Indian Journal of Physiotherapy and Occupational Therapy
Volume 16 No. 4, October-December 2022

Comparative Study

Effectiveness of Sleeper and Cross Body Stretches and Muscle Energy Techniques for Periarthritis Shoulder: Comparative Study

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How to cite this article: Mohammed Ameer Hussain, M.Premkumar, R. Muthupandi Kumar et. al. Effectiveness of Sleeper and Cross Body Stretches and Muscle Energy Techniques for Periarthritis Shoulder: Comparative Study. Indian Journal of Physiotherapy and Occupational Therapy.

Abstract

Background: Periarthritis of shoulder typically is referred to as the spontaneous onset of gradually progressive shoulder pain and severe limitation of movement. Recently Sleeper stretch and Cross body stretch are used to stretch the posterior shoulder tightness to improve internal rotation range of motion and they prove effective in improving internal rotation range of motion of shoulder joint in posterior capsular tightness.

Aim & objectives of the study: To compare the effect of sleeper and cross body stretch versus muscle energy techniques in subjects with Periarthritis of shoulder.

Data analysis and results: Data analysis and result of this study shows that there was statistically significant improvement in the variable of pain in VAS and Shoulder Abduction ROM in pre post analysis of data after the intervention of Sleeper, cross body stretches in control group and Muscle Energy Techniques (MET) after intervention in both groups. After intervention of treatment, the experimental group is showing statistically better improvement in reduction of Pain in VAS but not Shoulder Abduction ROM when compared to control group.

Conclusion: It was concluded that both sleeper, cross body stretches of shoulder and Muscle Energy Techniques for Shoulder have statistically significant better reduction in Pain in VAS and Shoulder Abduction ROM in the treatment of Periarthritis, whereas Muscle Energy Techniques have statistically slightly better results of pain reduction and range increase in Periarthritis shoulder ROM when compared to sleeper and cross body stretches of shoulder.

Key words: Periarthritis of Shoulder, Sleeper Stretch, Cross Body Stretch, Muscle Energy Techniques.

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Introduction

Shoulder joint is one of the most rewarding and functional joints involved in daily routines including performances, occupational and recreational activities.[1] Operation of this joint facilitates stability and mobility which often mutually co-exist between the upper and lower limb movements during skilled and powerful activities of the hands. The joints in human body get affected by different disabilities, of which arthritis represents a major one. Arthritis of the shoulder joint is reported since 1872[2], described as 'Humero Scapular Periarthritis'. The ailment was renamed as 'Frozen Shoulder' in 1934 by Codman[3] and later described as 'Adhesive Capsulitis', by Neviarer[4] in 1945, who reported the occurrence of this ailment amongst 7%-21% of the population. The condition is characterized by painful stiff shoulder.

Periarthritis of shoulder typically is referred to as the spontaneous onset of gradually progressive shoulder pain and severe limitation of movement.[5] The incidence of Periarthritis of shoulder in general population is 2% and 10-20% Diabetes patients. It affects females slightly more than the males and is usually seen in ages 40-70 and about 12% of individuals affected develop the condition bilaterally, recurrence is rare in the same shoulder.[6,7] As the condition progresses, during frozen stage pain during rest subsides, and discomfort occurs only during movement. Eventually, the pain decreases spontaneously, but motion restriction persists and stiffness. During thawing stage resolution of pain and gradual recovery of joint movements.[7]

Management option for this Periarthritis of shoulder is pharmacological, non pharmacological and surgical interventions and Physiotherapy. Exercise therapy includes Shoulder Mobilization Exercises, Pulley Exercises, Back Climbing Exercises, Wall Climbing Exercises, Circumduction Exercises, and Pendulum Exercises. Recently Sleeper stretch and Cross body stretch are used to stretch the posterior shoulder tightness to improve internal rotation range of motion and they shows effective in improving internal rotation range of motion of shoulder joint in posterior capsular tightness.[7-9]

The correlation between the tightness in a joint capsule and pattern of motion restriction in a joint was revealed by Hannafin et. al.[9]. Agonizing shoulder, freezing stage with chronic pain, frozen stage with significant limitation of ROM and thawing phase with progressive improvement in ROM have been identified as the major phases of frozen shoulder[10]. End range mobilization of the shoulder joint and intensive mobilization techniques [MT] have been identified as useful approaches for reducing the risk of stiffness or joint contracture progression in patient with adhesive Capsulitis.

MET is a unique technique in which the patient provides the corrective force rather than the care provider. MET is defined as the procedure that provides voluntary contraction of the muscle at varying levels of intensity, in a very controlled direction, against a force applied by the care provider. The potential applications of MET includes lengthening and strengthening of muscles, increasing fluid flow and decreasing local edema.[10-12,14.]

To compare the effect of and sleeper and cross body stretch versus muscle energy techniques in subjects with Periarthritis of shoulder and to know whether sleeper and cross body stretch is more effective than the muscle energy techniques in subjects of Periarthritis of shoulder. By doing this study, the effectiveness of new type of stretches along with muscle energy techniques could be understood and can be implemented in future treatment for Periarthritis.

Materials and Methods

Study Design:

Comparative study.

Study Setting:

Abhinav Physiotherapy and Fitness Centre, Madurai.

Study Duration:

12 months

Study Sampling:

Convenient sampling.

Study Population:

Periarthritis Shoulder Patients in and around Madurai.

Study Sample:

30 subjects for each control and experimental group

Criteria of Selection:

Inclusion Criteria:

Diagnosed by a clinician as Periarthritis of shoulder.

Age between 30 – 60 years.

Both male and female.

Individuals with Periarthritis of shoulder and shoulder flexed to 90 degrees.

Subjects who are willing to participate in the study with symptoms of periarthritis of shoulder.

Exclusion Criteria:

Skin lesions at the site of applications.

Intra articular injections to the shoulder joint within 6 months prior to the study.

Traumatic injury to the shoulder joint within 6 months of study

Existence of CNS/PNS Disorder.

Mental disorders.

Tumors / Malignancies.

Variables:

Pain in VAS – Visual Analog Scale

Shoulder Abduction Range of Motion (ROM)

Interventions:

Sleeper Stretch, Cross Body Stretch and Muscle Energy Techniques (MET).

Procedure:

60 subjects with pain in the shoulder joint, restriction of shoulder internal rotation and clinically diagnosed of having periarthritis of shoulder were screened and after finding their suitability as per the inclusion and exclusion criteria patients are requested to participate in the study. They are divided into two groups of 30 each by convenient sampling into control and experimental group. The subjects willing to participate in the study were briefed about the nature of the study and the intervention. After briefing them about the study, their informed written consent was taken.

The demographic data like age, sex, height, weight, occupation, and address was collected. Joint involved and duration of the symptoms was noted. Initial evaluation for their pain profile using visual analogue scale (VAS) and Shoulder Abduction was taken. Control Group was given sleeper stretch and cross body stretch for shoulder joint was given whereas experimental group got Muscle Energy Techniques for affected Shoulder Joint. 45 minutes a session, 4 sessions a week for 6 weeks intervention were given to both control and experimental groups. After the interventions, subjects were evaluated for their pain profile using pain in VAS, Goniometer for measuring shoulder joint abduction Range of Motion, all measurements were taken again by the same tester and range of motion noted after therapeutic intervention.

Data Analysis and Results

Data was analyzed with suitable statistical method with spss 16.0 version for online windows.

Shapiro Wilk test was used for checking normality distribution of data and independent student t test was used for analysis between variables in between groups.

Data analysis and result of this study shows that there is statistically significant improvement in the variable of pain in VAS and Shoulder Abduction ROM in pre post analysis of data after the intervention of Sleeper, cross body stretches in control group and Muscle Energy Techniques (MET) in Experimental Group with conservative Physiotherapy treatment for Periarthritis Shoulder. Homogeneity of variable pain VAS and Shoulder Abduction ROM is maintained in pre mean values between groups before intervention. After intervention of treatment, the experimental group is showing statistically better improvement in reduction of Pain in VAS but not Shoulder Abduction ROM when compared to control group.

Table 1: Comparison of pre intervention values of mean, SD and p value between control and experimental group with student t test (Source: Author)

No of Subjects	Variables	Control GroupSleeper and Cross Body Stretches) Mean ± SD	Experimental Group (Muscle Energy Techniques) Mean ± SD	P value
60	Pain in VAS	8.86 ± 3.91	8.75 ± 4.22	0.543
	Shoulder Abduction ROM	59.5 ± 422.5	62.5 ± 412.5	0.168

Table 2: Comparison of post intervention values of mean, SD and p value between control and experimental group with student t test (Source: Author)

No of Subjects	Variables	Control Group (Sleeper and Cross Body Stretches) Mean ± SD	Experimental Group (Muscle Energy Techniques) Mean ± SD	P value
60	Pain in VAS	3.2 ± 3.6	2.2 ± 7.6	0.005
	Shoulder Abduction ROM	122.0 ± 1910.0	138.5 ± 902.5	0.005

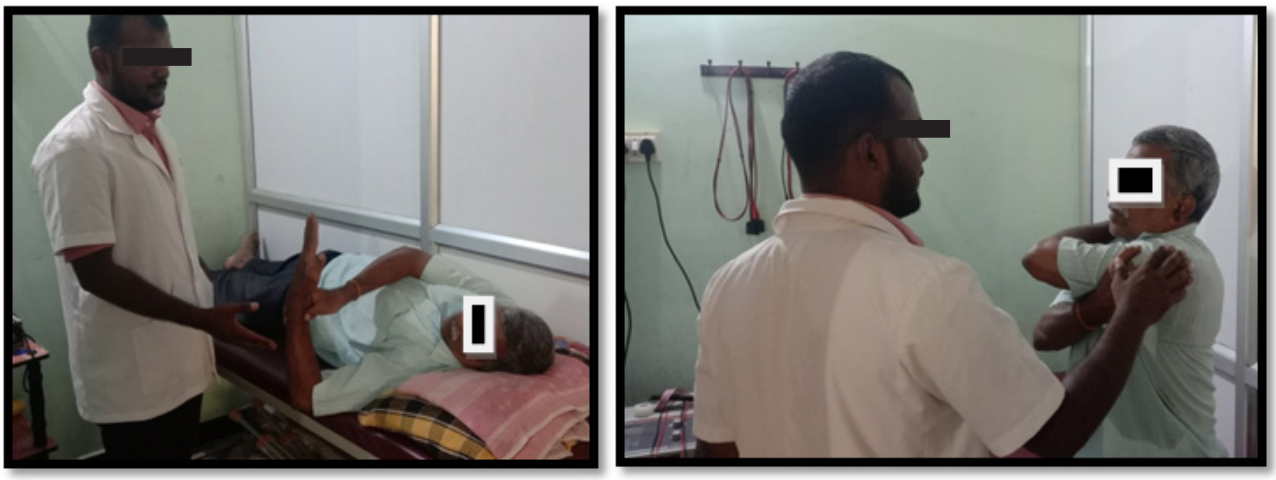

Figure 1: Sleeper and Cross Body Stretches for Shoulder Joint (Source: Author)

Figure 2: Muscle energy techniques for shoulder joint (Source: Author)

Discussion

This study results notified the important of different stretches like sleeper stretch and cross body stretch as well as the need of Muscle Energy Techniques in the treatment of Periarthritis shoulder. Sleeper stretch and cross body stretch as well as the need of Muscle Energy Techniques are producing various physiological effects like involvement of recruitment of motor units, firing of muscle fibers, pain gate mechanism to reduce pain and increase Shoulder Abduction ROM.

This study was getting strength by reflecting the results of Shaik Raheem Sahebetal 2015 in their study concluded that both sleeper and cross body stretching techniques were found improvement in Range of motion and reduction of pain in VAS and Cross-body Stretch showed more Significant improvement than the sleeper Stretch after 6 weeks treatment13andHui-Ting LinAretal 2008 concluded in their study that end range mobilization of the shoulder joint and intensive mobilization techniques [MT] have been identified as useful approaches for reducing the risk of stiffness or joint contracture progression in patient with adhesive capsulitis. However, MET has been reported to be facilitating release of muscles and promoting body healing mechanisms and improving shoulder ROM.[15]

Conclusion

It was concluded that both sleeper, cross body stretches of shoulder and Muscle Energy Techniques for Shoulder have statistically significant better reduction in Pain in VAS and Shoulder Abduction ROM in the treatment of Periarthritis, whereas Muscle Energy Techniques have statistically slightly better results of pain reduction and range increase in Periarthritis shoulder ROM when compared to sleeper and cross body stretches of shoulder.

Ethical Clearance: Taken from Institutional Ethical Review Board, Santosh College of Physiotherapy, Madurai.

Conflict of Interest: Nil

Source of Funding: Self

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