Comparative Study on Myofascial Release Technique and Muscle Energy Technique in Reducing Pain and Improving Functional Activity for People With Chronic Low Back Pain: Experimental Study

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Abstract

Background: Chronic Low Back Pain is a complex and multifactorial condition, often associated with muscular imbalances, trigger points, and myofascial restrictions. MRT focuses on releasing myofascial restrictions, while MET utilizes muscle contractions to normalize muscle length and improve joint mobility. Both techniques have shown promising results individually.

Purpose: To compare the effectiveness of myofascial release technique and muscle energy technique in reducing pain and improving functional activity in individuals with chronic low back pain.

Material and Method: This is an experimental study done using purposive sampling technique with inclusion criteria of age between 30 to 55, Patients who were diagnosed with chronic low back pain (Duration of at least 12 weeks), patients with history of Fractures and Musculoskeletal conditions were excluded. The sampling size of the study is (n=90) subjects for a period of 6 weeks [February 2023 to March 2023].

Results: The results revealed significant improvement of functional activity in patients with chronic low back pain.

Conclusion: This study finally concluded that MRT is more effective than MET in reducing pain and improving functional activity for individuals with Chronic Low Back Pain.

Keywords: low back pain, Myofascial Trigger Release, Muscle Energy Technique, Numerical Pain Rating Scale, Oswestry Disability Index.

Introduction

Numerous people throughout the world deal with Chronic Low Back Pain (CLBP). It could potentially lead to a serious loss in quality of life as well as a significant impairment. Many people throughout the world suffer from the common and debilitating ailment known as Chronic Low Back Pain (CLBP).¹,² Lower back discomfort that is persistent or recurrent and lasts for at least a year is a sign.³ CLBP can have a negative effect on a person’s functional abilities, general health, and quality of life, which can
lead to decreased productivity, increased health care costs, and emotional suffering. Recent studies have shown that people with LBP experience pain and the resulting disability for a longer amount of time than people with other types of pain. Non-specific back pain is more common in young people and may be a major factor in the development of adult LBP. Enhancing patient function and assisting with a restoration to the patient’s preferred level of daily activities are the main objectives of treatment for LBP. Although a variety of treatment approaches are employed, many practice recommendations promote a biopsy Cho-social approach, which places a greater emphasis on self-management, psychological support, and physical therapy and less on the use of drugs and surgical procedures. They have the capacity to activate, leading to pain in the immediate area as well as discomfort referred to other areas of the body. These trigger points are located and treated using a variety of manual techniques in myofascial trigger release. Medical professionals regularly employ a manual therapy technique called Muscle Energy Technique (MET) to aid in the restoration of balance, flexibility, and functionality in muscles and joints. It is a non-invasive technique that necessitates active participation from the patient and is based on the ideas of reciprocal inhibition and neuromuscular facilitation. Musculoskeletal problems are corrected by MET by carefully controlling the contraction of a patient’s chosen muscles against resistance from the therapist or their own body. These contractions are performed at varying intensities and durations to target tight or restricted muscles, improve joint mobility, and lessen discomfort. Based on a person’s needs and the muscles or joints being worked on, MET techniques can alter. The therapist might employ a method known as post-isometric relaxation (PIR), in which the patient contracts a muscle against resistance for a brief period of time before letting go and obtaining increased flexibility. There are many benefits to MET. It can improve the flexibility, strength, and stability of muscles while relieving pain and addressing musculoskeletal imbalances. It can help with joint mobility as well. Myofascial Release Technique (MRT) and Muscular Energy Technique (MET) are two manual therapy methods often employed in the treatment of CLBP. The relative effectiveness of various medications in reducing pain and boosting functional activity is unknown. So, the goal of this study is to evaluate and compare the efficacy of MRT and MET in treating persons with CLBP.

### Aim

To evaluate the efficiency of muscular energy technique and myofascial release technique in treating chronic low back pain and enhancing functional activity.

### Material and Method

This is an experimental study done using purposive sampling technique with inclusion criteria of age between 18 to 60, Patients had been diagnosed with chronic low back pain (Duration of at least 12 weeks). Exclusion criteria with history of fractures. Excluded if having musculoskeletal conditions. The sampling size of the study is (n=90) subjects for a period of 6 weeks [February 2023 to March 2023].

#### Inclusion criteria

- Age between 30-55 year
- Diagnosed with chronic low back pain (duration of at least 12 weeks)
- Both male and female
- No previous surgical intervention for low back pain
- Willingness to participate and provide informed consent

#### Exclusion criteria

- Acute low back pain or other acute musculoskeletal conditions
- Known fractures, tumours, or infections in the spine
- Pregnancy
- Neurological deficits or radicular symptoms.
- Any contraindications for manual therapy techniques

#### Outcome Measure

Assessment was performed at baseline (before starting pf treatment) and after six weeks of study.

1. Numerical pain rating scale (NPRS)
2. Oswestry disability Index (ODI)
Procedure

The intentional sampling technique was used to enlist a total of 90 participants for this investigation. Based on the inclusion and exclusion criteria, every subject was chosen for the study from Sri Rani multispeciality clinic. All subjects received information sheets about the study protocols prior to the study’s start, and their informed consent was obtained. Pre-test analyses on the Oswestry Disability Index (ODI) and Numerical Pain Rating Scale (NPRS) were conducted on the recruited subjects. They were randomly divided into two groups (Group A: 45 subjects) and (Group B: 45 subjects). This analysis was done to determine how the interventions affected the patient’s overall quality of life while they were suffering from chronic low back pain. After the pre-test analysis, Group A received Myofascial Trigger Release (MTR) for 5 sessions per week for 4 weeks, whereas Group B received Muscular Energy Method for 5 sessions per week for 4 weeks. Using SPSS, the data were tabulated after the Post-test analysis, which took place after 4 weeks. Group A performing Myofascial Trigger Point Release (MTR) techniques in reducing pain and improving functional activity in chronic low back pain involves a systematic approach that combines assessment, treatment planning, and precise execution. Here are the general steps to perform MTR for chronic low back pain. Conduct a detailed history taking to gather information about the patient’s pain, including location, intensity, and aggravating/alleviating factors. Palpate the low back muscles, including the paraspinal muscles, gluteal muscles, and hip rotators, to locate trigger points. Position the patient comfortably, usually lying supine, prone, or in a side-lying position on a treatment table. Ensure that the muscles being targeted are relaxed and accessible for treatment. Myofascial trigger point release executions to locate the specific trigger points in the targeted muscles by palpation. Apply direct pressure with your fingers, thumbs, or specialized tools to the trigger point. Start with a moderate pressure and gradually increase to a tolerable level of discomfort, ensuring it does not exceed the patient’s pain threshold. Stretching and mobilization are after releasing the trigger point, incorporating stretching or mobilization techniques to promote.

Group B performing muscle energy techniques (METs) in reducing pain and improving functional activity in chronic low back pain involves a systematic approach that integrates assessment, treatment planning, and execution. Here are the general steps to perform METs for chronic low back pain. Conduct a thorough history taking, including pain location, intensity, duration, and aggravating/alleviating factors. Identify any relevant contributing factors such as muscle weakness, postural abnormalities, or biomechanical dysfunctions. Position the patient comfortably, usually lying supine or prone on a treatment table. Ensure proper alignment of the spine and pelvis to facilitate the desired muscle contraction and joint mobilization. Instruct the patient to perform a specific muscle contraction against resistance in a controlled manner. Choose the appropriate muscle energy technique, such as reciprocal inhibition or post-isometric relaxation, based on the assessment findings and treatment goals. Apply gentle resistance, manually, to oppose the patient’s muscle contraction. Maintain the contraction for approximately 5-7 seconds, ensuring that the patient reaches a maximal effort without pain. Repeat the muscle energy technique for the targeted muscles and joints, typically performing 3-5 repetitions in a treatment session. Monitor the patient’s response to each repetition, assessing changes in pain intensity and functional activity. Further relaxation and lengthening of the muscles. Guide the patient through gentle stretching exercises targeting the muscles that were treated.

Data Analysis

Pre-test and post-test values of myofascial trigger release and muscle energy technique are analysed using the Numerating pain rating scale and Oswestry disability index.

Graph-1: Comparison between pre-test and post-test values of NPRS for MTR
Result

All 90 subjects completed the study successfully; pre-test and post-test values of NPRS for MTR and MET and ODI for MTR and MFR were presented in the following graph 1,2,3. Statistical analysis shows there is a significant improvement from pre-intervention to the post.

Discussion

For people with Chronic Low Back Pain (CLBP), this study compared how well the Muscle Energy Method (MET) and Myofascial Release Technique (MRT) reduced pain and improved functional activity. The outcomes of this study have significance for clinical decision-making and treatment strategies.
for chronic low back pain and offer useful insights into the relative efficacy of these two manual therapy methods. The results of this study showed that MRT and MET were both beneficial in easing pain and enhancing functional activity in those with chronic low back pain. The drop in scores on the numeric pain rating scale (NPRS). showed that participants in both groups had much less pain than before. The unique mechanisms of each approach are responsible for this decrease in the severity of the pain. Myofascial Trigger Release focuses on identifying and releasing myofascial restrictions that may contribute to pain and functional limitations in chronic low back pain. By continuously applying pressure to trigger points or tense bands in the damaged muscles, MRT aims to encourage relaxation, improve blood flow, and restore optimum tissue function. The results of this study are consistent with the idea that MRT is a very successful treatment for chronic low back pain. In terms of functional activity, participants in the MRT group also showed greater improvements compared to the MET group. Functional outcomes showed that people who had MRT had a more significant improvement in their functional abilities, as measured by tools like the Oswestry Disability Index (ODI). This shows that MRT might be more effective at restoring functional activity in people with CLBP.

**Conclusion**

In conclusion, the findings of this study demonstrate that myofascial release technique (MRT) is superior to muscular energy method (MET) in lowering pain and enhancing functional activity for those with chronic low back pain (CLBP). MRT’s focus on releasing myofascial restrictions and improving tissue mobility may contribute to its superior efficacy. It is crucial to take into account some of this study’s potential shortcomings. The generalizability and long-term implications of the findings may be influenced by the study’s sample size and length. The specific processes of MRT, including the removal of myofascial limitations and increased tissue mobility, may be a factor in how well it enhances functional activity.

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**Reference**


