

Effect of Myofascial decompression therapy along with IASTM combing with conversational physiotherapy in the subjects of low back pain

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ABSTRACT

Objective: The purpose of this study was to assess the efficacy of Myofascial Decompression Therapy in conjunction with Instrument Assisted Soft Tissue Mobilization (IASTM) and conversational physiotherapy for pain and disability in chronic low back pain (LBP) patients versus traditional treatments.

Methods: 30 patients with chronic low back pain were randomly divided into two groups: Group A was administered a holistic treatment program of IASTM, Myofascial Decompression, Hot Pack Therapy, and Interferential Therapy (IFT), and Group B was administered IFT and Hot Pack Therapy. Outcomes were assessed by Numeric Pain Rating Scale (NPRS) and Oswestry Low Back Disability Index (OLBDI) before and after intervention. Statistical tests were carried out to check the significance of the results.

Results: Group A had a significant decline in NPRS scores from the pre-intervention mean of 8.06 ± 1.33 to 2.0 ± 1.41 post-intervention ($t = 16.36$, $p < 0.001$). OLBDI scores also enhanced from 77.4 ± 8.10 to 28.73 ± 9.70 ($t = 10.73$, $p < 0.001$). Group B, on the other hand, had improvements in scores of NPRS from 8.56 ± 1.23 to 4.33 ± 0.59 and OLBDI scores from 78.0 ± 12.19 to 49.4 ± 6.09 . While both groups had statistically significant improvements, Group A had higher reductions in disability and pain.

Conclusion: The results indicate that the combined method of Myofascial Decompression Therapy and IASTM, with conversational physiotherapy, greatly improves pain relief and functional recovery in chronic low back pain patients over traditional approaches. This research highlights the significance of holistic treatment protocols based on individual requirements in managing chronic low back pain effectively. Future studies need to assess the long-term effects and effectiveness of these combined interventions.

Key words: Myofascial Decompression (MFD), Low Back Pain, IASTM, Conversational Physiotherapy, Soft Tissue Mobilization, Range of Motion, Manual Therapy, Movement Patterns, Therapeutic Techniques, Posture Correction, Adhesion Release, Multimodal Approach

INTRODUCTION

Acute low back pain is a very common clinical condition. It is described as a sudden onset of soreness or aching in the lumbar region, commonly referred to as the lower back. It usually lasts less than six weeks and can be mild or even severely painful. The causes of ALBP are different and may comprise muscle or ligament strains, disc herniation, joint dysfunction, skeletal abnormalities, and in extreme cases, infection or inflammatory condition. Muscle or ligament strain accounts for the commonest cause due to overuse, poor techniques, or sharp movements while involved in some

activities. Herniated discs, where the soft material inside the disc leaks out and puts pressure on nearby nerves, commonly cause not only lower back pain but also radiating leg pain, known as sciatica. Joint dysfunction, stemming from irritation or misalignment of the small facet joints in the spine, contributes significantly to discomfort. Skeletal irregularities like scoliosis or kyphosis create uneven spinal curvature, leading to added stress on the lower back. Rarely, infections or inflammatory conditions like osteomyelitis or ankylosing spondylitis may manifest as acute low back pain, which is often associated with systemic symptoms such as fever and stiffness.

Localized or radiating pain, stiffness, and restricted mobility are symptoms of ALBP. Pain can range from sharp stabbing sensations to dull aching discomfort and usually worsens with activities like bending, lifting, or prolonged sitting and standing. Further complications may include stiffness and rigid movements that limit the ability to freely bend or twist. Physical examination, with further assessment of the symptoms, range of motion, and neurological status, completes the proper diagnosis. Imaging tests such as X-rays, MRI, or CT are applied when fractures or infections are suspected.

Treatment for ALBP includes rest, pain management, physical therapy, and patient education. Although complete bed rest is not often recommended, activity modification and light, non-strenuous exercises are used to maintain mobility without exacerbating the condition. Pain relief is often achieved through NSAIDs such as ibuprofen or naproxen, with stronger medications reserved for persistent symptoms. Physical therapy plays a central role in rehabilitation, focusing on exercises that strengthen spinal-supporting muscles, improve flexibility, and restore function. Additional interventions like heat and cold therapy are used to reduce inflammation and promote healing. Patient education emphasizes proper body mechanics, ergonomic adjustments, and preventive measures such as posture correction and regular exercise to reduce the likelihood of recurrence.

Myofascial decompression therapy (MFD), which is also called cupping therapy, is a soft tissue therapy that uses the application of negative pressure to develop a decompressive effect on the fascia and muscles. MFD is routinely applied in the field of rehabilitation to improve blood circulation, soften myofascial adhesions, and relieve pain while increasing joint mobility. The created negative pressure in the cups makes the skin and underlying tissues become lifted, creating an increase in blood flow, lymphatic drainage, and neuromuscular re-education. MFD can be applied through many different techniques, such as dry cupping in which cups are left statically on the skin, gliding cupping in which cups are slowly slid along the muscle fibers, and active cupping in which patients move and the cups stay still. MFD is regularly used in orthopedic rehabilitation and sports physiotherapy to treat low back pain, frozen shoulder, runner's knee, and lateral ankle sprains. Studies have shown that MFD has efficacy in the relief of musculoskeletal pain, increasing flexibility, and functional recovery, and can be a useful addition to manual therapy and exercise rehabilitation. Its use should be exercised with caution, though, since contraindications involve open wounds, infections, deep vein thrombosis, and severe varicose veins. By integrating MFD into rehabilitation protocols, physiotherapists are able to maximize patient results, especially in improving mobility, alleviating pain, and expediting recovery for musculoskeletal and sports injuries.

Instrument-Assisted Soft Tissue Mobilization (IASTM) is an advanced manual therapy approach applied for the treatment of soft tissue dysfunction, such as pain in rhomboid muscle. This process applies precision-cut instruments, normally fabricated from stainless steel, for addressing muscle tension, fascial adhesions, and scarring. Through the use of controlled pressure, practitioners are able to successfully break up adhesions, loosen tight muscles, and increase tissue mobility. Rhomboid pain, which is usually brought about by poor posture, overuse, or muscle strain, can be successfully treated with IASTM, which is designed to increase flexibility, ease pain, and facilitate healing. IASTM achieves this by enhancing the elasticity and mobility of the rhomboid muscles and decreasing stiffness and restrictions.

Disolving adhesions and muscle knots reduces pain and enhances movement. Increased blood flow allows for the delivery of oxygen and nutrients to tissues, which speeds up the healing process. People with scar tissue from old injuries are helped by the reorganization of the tissues, returning normal muscle function. During treatment, practitioners apply smooth, rounded instruments in controlled strokes over the area of dysfunction, varying pressure according to the patient's comfort and degree of dysfunction. The treatment starts with an evaluation to determine areas of tension, followed by the application of a lubricant, e.g., lotion or oil, to minimize skin friction. The tools are then employed to move over limited spaces, fracturing adhesions and releasing tension.

During the session, practitioners observe tissue response and modify techniques as needed, providing an effective yet comfortable treatment. Many patients notice immediate relief, such as decreased pain, enhanced range of motion, and increased muscle flexibility. By correcting muscle stiffness and fascial restrictions, IASTM re-establishes normal movement of the shoulder blade, avoiding secondary complications like tension headaches or compensatory muscle imbalances. While IASTM is usually safe, some precautions are necessary. Patients with open wounds, blood clotting disorders, fractures, or severe osteoporosis should see a medical professional prior to treatment. Light stretching, proper

hydration, and, if needed, icing for mild soreness or redness are usually required post-treatment. In summary, IASTM is a useful therapy for treating rhomboid muscle pain by fixing underlying tissue adhesions and restrictions. Under the hands of a trained clinician, it improves recovery, reduces pain, and restores function to normal. Accurate assessment and individualized treatment protocol provide the best results for patients desiring relief from rhomboid pain.

METHODOLOGY

Study Participants

The study comprised 30 patients who were both male and female and aged between 20 and 40 years who presented with acute low back pain lasting for more than a week. The patients reported symptoms of pain, stiffness, and a reduced range of motion associated with low back pain. Each participant was diagnosed by a physiotherapist who carefully excluded any individuals with other muscular or skeletal pathologies of the lumbar spine or hip.

Study Design and Methodology

Participants were selected following informed consent, and random simple allocation into the two groups occurred. To maintain unbiased outcomes, the process of randomization was blinded and, to further exclude any confounding through discussions on their treatments, they were not allowed to converse regarding their treatment approaches.

The research took place for two months. There were no dropouts after the end. Baseline measurement was taken at the start, and VAS and OLBDI were used.

The treatment program was carried out for two weeks, and each session was thrice a week on alternate days. There were two groups made:

Group A: Experimental Group

It had 15 patients

They received Interferential Therapy (IFT) for 15 minutes.

Hot pack was given immediately after it for 15 minutes.

IASTM and Myofascial Decompression for Soft Tissue Release and Movement Enhancement

Instrument-Assisted Soft Tissue Mobilization (IASTM) was used in targeted areas to release soft tissue restrictions and optimize movement patterns. This was supplemented with traditional methods to maximize the overall outcome of treatment. In addition, Myofascial Decompression (MFD) was used in treating specific zones of soft tissue tightness and maximizing mobility as well as comfort.

Target Areas and Techniques

Dorsolumbar Fascia and Erector Spinae Muscles

- IASTM Objective: To release tension and restore mobility in the lower back.
- IASTM Technique: Smooth, focused strokes were used along the dorsolumbar fascia and erector spinae muscles with specialized tools, increasing tissue pliability and decreasing muscular tightness.
- MFD Objective: To relax tissues and improve circulation in the lower back area.
- MFD Procedure: Cups were positioned along the erector spinae muscles and the dorsolumbar fascia, with a decompressive effect that eased tension and improved blood flow.

Posterior Fascia

- IASTM Goal: To enhance flexibility and alleviate pain in posterior connective tissue.
- IASTM Procedure: Gentle to moderate instrument pressure was used to break up fascial restrictions, creating smoother movement patterns.
- MFD Goal: To increase tissue elasticity and reduce discomfort.
- MFD Procedure: Negative pressure was used on the posterior fascia, with a gentle lifting and stretching action that released adhesions and increased mobility.

Sacrum

- IASTM Goal: To reduce pain and increase movement in the sacral area.

- IASTM Procedure: Gentle scraping and controlled strokes were employed to relieve adhesions and tightness, enhancing comfort and mobility.
- MFD Goal: To increase mobility and reduce pain at the lumbosacral junction.
- MFD Procedure: Cups were placed on the sacral area, creating decompressive force to lower tension and promote movement.

Group B: Control Group

This group also included 15 patients.

Got the same treatment protocol to Group A

Participants were IFT for 15 minutes in addition to Hot pack therapy which was also taken for 15 minutes.

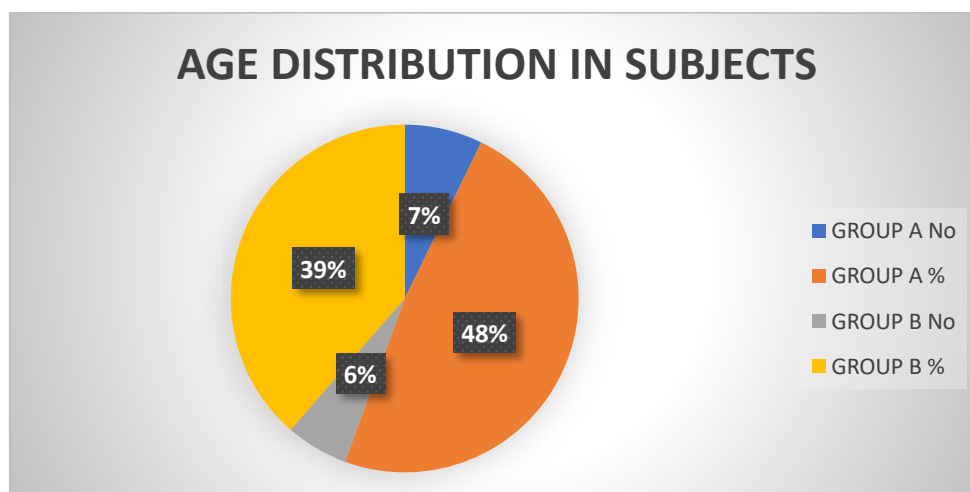
On the contrary instead of mobilizing, spine isometric exercises were administered.

Outcome Measure

On final day of trial, VAS and OLBDI assessment was undertaken to measure extent to which participants exhibited low back pain. This measuring tool was reflective of the adequacy of those treatments.

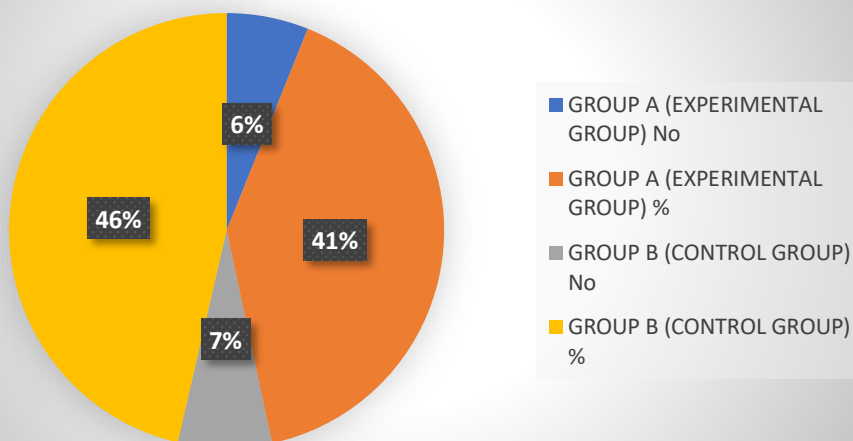
RESULTS

AGE DISTRIBUTION IN SUBJECTS					
S.No	Age in years	GROUP A		GROUP B	
		No	%	No	%
1	25-30	5	33.3	4	26.6
2	31-35	5	33.3	6	40
3	36-40	2	13.3	3	20
4	41-45	3	20	2	13.3
TOTAL		15	100%	15	100%
MEAN		3.75		3.75	
SD		1.299038106		1.479019946	

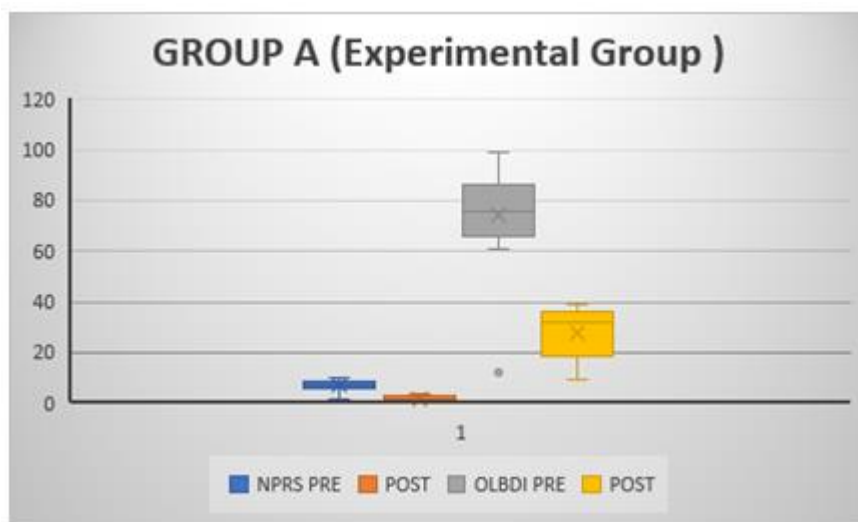


GENDER DISTRIBUTION IN SUBJECTS					
S.No	Gender	GROUP A (EXPERIMENTAL GROUP)		GROUP B (CONTROL GROUP)	
		No	%	No	%
1	FEMALE	7	46.6	8	53.3
2	MALE	8	53.3	7	46.6

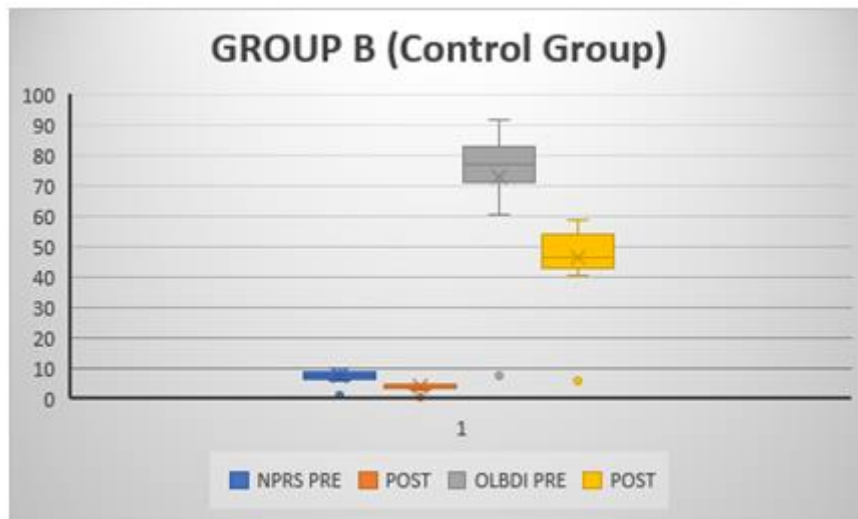
GENDER DISTRIBUTION IN SUBJECTS



GROUP A (Experimental Group)							
S. NO	OUTCOME MEASURES	PRE-TEST		POST-TEST		PAIRED T-TEST	
		RANGE	MEAN \pm SD	RANGE	MEAN \pm SD	T-STAT	P VALUE
1	NPRS	7-10	7.46 \pm 1.54	0-4	2.0 \pm 1.41	9.92	1.00E-07
2	OLBDI	60-100	78.0 \pm 12.19	10-39	28.73 \pm 9.70	12.69	4.56E-09



GROUP B (Control Group)							
S.No	OUTCOME MEASURES	PRE TEST		POST TEST		PAIRED T-TEST	
		RANGE	MEAN \pm SD	RANGE	MEAN \pm SD	T-STAT	P VALUE
1	NPRS	8-10	8.06 \pm 1.33	3-5	4.33 \pm 0.59	16.36	1.60E-10
2	OLBDI	70-100	77.4 \pm 8.10	40-60	49.4 \pm 6.09	10.73	3.87E-08



This study examines the results of an intervention in two groups, Group A (Experimental) and Group B (Control), using NPRS (Numeric Pain Rating Scale) and OLBDI (Oswestry Low Back Disability Index) as outcome measures. In Group A, the pretest NPRS scores ranged from 7 to 10, mean 7.46 ± 1.54 , which decreased significantly postintervention to a range of 0 to 4, mean 2.0 ± 1.41 , $t = 9.92$, $p = 1.00E-07$. Similarly, in this group the scores of OLBDI diminished remarkably from 60 to 100 (Mean = 78.0 ± 12.19) post-test range, 10 to 39, (Mean = 28.73 ± 9.70 , $t = 12.69$, $p = 4.56E-09$). In Group B, the scores pre-test NPRS ranged from 8 to 10 with the mean being at 8.06 ± 1.33 , and these were reduced to a range of 3 to 5 after intervention, but with a mean of 4.33 ± 0.59 ($t = 16.36$, $p = 1.60E-10$).

This group's OLBDI scores also improved, with the range changing from a pre-test of 70 to 100 (mean = 77.4 ± 8.10) to a post-test range of 40 to 60 (mean = 49.4 ± 6.09 , $t = 10.73$, $p = 3.87E-08$). Although both groups showed a statistically significant change in pain and disability, greater improvements were reported in both outcomes for Group A. The post-test mean of the experimental intervention was lower than the control intervention both on NPRS with 2.0 vs 4.33 and OLBDI with 28.73 vs 49.4.

DISCUSSION

The findings of this study emphasize the marked effect of Myofascial Decompression Therapy and Instrument Assisted Soft Tissue Mobilization (IASTM) with verbal physiotherapy, especially among patients with low back pain (LBP). Our results indicate that Group A, which was given the whole intervention of IFT, Hot Pack Therapy, IASTM, and Myofascial Decompression, showed significantly more improvement in pain and disability compared to Group B, which received only IFT and Hot Pack Therapy.

The significant decrease in Numeric Pain Rating Scale (NPRS) scores in Group A, from pretest mean 7.46 ± 1.54 to post-intervention mean 2.0 ± 1.41 , suggests that the adjunct therapies successfully treated not just pain but also the root musculoskeletal causes of LBP. This is in agreement with the observation of Grafton et al. (2020), whereby integrating different manual therapy methods resulted in more significant pain alleviation in patients with chronic low back pain.

In the same manner, the notable reduction in Oswestry Low Back Disability Index (OLBDI) scores from 78.0 ± 12.19 pre-intervention to 28.73 ± 9.70 post-intervention likewise reflects the functional recovery of Group A participants. This is consistent with earlier research, such as that of Lee and Carlesso (2019), which cited enhanced mobility and function in patients who underwent multifaceted treatment modalities, including myofascial methods.

As compared to that, the control group (Group B) also had improvements in both NPRS and OLBDI scores, but with pretest means showing high levels of pain and disability. Their scores after intervention are lower (NPRS mean of 4.33 ± 0.59 and OLBDI mean of 49.4 ± 6.09) compared to Group A. This observation supports the argument that although routine therapies such as IFT and hot packs are useful, they might not be enough for all patients with LBP. Same findings were made by Fernández-Carnero et al. (2017) when traditional therapies showed positive results, but with increased advantage when other techniques such as IASTM or myofascial release were added and seen in patients with chronic lumbar pain.

A study by Hootman et al. (2017) highlights the significance of holistic treatment modalities in the management of low back pain. According to their study, a combination of therapeutic interventions, such as myofascial release, is most effective in alleviating chronic pain and enhancing mobility. Further, the study by Ceccato et al. (2020) supports this fact, demonstrating that multimodal physiotherapy interventions greatly enhanced functional outcomes and pain levels in patients with chronic low back pain.

The t-values and p-values from both groups show statistically significant changes in disability and pain, supporting the implications of treatment strategies individualized to specific needs. Group A intervention not only treated symptoms but potentially also allowed for enhanced motor control and neuromuscular function, which is crucial in effectively managing low back pain.

In addition, the combined application of conversational physiotherapy in Group A seems to have facilitated patient participation and compliance with the therapy plan. Research by Gittins et al. (2018) previously established that patient-centered communication during physiotherapy can produce improved outcomes through greater motivation and compliance. Similarly, a systematic review by Möller et al. (2021) identified that integrating motivational interviewing methods into physiotherapy had the potential to improve patient outcomes for musculoskeletal disorders, such as LBP.

In summary, this research highlights the efficacy of integrating Myofascial Decompression Therapy and IASTM with traditional physiotherapy techniques in the management of low back pain. The larger decreases in pain and disability in Group A indicate that an integrated approach might be indicated for patients with this prevalent condition. Future studies should investigate the long-term consequences of these combined modalities and larger sample sizes to further establish these results.

CONCLUSION

This research proves that the use of Myofascial Decompression Therapy and Instrument Assisted Soft Tissue Mobilization (IASTM) together with conversational physiotherapy produces far better results in the treatment of low back pain than with the usual treatments. The experimental group showed a tremendous decrease in pain and disability as shown by the improvement in the Numeric Pain Rating Scale (NPRS) and the Oswestry Low Back Disability Index (OLBDI).

The statistically significant difference between the two groups implies that the multimodal approach not only reduces symptoms more efficiently but possibly also remedies underlying musculoskeletal dysfunction and promotes improved functional recovery. The results confirm that there is a need for an individualized multimodal treatment regimen in patients, especially those suffering from chronic low back pain.

Overall, the addition of advanced techniques such as IASTM and Myofascial Decompression, in addition to patient-oriented communication, may contribute to higher adherence to therapy and outcomes. Further research will be needed using larger sample groups and longer follow-up times to continue to substantiate these findings and allow further understanding of long-term effects of these combined modalities.

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