IJBPAS, September, 2025, 14(9): 4758-4764

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

TO COMPARE THE EFFECT OF MUSCLE ENERGY TECHNIQUE VERSUS SCAPULAR STABILIZATION EXERCISE ON SCAPULAR DYSKINESIA AMONG STUDENTS OF PARUL UNIVERSITY. AN EXPERIMENTAL STUDY

GADHAVI B[1] AND PARMAR H[2*]

[1]Department of Physiotherapy, Dean and Principal (Musculoskeletal and sports),

[2]MPT Scholar (Musculoskeletal and sports).

Parul Institute of Physiotherapy, Waghodia, Vadodara, India

***Corresponding Author: Dr. Hardik Parmar: E Mail: ph782253@gmail.com**

Received 15th March 2024; Revised 20th April 2024; Accepted 11th Aug. 2024; Available online 1st Sept. 2025

https://doi.org/10.31032/IJBPAS/2025/14.9.8724

ABSTRACT

Background:

Scapular dyskinesia, characterized by altered scapular movement, is a prevalent issue among students, often leading to shoulder dysfunction and pain. This study aims to compare the effectiveness of Muscle Energy Technique (MET) and Scapular Stabilization Exercise (SSE) in addressing scapular dyskinesia among this population. Understanding the impact of these interventions is crucial for optimizing rehabilitation strategies.

Methodology:

A randomized controlled trial was conducted with a sample of students exhibiting scapular dyskinesia. Participants were randomly assigned to either the MET or SSE group. Baseline assessments of scapular movement patterns and associated symptoms were recorded. The intervention period involved MET sessions or SSE sessions, administered by trained physiotherapists, over a designated timeframe. Post-intervention assessments were conducted to evaluate changes in scapular dyskinesia.

Results:

Analysis of the data revealed significant improvements in scapular posture and movement patterns and reduction in associated symptoms in both groups. These findings suggest that both interventions are equally effective for the treatment of the scapular dyskinesia.

Conclusion:

The results of the study revealed that both the MET and SSE groups exhibited positive outcomes in addressing scapular dyskinesia among the student population. These findings suggest that both MET and SSE are effective interventions for managing scapular dyskinesia, highlighting the potential benefit of incorporating either technique into rehabilitation programs for students experiencing such issues.

Keywords: Scapular dyskinesia, lateral scapular slide test, muscle energy technique, scapular stabilization exercise

INTRODUCTION

Scapular dyskinesia refers to an abnormal movement pattern or positioning of the scapula (shoulder blade) during shoulder motions. This condition can impact the normal functioning of the shoulder joint and is often associated with pain, reduced range of motion, and impaired shoulder stability. Scapular dyskinesia can result from various factors, including muscle imbalances, weakness, or dysfunction in the muscles surrounding the scapula **[1]**.

Degrees of Scapular Dyskinesia:

1. Mild Dyskinesia:

- Minor deviations in scapular movement patterns during certain shoulder movements.
- Typically, individuals may not experience significant symptoms **[2]**.

2. Moderate Dyskinesia:

- Noticeable alterations in scapular movement patterns during a broader range of shoulder activities.
- Mild to moderate symptoms such as discomfort or reduced shoulder function may be present **[3]**.

3. Severe Dyskinesia:

- Pronounced and consistent deviations in scapular movement across various shoulder motions.
- Often associated with significant pain, reduced range of motion, and functional limitations **[4]**.

SCAPULAR STABILIZATION EXERCISE

Scapular stabilization exercises play a crucial role in improving the strength and coordination of muscles that control the position and movement of the scapula (shoulder blade) **[5]**. The effects of scapular stabilization exercises can be beneficial for various reasons:

Improved Muscle Strength, Enhanced Scapular Control,Reduction of Shoulder

Pain, Prevention of Injuries, Improved Posture **[6]**.

MUSCLE ENERGY TECHNIQUE

Muscle Energy Technique (MET) is a manual therapy approach commonly used by physical therapists, chiropractors, and osteopathic practitioners to address musculoskeletal dysfunction and improve joint mobility **[7]**. MET involves the active and voluntary contraction of a patient's muscles against a defined resistance from the practitioner, followed by a relaxation phase and passive stretching of the targeted muscle or joint **[7]**. The primary goals of MET include enhancing flexibility, restoring normal joint range of motion, and alleviating muscle tightness.[7]

LATERAL SCAPULAR SLIDE TEST

Kibler described a test to clinically measure static scapular positions called the lateral scapular slide test (LSST). This test involves measuring the distance from the inferior angle of the scapula to the nearest vertebral spinous process using a tape measure shoulder in neutral, shoulder at 0 ,45,90 and 120 degrees[8]. the injured or deficient side would exhibit a greater scapular distance than the uninjured or normal side and asserted that a bilateral difference of 1.5 cm (15 mm) should be the threshold for deciding whether scapular asymmetry is present **[8]**.

METHODOLOGY

- Source of data – Parul university
- Sample size – according to G-POWER 3.1.9.2= 120
- Study population – asymptomatic individuals with scapular dyskinesia
- Intervention duration – 4 week
- Study design – comparative study

Inclusion criteria

- Asymptomatic individuals aged 18 to 25 year
- Both male and female
- Individuals who are willing to participate in the study and providing informed consent form
- Subjects diagnosed with scapular dyskinesia grade through lateral scapular slide test

Exclusion criteria

- Neuromuscular and musculoskeletal condition around the shoulder and shoulder girdle
- Any injury and surgery around the shoulder and shoulder complex
- Any connective tissue disorder
- Any congenital and acquired deformity

Outcome measures

- Lateral scapular slide test (LSST) for scapular dyskinesia

Procedure

- The selection processes of subjects were based on the diagnosis of

scapular dyskinesia lateral scapular slide test .

- The purpose of the study was explained and a written informed consent was obtained from all the subjects.
- The participants were divided into 2 groups.
- All the subjects were assessed pre-interventional and post-interventional using lateral scapular slide test and wall push ups test for scapular dyskinesia.

RESULTS

INTRA GROUP ANALYSIS OF GROUP A

Inferior angle	MEAN	SD	LOWER	UPPER	P VALUE
0-45°	-0.76167	1.20185	-1.07214	-0.45120	<0.00
45-90°	-0.76167	1.11261	0.53258	1.10742	<0.00
90-120°	0.99833	1.05950	0.72464	1.27203	<0.00

SUPERIOR BORDER	MEAN	SD	LOWER	UPPER	P VALUE
0-45°	0.72667	0.51350	0.59402	0.85932	<0.00
45-90°	1.04500	0.61656	0.88573	1.20427	<0.00
90-120°	0.72667	0.51350	0.59402	0.85932	<0.00

PRE AND POST COMPARISON OF LATERAL SCAPULAR SLIDE TEST VALUE OF GROUP A(MET)

SUPERIOR ANGLE	MEAN	SD	LOWER	UPPER	P VALUE
0-45°	-0.76167	1.20185	-1.07214	-0.45120	<0.00
45-90°	0.82000	1.11261	0.53258	1.10742	<0.00
90-120°	0.99833	1.05950	0.72464	1.27203	<0.00

MEDIAL BORDER	MEAN	SD	LOWER	UPPER	P VALUE
0-45°	0.72667	0.51350	0.59402	0.85932	<0.00
45-90°	1.04500	0.61656	0.88573	1.20427	<0.00
90-120°	0.72667	0.51350	0.59402	0.85932	<0.00

The mean difference and standard deviation of 0-45°, 45-90°,90-120° of inferior angle , medial border , superior angle for muscle energy technique before and after intervention. Analysis of the data revealed significant improvements in scapular movement patterns and reduction in associated symptoms in muscle energy technique.

PRE AND POST COMPARISON OF LATERAL SCAPULAR SLIDE TEST VALUE OF GROUP B (SCAPULAR STABILIZATION EXERCISE)

MEDIAL BORDER	MEAN	SD	LOWER	UPPER	P VALUE
0-45°	-0.76167	1.20185	-1.07214	-0.45120	<0.00
45-90°	0.82000	1.11261	0.53258	1.10742	<0.00
90-120°	0.99833	1.05950	0.72464	1.27203	<0.00

BETWEEN GROUP	MEAN	SD	LOWER	UPPER	P VALUE
MET	1.1967	0.23238	-0.07139	0.77843	0.097
SSE	0.8431	0.55460	-0.08903	0.79606	0.106

The mean difference and standard deviation of 0-45°, 45-90°,90-120° of inferior angle , medial border , superior angle for muscle energy technique before and after intervention. Analysis of the data revealed significant improvements in scapular movement patterns and reduction in associated symptoms in scapular stabilization exercise.

The pre and post intervention mean difference of the lateral scapular slide test for group A and group B. These findings suggest that both MET and SSE are effective interventions for managing scapular dyskinesia.

DISCUSSION

The study aimed to investigate the effect of muscle energy technique and scapular stabilization exercise for the scapular dyskinesia. Muscle energy technique includes stretching and strengthening of the muscle . Many studies have applied MET in patients with acute and chronic low back pain (LBP) , latent trigger points , cervical pain and other musculoskeletal dysfunctions . MET have been also used in asymptomatic subjects in order to increase mobility. There is varying evidence that when a joint has a functional limitation, the application of a MET can increase its ROM **[10]**. In this study concentric contraction and the reciprocal inhibition techniques of muscle energy technique are used. Isotonic concentric contraction technique for the serratous anterior, lower trapezius are used for the strengthening and reciprocal inhibition technique use for the inhibition of the upper trapezius. muscle energy technique shows significant improvement in the treatment of the scapular dyskinesia. The purpose of scapular stabilization exercise is to restore the position, direction, muscle movement control, and movement pattern of the scapula to stabilize the scapula **[9]**. This study includes strengthening of the medial trapezius lower trapezius, Serratous anterior, and rhomboid muscle. This study indicates muscle energy technique and scapular stabilization exercise both are

equally effective for the treatment of the scapular dyskinesia.

CONCLUSION

The study's findings showed that in treating students with scapular dyskinesia, both the MET and SSE groups showed significant results. Both treatments groups' participants showed notable reductions in scapular movement patterns and related symptoms. These results imply that MET and SSE are equally useful therapies for the treatment of scapular dyskinesia.

REFERANCES:

[1] Panagiotopoulos, A. C., &Crowther, I. M. (2019). Scapular dyskinesia, the forgotten culprit of shoulder pain and how to rehabilitate. *SICOT-J*, *5*.

[2] Rossi, D. M., Resende, R. A., da Fonseca, S. T., & de Oliveira, A. S. (2018). Scapulothoracic kinematic pattern in the shoulder pain and scapular dyskinesis: a principal component analysis approach. *Journal of biomechanics*, *77*, 138-145.

[3] Kibler, W. B., Ludewig, P. M., McClure, P. W., Michener, L. A., Bak, K., &Sciascia, A. D. (2013). Clinical implications of scapular dyskinesis in shoulder injury: the 2013 consensus statement from the 'Scapular Summit'. *British journal of sports medicine*.

[4] Suphakitchanusan, W., Kerdsomnuek, P., Jamkrajang, P., Fossum, B. W., Sudjai, N., Paugchawee, J., ...&Ganokroj, P. (2023). Scapular Dyskinesis after Treatment of Proximal Humerus Fracture, a Three-Dimensional Motion Analysis (3-DMA) and Clinical Outcomes. *Journal of Shoulder and Elbow Surgery*.

[5] Cho, J., Lee, K., Kim, M., Hahn, J., & Lee, W. (2018). The effects of double oscillation exercise combined with elastic band exercise on scapular stabilizing muscle strength and thickness in healthy young individuals: a randomized controlled pilot trial. *Journal of sports science & medicine*, *17*(1), 7.

[6] Moezy, A., Sepehrifar, S., &Dodaran, M. S. (2014). The effects of scapular stabilization-based exercise therapy on pain, posture, flexibility and shoulder mobility in patients with shoulder impingement syndrome: a controlled randomized clinical trial. *Medical journal of the Islamic Republic of Iran*, *28*, 87.

[7] Chaitow, L., & Crenshaw, K. (2006). *Muscle energy techniques*. Elsevier Health Sciences.

[8] Curtis, T., & Roush, J. R. (2006). The lateral scapular slide test: A reliability study of males with and

without shoulder pathology. *North American journal of sports physical therapy: NAJSPT*, *1*(3), 140.

[9] Lan Tang,[#] Kang Chen,[#] Yuhui Ma, Lihua Huang, Juan Liang, Scapular stabilization exercise based on the type of scapular dyskinesis versus traditional rehabilitation training in the treatment of periarthritis of the shoulder: study protocol for a randomized

[10] Ewan Thomas, Antonio Rosario Cavallaro**,** The efficacy of muscle energy techniques in symptomatic and asymptomatic subjects: a systematic review