this pain gate pathway's mechanoreceptors in muscles and joints are activated to control or suppress pain.

With the help of Exercise, soft tissue components like muscles and tendons can be stretched, maintaining their flexibility and increasing ROM in the shoulder joint. This will naturally boost functional activity and reduce pain. Owing to this physiological impact, improvements were seen in the VAS & shoulder ROM following treatment. Interferential currents help with decreasing pain, activating muscles, increasing blood flow, and reducing edema, which has had a positive outcome in our patient in reducing shoulder pain [9]. VAS scores were reduced in both the groups but when post scores were compared, significant difference was not seen. The probable reason for this is we are checking immediate effect which may not alter pain variables.

Conclusion

The study concluded that Spencer's technique is superior intervention for improving shoulder mobility, while offering no additional advantage over conventional physiotherapy in immediate pain reduction.

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