

The Effectiveness of Myofascial Release Therapy in Improving Myofascial Pain Syndrome – A Review of Literature

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Abstract

Objective: To methodically review the randomized controlled studies to assess Myofascial Release Therapy's impact on myofascial pain syndrome.

Methodology: The articles were collected by search engines including the Physiotherapy Evidence Database (PEDro), ResearchGate, PubMed, Scopus, and Google Scholar. Using the phrases and MFR methods, 15 articles were chosen. The information was tallied based on the kind of study, the number of participants, the illness being treated, the course of treatment, the end measures, and the outcomes of the study.

Result: The result of this review implies that Myofascial Release (MFR) is effective in improving myofascial pain.

Conclusion: According to this study, different responses were generated by the findings of MFR techniques. These conflicting results emphasize the need for additional research. This may help with the development of protocols that will enhance interpretations and the need for evidence-based information, as well as the application of MFR in randomized controlled trials (RCTs).

Keywords: Myofascial Release, Pain, Trigger point release, Randomized Controlled Trials

Introduction

There are few precise trigger locations for MPS, a disorder that produces musculoskeletal pain.¹ An assessment and history are essential in diagnosing

MPS. Myofascial discomfort and dysfunction are frequently caused by direct or indirect trauma, spine disease, cumulative and repetitive strain exposure, postural dysfunction, and physical deconditioning.² One of the many manual treatment approaches for

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treating MPS is MFR therapy, which has gained a lot of traction in recent years. In the late 1980s, MFR was first used in a course at Michigan State University.³ Since the term “myofascial release” is broad and encompasses many different therapies, it’s important to specify which specific treatment is being employed. The form of MFR of interest in this study is a graded stretch to soft tissue in which the therapist determines the stretch’s direction, force, and duration based only on feedback from the recipient’s body to address particular soft tissue constraints. Orthopedic issues are commonly treated with this kind of MFR.⁴ It’s also important to remember that both the patient and the practitioner must provide feedback for myofascial release to be effective. Other types of MFR include trigger-point therapy and active therapies, where the patient contracts their muscles to relax. Fascia is a type of connective tissue composed of three layers: the deep layer, the layer of potential space, and the surface layer. The fibers of fascia travel in several directions, allowing it to move and change in unison with the surrounding tissues.⁵ Therefore, pain, tightness, and restriction in one part of the body may be caused by straining the fascia in another. Similar like pulling plastic wrap across a dish, as one side is pulled tight, the other side becomes even more rigid. The experienced pain deviates from the typical patterns of transferred pain. Because of the fascia’s dynamic nature, myofascial soreness can be difficult to diagnose, but once it is, manual therapy techniques like MFR are commonly employed to treat it. Participants may display a “jump sign” through vocal or facial cues when trigger sites are compressed during palpation.

The musculoskeletal system is a sophisticated network of interrelated tissues that work together to efficiently facilitate movement. Muscular function is hindered when the muscles and fascia sustain microtrauma. These fascia-developing Myofascial Trigger Points can result in decreased strength, decreased range of motion, and changes in neuromuscular properties. Because its fibers can flow in many different directions, the fascia can shift

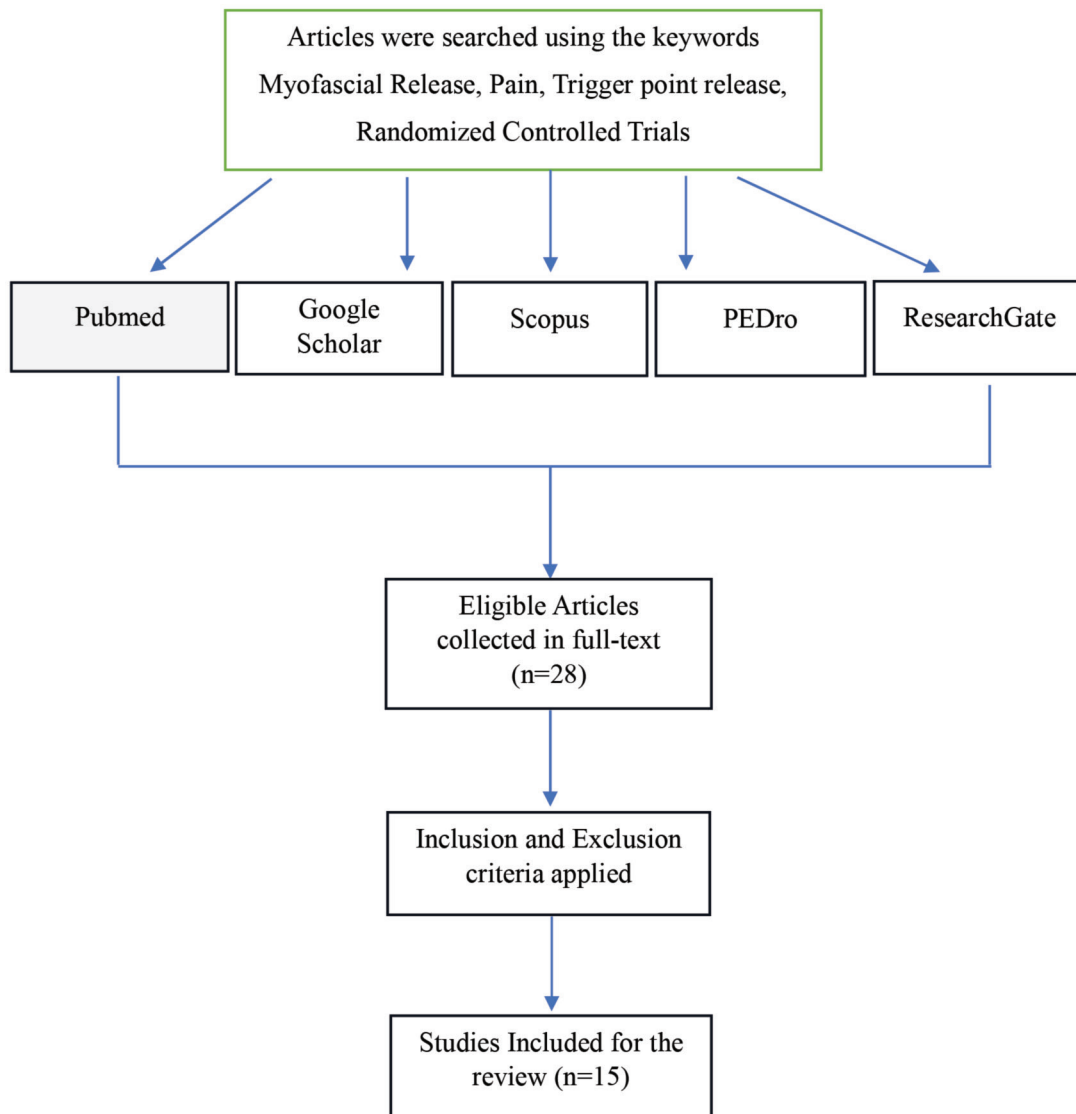
and change in response to the surrounding tissues. The thickening of connective tissues brought on by overuse alters the ground material and the structure of the collagen fibers in muscles. Depending on how they are used, MFR techniques can be classified as either direct or indirect. In the direct MFR approach, the practitioner releases the trigger point by stretching the fascia with the elbow or another tool. The indirect MFR technique involves gently stretching the body with minimal force while moving the hand in the direction of the fascial constriction. This approach is sometimes referred to as the passive MFR technique since the patient remains passive during treatment and minimal pressure is applied to the tissue. Myofascial manipulation often results in an immediate relaxation of tissue beneath the operating hand. Historically, this remarkable characteristic has been ascribed to the connective tissue’s mechanical characteristics. However, the fascia is richly innervated with mechanoreceptors that respond to physical pressure. In addition to altering local tissue viscosity, stimulation of these sensory receptors has been shown to reduce sympathetic tone. Moreover, fascia contains smooth muscle cells that seem to be involved in active fascial contractility. After releasing the tissue barriers in one area, the practitioner moves on to the next and holds it in place. The tissue becomes pliable after a few releases. When myofascial tissue lengthens again, strain on the wounded tissues is reduced and joint mobility and alignment are restored. It may be difficult to identify trigger point discomfort since the fascia plays a dynamic role and does not follow a single pattern of pain.⁶

The superficial fascia often allows mobility between the integument and underlying structures, as well as transporting blood vessels and nerves to and from the skin.⁷ Some authors contend that the treatment cannot be substantiated by evidence because its results are arbitrary. Although numerous manual ways were once described using the same logic, it is now acknowledged that these techniques are part of evidence-based research. The process of

myofascial discharge is creative. Much depends on the therapist's innate skills and experience. The first step is to confirm that the condition is indeed musculoskeletal in origin. This is not always easy since movement and posture might be disrupted by non-musculoskeletal reasons.⁸ Thus, the main objective of this review study was to gather evidence in favor of MFR and evaluate its effectiveness as a treatment approach for myofascial pain issues.

Materials and Methodology

Search Methodology: From 2010 to 2023, online search engines PubMed, Google Scholar, PEDro, Scopus, and the ResearchGate database were used to collect journals. Initially, a total of 28 articles were found based on the inclusion criteria. The articles were collected in full text, out of which 15 were selected for review [Fig-1-Flow Chart of the study].



Inclusion Criteria: Studies that are published in English language only, published between the years 2010-2023, Studies that include direct or indirect MFR techniques, published in peer-reviewed journals,

Studies that are free of cost, contain both genders and only Randomized Controlled Trials (RCTs).

Exclusion criteria: Studies that are non-English and published before 2010; Case Studies; studies that do

not have accurate outcomes; non-RCTs; preceding papers, conferences, and articles without available full text.

Review of Literature

An RCT with 113 patients with chronic low back pain (CLBP) and a PEDro score of 7 out of 10 was carried out by Ozóg et al. in 2023. They found that a single MFR treatment in the thoracolumbar fascia (TLF) did not immediately affect postural stability in the experimental group of CLBP patients. Additionally, after a month, postural stability did not improve in comparison to the pre-treatment data. The experimental group's postural equilibrium parameter values did not significantly change from those of the control group one month after the intervention.⁹ Another RCT by Ozóg et al., 2021, found that after receiving a single MFR therapy, a group of patients with CLBP experienced an immediate decrease in the activity of the erector spinae and multifidus muscles in the lumbodorsal spine region at rest (PEDro score of 7). Comparing the outcomes with those of the control group demonstrates that the effects are stronger for the multifidus muscle.¹⁰ According to a Paulo et al., 2021 RCT with a 7 PEDro score, a single treatment of the thoracolumbar myofascial release technique was not enough to reduce pain and disability in those with CLBP. Further investigation into the combination of myofascial mobilization and longer-term therapy is required.¹¹ According to a randomized controlled trial (RCT) by Sabake et al. (2020), the proposed protocol, which comprised three sessions of myofascial techniques, helped the subjects with LBP experience a month-long reduction in pain intensity, a decrease in the degree of lumbar disability, enhanced spine mobility, and improved posterior chain flexibility. The PEDro scale gave the study a score of six out of ten.¹² The myofascial release method was found to significantly reduce pain and impairment in individuals with lower back pain when compared to the sham group, according to an RCT done on 36 patients by Arguisuelas et al. in 2019. This study has a PEDro score of 9 out of 10.¹³ According to the findings of another RCT by Kisilewicz et al. (2018), active myofascial trigger points with ischemic

compression reduce stiffness in the upper half of the trapezius muscle after just one treatment session.¹⁴ In an RCT with 54 patients with CLBP who had a PEDro score of 9 out of 10, Arguisuelas et al. (2017) discovered that Myofascial Release Therapy significantly reduced both pain and disability.¹⁵ In their RCT, Gutiérrez-Rojas C et al. (2015) reported that while the extensor muscle strength of each group remained unchanged, the pressure pain threshold (PPT) immediately improved. This study's main drawbacks were its small sample size and absence of follow-up.¹⁶ Ravish et al. (2014) also noted that both groups' functional limits, range of motion, and discomfort levels were significantly improved. Positional Release Therapy (PRT) with LASER has not shown as much improvement as MRT with LASER when comparing the subjects in the two groups.¹⁷ Chaudhary et al. (2013) reported that MFR plus exercises improved pressure pain threshold, opposite side cervical side flexion range of motion, and pain relief in patients with upper trapezitis more effectively than cold packs plus exercises or exercises alone because of the stretching effect on the muscle. The study's quality suffered and conclusive results about the effects of MFR could not be obtained due to the small sample size and absence of follow-up measurements.¹⁸ Ajimsha et al. (2012) conducted another RCT with 68 computer professionals and discovered that the MFR they examined was more effective in treating Lateral Epicondylitis (LE) than a control intervention that used sham ultrasound therapy. There was randomization and a further evaluation after the PEDro score of six out of ten. Additionally, a control group was included in this single-blinded study. MFR is an effective treatment option for LE, as this study showed.¹⁹ To determine whether MFR and heat packs could both improve range of motion, Kain J et al. (2011) performed a randomized controlled trial (RCT) on 31 randomly selected participants from a convenience sample. The sample size was small, and blinding was not used. The study's quality was insufficient because the treatment was only given once and there was no follow-up measurement. They claimed that throughout a larger range of motion, MFR was shown to be equally effective as hot packs.²⁰

In treating patients with plantar heel pain, an RCT by Renan-Ordine et al. (2011) found that combining Trigger Point manual treatment with a self-stretching regimen yielded superior short-term outcomes than a self-stretching program alone.²¹ According to Tozzy P et al. (2011), MFTs appear to be a useful method for improving or even regaining normal

tissue mobility and function as well as lowering pain perception.²² In the short- to medium-term management of chronic Temporomandibular Disorder (TMD), another study by Kalamir A. et al. (2010) showed that intraoral myofascial therapy (IMT), either alone or in combination with self-care, may be beneficial.²³

Result Tables

Table 1. List of studies that are included in the review with their results.

Sl No.	Author Names	Study type	Sample Size	Intervention	Outcome measures	Results
1	Oz'óg et al., 2023 (PEDro Score - 7)	RCT	113	MFR intervention	Posturography	After a month, postural stability did not improve in comparison to the pre-treatment data.
2	Oz'óg et al., 2021 (PEDro Score - 7)	RCT	113	MFR intervention	Surface electromyography (sEMG)	After a single MFR treatment in the EG, the ES and MF muscles in the lumbar posterior spine area immediately displayed decreased activity when at rest.
3	Paulo et al., 2021 (PEDro Score - 7)	RCT	41	MFR intervention	Numerical pain rating scale (NPRS), pressure pain threshold (PPT), and Oswestry Disability Index (ODI)	One thoracolumbar MFR experiment proved insufficient to reduce pain intensity and disability in patients with CLBP.
4	Sakabe et al., 2020 (PEDro Score - 6)	RCT	60	MFR intervention	Visual Analogue Scale (VAS), ODI, Fingertip to Floor test (FTF), Sit and Reach Test, Measurement of lateral spine inclinations	The MFR regimen improved mobility and decreased the degree of lumbar dysfunction and pain severity in participants with CLBP, according to the findings of the Sit and Reach and FTF tests.
5	Arguisuelas et al., 2019 (PEDro Score - 9)	RCT	36	MFR intervention	Mc.Gill Pain Questionnaire (SF-MPQ), Roland-Morris Questionnaire (RMQ), sEMG	MFR also showed a significant reduction in pain severity and disability as compared to the Control Group.

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6	Kisilewicz A et al.,2018 (PEDro Score - 6)	RCT	12	Compression trigger point therapy	Myoton PRO device	After just one session, the stiffness went down.
7	Arguisuelas et al., 2017et al., 2019 (PEDro Score - 9)	RCT	54	MFR intervention	SF-MPQ, VAS, RMQ, Fear Avoidance Belief Questionnaire (FABQ)	Although there were minor but statistically significant differences in pain and impairment, the study concluded that it is still unclear if this improvement is statistically significant.
8	GutiérrezRojas C et al.,2015 (PEDro Score - 9)	RCT	30	Ice Therapy, MFR, Ice and MFR combined	PPT, Pressure Pain Perception (PPP), Strength of flexor and extensor of forearm	MFR and Ice together show better development in PPT.
9	RavishVN et al.,2014 (PEDro Score - 5)	RCT	60	MFR, PRT with LASER therapy	VAS, Cervical ROM (CROM), Neck disability index (NDI)	Laser-assisted MFR demonstrated greater improvement.
10	Chaudhary ES et al.,2013(PEDro Score - 5)	RCT	45	MFR, Cold pack, and exercises	VAS, PPT, ROM	Exercise and MFR showed greater improvements.
11	Ajimsha et al.,2012 et al., 2019 (PEDro Score - 6)	RCT	68	MFR, and Sham US	Patient-Rated Tennis Elbow Evaluation (PRTEE)	MFR is effective in pain reduction.
12	Kain J et al.,2011 (PEDro Score - 5)	RCT	31	Indirect MFR	PROM	MFR is effective in increasing ROM.
13	Renan-Ordine et al.,2011 (PEDro Score - 6)	RCT	60	Self-Stretching and MFR	Quality of life SF-36 questionnaire, PPT	MFR is better than Stretching group.
14	Tozzy P et al.,2011 (PEDro Score - 6)	RCT	120	MFR interventions	Dynamic Ultrasound (US)	The MFR group showed improvement in pain reduction in Neck Pain & Low Back Pain.

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15	Kalamir A. et al.,2010 (PEDro Score - 8)	RCT	30	MFR, MFR with exercises and self-care	11-point self-reported graded chronic pain scale, ROM by vernier calipers	MFR alone or with self-care is more beneficial but to maximize the effectiveness, a well-designed RCT would be ideal.
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Discussion

Fifteen articles, all RCTs, were considered in this review. Only RCTs were used for the study since they offer the strongest degree of evidence. The following are a few of the particular situations mentioned: The sample size estimation methods used in the two studies were not described.^{10,12} The research methodology was not reported in certain papers.^{9,10} Three trials did a significant amount of research without blinding the evaluator,^{9,10,12} and no study blinded the therapist performing the MFR process.^{9,10,11,12} This may result in bias. In the Arguisuelas et al. study, there were no appreciable differences in the SF-MPQ scores across the groups after therapy. In contrast to the CG15, the results of the 12-week follow-up showed a statistically significant decrease in the EG's pain level (measured by the SF-MPQ). A control group was absent from several of them. Although evidence is required to support its efficacy, MFR cures many illnesses.^{14,16,17,18} As a result, further research can be based on the experimental results presented in this paper. These studies clearly show that the results are not consistent. While some studies showed that MFR was better than other treatment approaches, most showed that other approaches were as effective in treating that condition. MFR has been used in several studies as part of combination therapy, which amplifies the advantages of physiotherapy and different manual therapy methods. These guidelines hinder objectively evaluating the therapy's components and determining the most effective interventions, even though they aim to provide comprehensive physiotherapy and include useful explanations. The findings indicate that a series of MFR treatments can improve

range of motion, reduce functional impairment and fear-avoidance attitudes, change the way paraspinal muscles contract, and dramatically reduce the level of pain experienced by people with CLBP. To avoid oversimplifying the benefits of MFR based on scant or contradictory data, the few qualifying trials with limitations should be carefully interpreted.

Conclusion

The range of RCTs under consideration suggests that MFR is a promising treatment for musculoskeletal conditions and pain. The production of higher-quality evidence to improve the therapeutic practice of therapists utilizing MFR techniques will require future research that emphasizes safety and technical approaches, uses more rigorous procedures, and adheres to uniform protocols. The suggestions made in this analysis will help to improve the quality of results and prove that MFR is a truly effective treatment for myofascial pain.

Limitations

The study has several limitations, such as the fact that only English-language publications were evaluated because of financial and comprehension constraints. Even with a comprehensive search of all published RCTs, some relevant studies might have been overlooked. The majority of the studies had tiny sample sizes which may be challenging to identify significant differences across interventions due to random variation in the outcomes.

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Ethical Clearance: Not applicable.

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