

## ORIGINAL ARTICLE

# ACTIVE RELEASE TECHNIQUE VS. MUSCLE ENERGY TECHNIQUE ON LOW BACK PAIN, RANGE OF MOTION, AND DYNAMIC BALANCE IN PATIENTS WITH PSOAS SYNDROME AMONG OFFICE WORKERS

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Dysfunction of the iliopsoas muscle can cause Psoas syndrome. It may also cause many side effects, like low back ache, groin region pain, pelvic agony, or pain in the buttock. **Methods:** The study included 80 patients; 40 participants were assigned to group A, and the other 40 to group B. Group A received routine physical therapy along with active release technique, while Group B received routine physical therapy along with muscle energy technique. VAS, Berg balance scale, and Goniometer were used for pain, range of motion, and balance, respectively. **Results:** Visual Analog Scale score showed mean and standard deviation of  $9.0750 \pm 0.764$  &  $8.9268 \pm 0.78709$ ,  $6.1750 \pm 0.78078$  &  $5.8780 \pm 0.78087$ ,  $3.0500 \pm 0.74936$  &  $3.0488 \pm 0.77302$  at baseline, 3rd and 6th week respectively. Goniometer score showed mean and standard deviation of  $92.3409 \pm 8.21497$  &  $97.7317 \pm 7.11345$ ,  $101.8636 \pm 9.33010$  &  $109.2439 \pm 7.79994$ ,  $115.0000 \pm 11.03694$  &  $121.5122 \pm 6.61862$  at baseline, 3rd and 6th week respectively. Berg Balance Scale score showed mean and standard deviation of  $42.8864 \pm 3.49894$  &  $42.7317 \pm 3.67440$ ,  $48.0682 \pm 2.96803$  &  $47.9512 \pm 3.17767$ ,  $51.1591 \pm 2.25103$  &  $51.1951 \pm 2.22732$ , at baseline, 3rd and 6th week respectively. There was significant statistical difference in all outcome measures at 6th week interval (p value .000). **Conclusion:** It has been concluded that active release technique is better than muscle energy technique for patients with psoas syndrome having pain, range of motion issue and balance problem. **Key Words:** Low Back Pain, Balance, Range of motion, Active release technique, Muscle energy technique.

**INTRODUCTION:**

Low back distress is characterized by agony, muscle spasms, and tenderness in the space found right underneath the costal line or the second-rate gluteal folds. It might manifest either with or without sciatica. Chronic pain is characterized as pain that persists for a duration beyond 12 weeks. (1, 2). Low back pain includes muscular strains or sprains, ligamentous strains or dysfunction of facet joint (3). Snapping hip or coxa saltans is a condition in which iliopsoas tendon cause rubbing over the bony prominence and produces "snap" or "pop" (4). There is a relationship between hip and spine anatomy as described in the literature. Lumbar spine pain and disability can be occurred with loss of hip mobility (5). Facet overload, lumbopelvic pain with an increase in pelvic rotation and hyper lordosis can occur in case of hip region problems that are responsible for restriction in terminal hip extension (6). Moreover, the activation of the psoas major muscle is linked to both shear and compressive forces applied to the spinal column. (7) while functioning as a stabilizer for the lumbar spine (8). Therefore, it is crucial to identify and treat a deficiency in hip extension resulting from limited flexibility in the iliopsoas muscle in order to attain positive outcomes in persons experiencing low back pain. (9). There is a soft tissue mobilization technique named as muscle energy technique. It is implemented by combing the isometric contractions. This technique is useful in restoring the structure of soft tissue to normal and exerts indirect effect on the joint that is associated with dysfunctional muscle. It can be helpful

to restore joint mobility in case of soft tissue dysfunction. There are many studies that highlighted the effectiveness of MET in alleviating pain, improving range of motion and reducing the degree of neck dysfunction (11,12). Prior research has examined the individual impacts of the active release technique and muscle energy strategy on low back pain, hip joint range of motion, and trunk balance in individuals diagnosed with psoas syndrome. The coordinates are (24,25). However, there is a lack of enough material to conduct a comparison of the results of these two operations in individuals with psoas syndrome. The point of this study is to dissect the unique impacts of dynamic delivery strategy and muscle energy method on low back torment, hip joint scope of movement, and dynamic trunk balance coming about because of psoas condition. Balance assumes a basic part in psoas condition, as individuals with low back torment (LBP) frequently experience a diminishing in the strength of their center muscles and a decrease in their postural equilibrium. In this manner, surveying the powerful equilibrium is a fundamental component in patients encountering low back torment brought about by psoas disorder.

**METHODS:**

This study was a randomized controlled clinical trial done at the Family Office in Lahore. Individuals were supposed to give consent preceding selecting. A all out of 80 people were picked in view of specific consideration and rejection measures and consequently relegated indiscriminately to either bunch A or

bunch B. The review included people between the ages of 25 and 53 who had been encountering low back torment for over 90 days. The two guys and females were remembered for the review. Nonetheless, History of Injury, or patients with any fundamental illnesses, or breaks of bones, or Innate sicknesses, and separation were prohibited from this review. This study was single dazed study. Endorsement was taken structure moral council of College of Lahore preceding information assortment. Routine exercise-based recuperation treatment including muscle fortifying, scope of movement and extending practices according to patients' resilience was given to Gathering An alongside dynamic delivery method. Every meeting was of 40-50 minutes 5 days per week for quite

some time. Routine active recuperation treatment including muscle fortifying, scope of movement and extending practices according to patients' resilience was given to Gathering B alongside muscle energy strategy. The time term of every meeting was of 40-50 minutes, 5 days per week for a considerable length of time. Equipment used to record pain was (Visual Analog Scale), for balance (Berg balance scale), and for range (Goniometer) was used. The subjects lie supine lying, without shoes, eyes opened for 1 minute. They patients were instructed to raise their leg straight in pain free range of motion. The assessment was thought invalid and repeated in case if the subject changed their initial position, moved any part of the body, or talked.

**RESULTS:**

**Table 1: Age**

Variables	Group A	Group B
N	40	40
Mean	28.4884	32.4390
Std. Deviation	2.16434	1.78954

Table showed the participant's mean age in group A was 28.48±2.16. In experimental group mean age of participants was 32.43±1.78.

**Table 2: Mann-Whitney test for Visual Analog Scale (VAS), Goniometer and Berg balance scale score at baseline, 3rd week, and 6th**

Outcome Measures	Duration	Groups	Mean	Std. Deviation	Mean Rank	P value
Visual Analog Scale (VAS)	at baseline	Group A	9.0750	0.76418	43.14	0.389
		Group B	8.9268	0.78709	38.91	
	at 3rd week	Group A	6.1750	0.78078	45.21	0.091
		Group B	5.8780	0.78087	36.89	
	at 6th week	Group A	3.0500	0.74936	41.00	0.000
		Group B	3.0488	0.77302	41.00	
Goniometer	at baseline	Group A	92.3409	8.21497	34.48	0.013
		Group B	97.7317	7.11345	47.37	
	at 3rd week	Group A	101.8636	9.33010	32.38	0.001
		Group B	109.2439	7.79994	49.41	
	at 6th week	Group A	115.0000	11.03694	35.90	0.000
		Group B	121.5122	6.61862	45.98	
Berg balance scale	at baseline	Group A	42.8864	3.49894	41.46	0.00
		Group B	42.7317	3.67440	40.55	
	at 3rd week	Group A	48.0682	2.96803	41.54	0.00
		Group B	47.9512	3.17767	40.48	
	at 6th week	Group A	51.1591	2.25103	41.41	0.00
		Group B	51.1951	2.22732	40.60	

**Table-3: Fried-Mann Visual Analog Scale, Fried-Mann Goniometer scale and Fried-Mann Berg Balance Scale**

Outcome Measures	Duration	Groups	Mean	Std. Deviation	Mean Rank	P value
Fried-Mann Visual Analog Scale	at baseline	Group A	9.1364	0.76526	3.00	0.000
		Group B	8.9268	0.78709	3.00	
	at 3rd week	Group A	6.2045	0.76492	2.00	0.000
		Group B	5.8780	0.78087	2.00	
	at 6th week	Group A	3.0682	0.75937	1.00	0.000
		Group B	3.0488	0.77302	1.00	
Fried-Mann Goniometer scale	at baseline	Group A	92.3409	8.21497	1.00	0.000
		Group B	97.7317	7.11345	1.00	
	at 3rd week	Group A	101.8636	9.33010	2.00	0.000
		Group B	109.2439	7.79994	2.00	
	at 6th week	Group A	115.0000	11.03694	3.00	0.000
		Group B	121.5122	6.61862	3.00	
Fried-Mann Berg Balance Scale	at baseline	Group A	42.8864	3.49894	1.00	0.000
		Group B	42.7317	3.67440	1.00	
	at 3rd week	Group A	48.0682	2.96803	2.00	0.000
		Group B	47.9512	3.17767	2.00	
	at 6th week	Group A	51.1591	2.25103	3.00	0.000
		Group B	51.1951	2.22732	3.00	

Table 2 and 3: Mann-Whitney test was used for between group analysis. The result regarding Visual Analog Scale score showed no significant statistical difference at baseline 0.389 and at 3rd week p value 0.091. But there was significant statistical difference at 6th week p value 0.000. The result regarding Goniometer score showed there was significant statistical difference at baseline 0.013, at 3rd week p value 0.001 and at 6th week p value 0.000. The result regarding Berg Balance Scale score showed there was significant statistical difference at baseline 0.00, at 3rd week p value 0.00 and at 6th week p value 0.000. Hence the results showed significant improvement after 6th week treatment. The Friedmann tests result in regards to Visual Simple Scale (VAS) score displayed there was critical factual distinction at benchmark 0.000, at third week p esteem 0.000 and at sixth week p esteem 0.000. The Broiled Mann tests result with respect to Goniometer score displayed there was huge factual contrast at standard 0.000, at third week p esteem 0.000 and at sixth week p esteem 0.000. The Seared Mann test result in regards to Berg Equilibrium Scale score displayed there was huge measurable distinction at standard 0.000, at third week p esteem 0.000 and at sixth week p esteem 0.000.

#### DISCUSSION:

The objective of our study was to compare the effectiveness of the active release method and muscular energy approach in reducing low back pain, range of motion, and balance. A research was done to find out which technique is superior among active release technique and muscle energy technique in reducing low back and after taking 30 participants into consideration and dividing them into two groups with equal distribution of numbers i.e. 15 in each group and giving them same physical therapy to each group but differentiating them by giving one group active release technique and another muscle energy technique they found that group taking active release technique therapy along with physical therapy got more benefit from low back as compared to group who is taking muscle energy technique(21). Another study was done to rule out which technique played important role in improving range of motion of patients. The patients were treated with different techniques and method and it was found by the help of goniometer that range of motion of patients were increased effectively by applying muscle energy technique (19).

Another study was done to rule out which technique is better when combined with manual therapy between active release technique and muscle energy technique in improving range of motion of hip. 40 participants were included in the study and they were divided equally into two groups and both were given manual therapy along with one group having active release technique and another one having manual therapy with muscle energy technique, and after few weeks it was found that participants who took manual therapy along with active release technique were improved better with their hip range of motion(20). The review inspected the Visual Simple Scale (VAS) scores of two gatherings, bunch An and bunch B, at gauge. The typical position for bunch A was 43.14, while bunch B had 38.91. There was a huge factual uniqueness between the two gatherings in the third week, with a p-worth of 0.091. The typical position in the 6th week was 41.00, with a 0.000 p-esteem. In a practically identical examination, people were classified into two particular gatherings: a trial bunch and a benchmark group. The exploratory gathering displayed a mean score of 7.04422, while the benchmark group had a mean score of 6.80000. The number is 22.

The review included ordering the members into two interesting gatherings: bunch A and bunch B. The two gatherings had normal non-intrusive treatment, with bunch A getting dynamic delivery strategy and gathering B getting muscle energy procedure. This strategy was likewise used in a past exploration study, where members were haphazardly doled out to either the dynamic delivery method treatment bunch (exploratory gathering; n=18) or the muscle energy procedure treatment bunch (control bunch; n=17). Each gathering participated in individual treatment meetings, with a length of 40 minutes each. The meetings occurred fortnightly over a time of about a month and a half. The outcomes propose that utilizing the muscle energy strategy is successful in diminishing the seriousness of agony and handicap in those with constant low back torment. Moreover, the muscle energy strategy is viewed as more productive in redressing the pelvic slant and pelvic revolution in contrast with the muscle energy method (23). Thus, the strong energy approach outperforms different systems in really diminishing torment in those experiencing psoas disorder.

### CONCLUSION:

Dynamic delivery strategy not set in stone to be prevalent than solid energy procedure for people experiencing psoas disorder, specifically as far as mitigating torment, further developing scope of movement, and tending to adjust issues.

### Author Contributions:

**Conception and design:** *Asaad Liaqat*

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**Conflict of Interest:** *None declared*

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