

# A Review on the Effectiveness of Muscle Energy Technique for Pain Management in Musculoskeletal Conditions

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## ABSTRACT

**Purpose:** The purpose of the study is to find the efficiency of muscle energy technique for pain management in musculoskeletal conditions.

**Search Method:** Google Scholar, Research Gate, Science Direct, PubMed from these databases the articles, words selected by using the key words, total 21 articles out of 50 were included.

**Selection criteria:** Selection criteria include articles focusing on efficacy of the muscle energy technique for pain management in musculoskeletal conditions.

**Result/ Conclusion:** This literature study analysed the impact of muscle energy technique applied on musculoskeletal disorders. A wide range of reviews are used to show that muscular energy technique is beneficial in relieving pain in musculoskeletal disorders.

**Key Words:** Musculoskeletal conditions, Muscle energy technique, Pain management.

## INTRODUCTION

Musculoskeletal disorders have an effect on men and women of all ages and entire socioeconomic groups. They affect countless millions of people worldwide and are the

leading causes of severe, continuous pain and physical damage. (1)

They have an affect on every aspects of life by creating discomfort and restricting daily activities, typically by decreasing dexterity, movement, and total functioning. Many of these issues are far more common as people get older, and the majority of them are influenced by lifestyle choices such as obesity and inactivity. (1) As a result, it is expected that these illnesses will increase more common, particularly in emerging nations.

Doctors provide physical therapy often as a non-pharmacological treatment option for persons suffering from musculoskeletal disorders.

It is worth noticing that physiotherapists render a number of non-pharmacological therapies such as exercises and manual therapy, which are indicated in guidelines for treating musculoskeletal problems. (2)

There has been use of manual therapy to improve range of motion (ROM), reduce local ischemia, disintegrate fibrous adhesions, promote proprioception, boost synovial fluid production, and alleviate pain. (3) There are numerous manipulative treatments available, including massage, soft tissue mobilisation, craniosacral techniques, visceral mobilisation, joint mobilisation, joint manipulation, neural tissue

mobilisation, myofascial release, and technique of strain-counter strain (SCS). (4) Muscle energy technique (MET) is one underappreciated technique that physiotherapists can use to treat musculoskeletal issues.

MET is a manual therapy technique used by physical therapists to enhance musculoskeletal function and reduce pain. MET involves stretching following active muscle contraction and relaxation to increase joint mobility and restore normal muscle length.

The two main MET approaches are post-isometric relaxation (PIR) and reciprocal Inhibition (RI). PIR includes stretching a muscular group passively, then contracting it isometrically.

While, RI causes the agonist muscle group to be inhibited by contractions of the antagonist muscle group (5). Following the contraction from the agonist muscle, PIR initiates the tendon of Golgi reflex (6).

Alternatively, RI causes reflexive contractions of the constricted muscle group and causes muscle spindle activation as a subsequent effect of stretching. Moreover, the antagonist muscle group relaxes because of the reflexive contraction, promoting RI (7).

Hence the aim of this review to comprehend the efficaciousness of muscle energy technique especially on pain, Range of motion, functional disability in Musculo skeletal conditions.

### Objectives

The goal of the study is to detect the efficiency of muscle energy technique for pain management in musculoskeletal conditions.

## REVIEW OF LITERATURE

No.	Authors Name	Year of Publication	Aim of the study	Type of Study	Result/Conclusion
1.	Shahid Ishaq	2024	Effects of muscle energy technique versus shoulder mobilization on pain and function in	Pragmatic clinical Trial	Post Isometric Relaxation (MET) and posterior shoulder mobilization with movements (MWM), showed to be effective techniques to decrease disability

## METHODOLOGY

### Study Setting:

Google Scholar, Research gate, Science Direct, Pubmed from these databases the articles, words selected by using the key words, total 21 articles were included.

Selection criteria include articles focusing on efficacy of muscle energy technique for pain management in musculoskeletal conditions.

### INCLUSION CRITERIA:

Articles discussing the efficiency of muscle energy technique in musculoskeletal conditions were included.

Articles including about Musculo skeletal conditions patients were incorporated.

Articles in which musculoskeletal conditions patients have undergone MET were included.

Articles from Science Direct, PubMed, Research Gate, and Google Scholar databases were chosen.

Articles from years 2018 to 2024 were included.

Articles about Musculoskeletal conditions were included.

Full text articles were included.

Articles published in English were included.

### EXCLUSION CRITERIA:

Articles discussing other than Musculo skeletal conditions were excluded.

Articles in which patients took other treatments for Musculo skeletal conditions rather than muscle energy technique were excluded.

Articles less than year 2018 were excluded.

Articles published in other language than English were excluded.

			patients with Subacromial pain syndrome.		level and pain to restore the normal mechanics and functioning (ROM). Muscle energy technique (MET) seemed to be had superior effects over posterior shoulder MWM.
2.	Ali Mazidavi et.al	2023	Effects of Muscle Energy Technique on Pain and Range of Motion in Chronic Low Back Pain Subjects with Lateral Flexion Restriction	Randomized clinical trial	Muscle energy Technique (MET) combination with conventional physiotherapy significantly improves LBP and ROM of lateral flexion in chronic LBP subjects with lateral flexion restriction.
3.	Tamjeed Ghaffar Urf Usman Ghaffar et.al	2023	Comparative effects of muscle energy and Mobilization with Movement Techniques on knee pain, Range of motion and Functional Disability in patients with Knee Osteoarthritis	Randomized controlled Trail	Muscle energy technique (MET) and movement with mobilization (MWM) both are effective for pain, ROM and functional disability in patients with grade II and III knee osteoarthritis
4.	Deepak Kumar Mallick et.al	2023	Effects of muscle energy technique on improving the range of motion and pain in patients with frozen shoulder	Randomized Control Trial	This study shows that MET effectively improves the ROM and functional ability, relieving pain in Frozen Shoulder patients at the early stage of rehabilitation.
5.	Jung-Dae Yoon et.al	2023	The Immediate Effects of Muscle Energy Technique in Chronic Low Back Pain Patients with Functional Leg Length Discrepancy	Randomized controlled Trail	The present study demonstrated that MET as a single intervention positively affected pelvic alignment, functional leg length discrepancy (FLLD), pain, and fatigue in persistent lower back pain patients with FLLD.
6.	Saeid Al Matif et.al	2023	Effectiveness of muscle energy technique on pain intensity and disability in chronic low back patients	Systematic Review	MET considerably lessens the degree of function impairment, enhances lumbar spine range of motion, and reduces the severity of discomfort. Thus, it is advised that physiotherapists use MET to effectively treat patients with chronic low back pain (CLBP)
7.	Swapna Jawade et.al	2023	The effect of Reciprocal Inhibition techniques on Pain, Range of motion, and functional activities in patients with Upper trapezitis	Interventional cross-sectional study	In patients with upper trapezitis, the reciprocal inhibition technique of MET demonstrated a significant improvement concerning pain, cervical ROM, and functional activities throughout five sessions every week for two weeks. This study's findings endorse the utility of reciprocal inhibition-MET in

					managing patients with upper trapezitis.
8.	Sandeep Pattnaik et.al	2023	Comparison of Kaltenborn mobilization technique and muscle energy technique on range of motion, pain and function in subjects with chronic shoulder adhesive capsulitis	Quasi Experimental study	Both Kaltenborn mobilization technique (KMT) along with Muscle energy technique (MET) are effective in improving ROM, both pain and function but MET showed a considerable pain relief and improvement in function in subjects with chronic shoulder Adhesive capsulitis (AC), thus supporting its use as a physiotherapeutic treatment technique.
9.	Reema Joshi, MPT	2022	The effect of muscle energy technique and posture correction exercises on pain and function in patients with non-specific chronic neck pain having forward head posture.	Randomized controlled Trail	The present study concluded that both MET and conventional treatments are efficient in mitigating pain and reducing disability in individuals with non-specific neck pain. However, muscle energy technique and exercises for correcting posture have shown a statistically significant improvement in pain and functional status in individuals with forward head posture who have non specific chronic neck pain in contrast to the conventional treatment group. Thus, MET is recommended over conventional treatment of patients with non-specific persistent neck discomfort and forward head posture.
10	Bhumika Arora et.al	2022	Effect of muscle energy technique in combination with gluteal activation exercises in patients with Piriformis Syndrome	Pre-test post-test experimental study	This present study concluded that Gluteal Activation Exercises along with technique of muscle energy demonstrated effective improvement in pain, ROM, strength and motor control in piriformis syndrome patients as compare to other groups which received both MET and conventional physiotherapy and conventional physiotherapy alone
11.	Mahrukh Siddiqui et.al	2022	Effects of autogenic and reciprocal inhibition techniques with conventional therapy in mechanical neck pain	Randomized control trial	The Autogenic Inhibition-MET (Muscle energy technique) is more beneficial than Reciprocal Inhibition-MET (Muscle energy technique) in improving Pain, Range of Motion, and Functional Disability in patients with Sub-Acute and Chronic Mechanical Neck Pain. Therefore, it is a beneficial technique to add with conventional neck pain therapy to get better treatment outcomes in MNP patients.

12	Shwetha Sasidharan et.al	2022	Comparing the effectiveness of muscle energy technique and static stretching in upper crossed syndrome on IT professionals	Randomized control trial	The present study concluded that both Muscle energy technique and stretching are effective in relieving pain and reducing disability in patient with upper crossed syndrome. However, muscle energy techniques has shown a better effect than stretching in improving pain and functional status of the patient with upper crossed syndrome.
13.	A.A Khakneshin et.al	2021	The Efficacy of physiotherapy Interventions for recovery of patients suffering from piriformis syndrome	Literature Review	Based on the current evidence, it seems that using muscle energy techniques (MET) with stretching of the piriformis and other hip muscles are effective in reduction of pain and disability and improvement of range of motion in patients suffering from piriformis syndrome.
14.	Minal Bharat Masekar et.al	2021	Effectiveness of Muscle Energy Technique and Proprioceptive Neuromuscular Facilitation in knee osteoarthritis	Pre test and post test study	This study resulted in conclusion that PNF stretching and MET both are effective in decreasing pain levels, However the application of PNF stretching in protocol for OA knee patients yielded better results on pain reduction, increased flexibility of hamstrings and an independency in functional mobility.
15.	Ashutosh Mundhava	2020	Effect of muscle energy technique versus ischemic compression on pain and disability in patients with planter fasciitis	Experimental study	The study shows that both the technique muscle energy technique and Ischemic compression were individually effective in improving the flexibility and strength.
16	Bibhuti Sarkar et.al	2020	Efficacy of muscle energy technique as compared to myofascial trigger point release in chronic plantar fasciitis. A double blind randomized clinical trial	A Randomized clinical trial	The present study showed that Myofascial Trigger Point (MTrP) release is more effective than MET in alleviation of pain & tenderness in subjects with chronic plantar fasciitis.
17	Moorthy A et.al	2019	Effects of muscle energy techniques on knee joint mobilization in an early stage following fracture shaft of femur and upper tibia	Pretest- post-test study	The study concluded that Muscle energy technique is more effective in improving range of motion, strength of quadriceps muscles and reducing pain in knee joint.
18	Anood I Faqih et.al	2019	Effects of muscle energy technique on pain, range of motion and function in patients with post-surgical elbow stiffness	A Randomized controlled trial.	Muscle energy technique (MET) can be used as an adjunct to the rehabilitation protocol to treat elbow stiffness and can be given safely in the early stages of post elbow fracture rehabilitation managed surgically with open reduction and rigid internal fixation.
19	Lauren Noto-Bell et.al	2019	Effects of post-Isometric Relaxation on ankle plantarflexion and	Randomized controlled trial	Upon administering MET, which involves post-isometric relaxation, to individuals with limited range of

			timed flutter kick in pediatric competitive swimmers.		motion, swimmers' ROM for bilateral ankle plantar flexion was markedly enhanced; however, their swimming performance did not improve instantaneously.
20	Parth Trivedi et.al	2019	Efficacy of Muscle Energy Technique with Plyometric Exercises in Chronic Lateral Epicondylitis.	A randomized controlled study	The result of this study shows that participants with chronic lateral epicondylitis (CLE) saw significant improvements in discomfort, functional performance and grip strength after 4 weeks of MET combined with plyometric exercises compared to the control group.
21	Prosenjit baidya et.al	2018	Efficacy of muscle energy technique and contract relax with mulligan's mobilization with movement technique in subacute ankle sprain.	Randomized control trial.	This study concluded that both MET and contract relax with mulligan's MWM are equally effective techniques to reduce pain, increase ROM and gait variables in subacute stage of lateral ankle sprain.

## DISCUSSION

This study aimed to assess the effectiveness of muscle energy technique for pain management in Musculo skeletal conditions. Musculoskeletal conditions account for the greatest amount of continuous pain throughout geographies and ages. Hainline B, Turner JA et.al stated that pain and musculoskeletal (MSK) conditions limit human performance. Fryer G. et.al reported that the primary goal of muscle energy technique (MET) was to treat soft tissue, mobilise joints, stretch fascia and tight muscles, reduce pain, improve lymphatic drainage and circulation. It was created by two osteopathic doctors Fred Mitchell, Sr. and Fred Mitchell, Jr. The 2023 study by saeid Al matif et.al expressed that MET substantially decreases the amount of function disability, enhances lumbar spine range of motion and lessens pain intensity. The study by Tamjeed ghaffar urf Usman ghaffar et.al in 2023 found that MET and movement with mobilization (MWM) both of them are efficacious in pain, range of motion and functional disability in people with grade I and III knee osteoarthritis.

Shahid Ishaq conducted research in 2024 on the effects of muscle energy technique in contrast to shoulder mobilization on patients with subacromial pain syndrome discovered that Post Isometric Relaxation (MET) and

posterior shoulder (MWM), exhibited to be effectual techniques to decrease pain and disability level and to bring back the normal mechanics and functioning (ROM). Muscle energy technique (MET) appeared to be have superior effects over posterior shoulder MWM.

Deepak Kumar and colleagues performed a study on the effects of muscle energy technique on patients with frozen shoulder found that MET effectively improves the range of motion and functional ability, reducing pain in Frozen Shoulder patients in the early stage of rehabilitation. After executing research on the outcome of reciprocal inhibition technique of Muscle energy technique for a period of 2 weeks Swapna Jawade et al. found significant improvement in neck pain, cervical movement, and functional activities in patients with upper trapezitis.

After three weeks of muscle energy technique and posture correction exercises Reema Joshi et.al came to the inference that combined effect of muscle energy technique called post isometric relaxation and posture correction exercises notably enhanced the pain and functional status in patients with non-specific chronic neck pain having forward head posture.

According to Bhumika Arora et.al Muscle energy technique along with gluteal

activation exercises became successful for combating pain and improving range of motion, strength and motor control in patients with piriformis syndrome.

It was observed by Bibhuti sarkar et.al that myofascial trigger point release along with stretching exercises is more effectual than Muscle energy technique in reduction of pain, improving pressure tolerance and function in people with plantar fasciitis.

Chronic lateral epicondylitis patients showed substantial changes in pain, grip strength and functional performance after receiving muscle energy technique with plyometric exercises for a period of 4 weeks as discovered by Parth Trivedi et.al.

When performed for a period of 2 weeks Shwetha Sasidharan et.al found that muscle energy technique has shown a better effect than stretching in improving pain and functional status of the patients with upper crossed syndrome.

Muscle energy technique, contract relax, Mulligan's mobilization with movement technique executed for three days a week for period of four weeks concluded in reduction of pain, increase in ankle range of motion and improvement of dynamic gait variables in people with sub-acute stage of lateral ankle sprain by Prosenjit Baidya et.al.

Application of Muscle energy technique using post isometric relaxation was exhibited to be effective in enhancing ankle plantar flexion range of motion in swimmers and it did not improve their swimming performance instantly in a study performed by Lauren Noto- Bell et.al.

Active and Active assisted range of motion exercises using wand for the elbow region, wrist and shoulder region along with muscle energy technique for three weeks 6 days a week proved to be effective in improving pain, range of motion and function in patients with post-surgical elbow stiffness.

## CONCLUSION

This literature review analyzed the effect of muscle energy technique on musculoskeletal conditions. The wide range of reviews are used to demonstrate that muscle energy

technique is effective in reducing pain in musculoskeletal conditions and can be used as an addition along with other physiotherapy interventions.

## Declaration by Authors

**Ethical Approval:** Not Applicable

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**Conflict of Interest:** The authors declare no conflict of interest.

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