

Effectiveness of Myofascial Release for Upper Trapezius Myofascial Pain: A Systematic Literature Review

Ni Putu Diah Anantari^{1*}, I Dewa Ayu Inten Dwi Primayanti²

¹Program Studi Magister Fisiologi Olahraga, Fakultas Kedokteran, Universitas Udayana, Indonesia

²Departmen Fisiologi Olahraga, Fakultas Kedokteran, Universitas Udayana, Indonesia

Email: niputudiahnanantari@gmail.com

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ABSTRACT

Introduction: Myofascial pain in *the upper trapezius* is one of the causes of neck pain, often associated with *myofascial trigger points*, tenderness, stiffness, restricted cervical movement and reduced function. Myofascial release (MFR) is a physiotherapy intervention aimed at reducing soft tissue restrictions and modulating pain; however, its effectiveness still varies due to differences in technique, intervention dosage, population characteristics, and comparison groups. This review aims to analyse the effectiveness of MFR on pain, pressure pain threshold (PPT), *cervical range of motion* (CROM), neck disability, and function in individuals with *upper trapezius* myofascial pain. **Methods:** A literature review was conducted via a structured search of publications from 2021 to 2026, adhering to the PRISMA principles, through PubMed/PMC, Google Scholar, publishers' websites, and a search of relevant references. A total of ten core publications, comprising clinical trials, randomised controlled trials, and systematic reviews/meta-analyses, were narratively synthesised as the primary basis for the analysis, whilst additional sources were used to strengthen the methodological context and discussion. **Results:** The results of the synthesis indicate that MFR is generally associated with a reduction in pain intensity, an increase in PPT, improvements in CROM, neck disability, and several aspects of function, particularly in the short term. However, the evidence regarding the superiority of MFR over other interventions such as IASTM, trigger point release, dry needling, or stretching remains inconsistent. Variations in MFR techniques, therapeutic dosage, the use of co-interventions, subject characteristics, follow-up duration, and differences in measurement instruments have led to study heterogeneity, which limits the certainty and generalisability of the results. **Conclusion:** MFR may be considered as one of the non-invasive interventions within a multimodal rehabilitation approach; however, further research is required with more standardised protocols, clearly defined comparison groups, and longer follow-up periods.

Keywords: *Myofascial release, Myofascial pain syndrome, Upper trapezius, Myofascial trigger point, Neck pain, Pressure pain threshold.*

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INTRODUCTION

Neck pain is a musculoskeletal problem that can interfere with daily activities, productivity, sleep and participation in work. In clinical practice, one of the findings frequently associated with this complaint is *the myofascial trigger point* (MTrP), particularly in the *upper trapezius* muscle (Stieven et al., 2021) . MTrPs

are generally described as hypersensitive areas within taut muscle bands, causing localised pain as well as referred pain, and may be accompanied by a reduced range of motion and functional impairment. *The upper trapezius* is a relevant area as it plays a role in the stabilisation and complex movement of the shoulder–neck region, whilst



also bearing a significant postural load during sitting, computer use, smartphone use and overhead activities (Agarwal et al., 2024) .

Myofascial pain syndrome (MPS) is a condition characterised by a combination of pain, tenderness, tight bands and trigger points. In *the upper trapezius*, symptoms may include a feeling of tightness in the neck and shoulders, pain radiating to the posterolateral region of the neck or head, reduced tolerance to pressure, and restricted lateral flexion and cervical rotation (Öcalan et al., 2025) . These manifestations are not always identical in every patient; therefore, clinical diagnosis usually requires the integration of the patient's history of symptoms, palpation of trigger points, reproduction of familiar pain, and functional assessment. In recent clinical trials, commonly used outcome measures include the Visual Analogue Scale (VAS) or *Numeric Pain Rating Scale* (NPRS), pressure pain threshold (PPT) measured with an algometer, *cervical range of motion* (CROM), *the Neck Disability Index* (NDI), and the quality-of-life instrument .

The presence of trigger points in *the upper trapezius* is associated with repetitive mechanical and neuromuscular stress. Forward head posture, prolonged shoulder elevation, screen-based activities, overhead activities, and submaximal static contractions can increase the workload on the muscle and reduce the range of motion. These conditions have the potential to trigger pain, changes in tissue sensitivity, and reduced motor efficiency. Suresh et al., (2021) , for example, studied smartphone users with *upper trapezius* trigger points and found that a manual approach targeting these trigger points could reduce pain and disability whilst improving cervical lateral flexion. These findings reinforce the clinical rationale for assessing soft tissue therapy more specifically in populations experiencing repetitive postural strain (Joshi et al., 2022) .

One widely used technique is myofascial release (MFR). The term MFR encompasses

various forms of manual pressure, stretching or gliding directed at fascial and muscle tissue with the aim of reducing tissue restrictions, improving extensibility and modifying the pain response (Shewail et al., 2023) . The technique can be applied directly to tissue that feels restrictive, through sustained pressure, focused stretching, or a combination of soft-tissue techniques. This variation in terminology is important because not all studies use identical MFR procedures. Some studies employ pure manual MFR, whilst others combine it with stretching, ultrasound, TENS, or standard physiotherapy programmes (Hidayati & Wardana, 2023) .

In theory, the effects of MFR may arise through a combination of mechanical and neurophysiological mechanisms. In myofascial pain, an increase in PPT following therapy may be interpreted as a reduction in mechanical hyperalgesia. Pressure and stretching of soft tissues are theoretically thought to influence the viscoelastic properties of the fascia, improve tissue glide, affect mechanoreceptor input, and modulate nociceptive sensitivity. However, these mechanisms remain biological hypotheses as they have not yet been fully confirmed through direct measurements in clinical studies (Overmann et al., 2024) . The most commonly measured clinical responses are reduced pain, increased PPT, and improved ROM. However, immediate changes following a single session cannot always be interpreted as changes in fascial structure. Temporary analgesic responses may also be influenced by patient expectations, sensory modulation, the therapeutic context, and changes in the activity of the peripheral and central nervous systems (Yadav & Sharma, 2024) . In light of this, the interpretation of the mechanisms underlying MFR must be approached with caution and is more appropriately positioned as a supporting biological hypothesis rather than direct evidence of structural changes.



Clinical evidence shows a promising but heterogeneous pattern. Stieven et al., (2021) found that a single session of myofascial release in individuals with chronic neck pain and an active *upper trapezius* trigger point resulted in an increase in both local and distant PPT, as well as a reduction in pain, although differences between interventions were not always significant for all outcomes. According to also reported improvements in VAS, PPT, disability and CROM following a four-week programme in patients with *upper trapezius* MTrP, but the results between groups did not show consistent statistical superiority. These findings suggest that MFR may be clinically effective, whilst the question of its superiority over other interventions remains open.

More recent research expands on this picture. Shewail et al., (2023) compared MFR with instrument-assisted soft tissue mobilisation (IASTM) in students with chronic mechanical neck pain and found improvements in both groups, with no significant differences between the groups in terms of pain, function and PPT. Fajriah et al., (2024) , in a study of *upper trapezius* myofascial pain syndrome (MPS), also found that manual MFR and IASTM both improved pain, PPT, range of motion (ROM) and function; IASTM was superior for pain, but PPT, ROM and function did not differ significantly. These results suggest that the benefits of MFR may be comparable to those of some other soft tissue techniques, particularly in terms of short-term outcomes.

In patients with more widespread cervical myofascial pain syndrome, Öcalan et al., (2025) demonstrated that the addition of myofascial release therapy to standard physiotherapy resulted in greater improvements in pain, the number of trigger points, PPT, ROM, NDI and quality of life compared with standard physiotherapy alone. Meanwhile, Khan et al., (2026) reported that the combination of MFR and high-powered pulsed

therapeutic ultrasound provided greater improvement than stretching with ultrasound in overhead athletes with active *upper trapezius* MTrPs. Although these results support MFR, the presence of co-intervention means that the specific effects of MFR cannot be entirely separated from those of the accompanying modality.

At the level of evidence synthesis, the findings still indicate uncertainty. The results of the study by Guo et al. (2023) on chronic mechanical neck pain found a significant increase in trapezius and suboccipital PPT following MFR, but did not yield consistent evidence regarding pain, ROM and NDI. In contrast, Overmann et al., (2024) reported modest effects on pain reduction and ROM in some directions, but found no significant effects on PPT overall. These differing conclusions are likely due to variations in the study populations, MFR techniques, comparison groups, number of sessions, measurement tools, and the studies included.

In addition to the heterogeneity of interventions, key limitations in the literature include relatively small sample sizes, short follow-up periods, the difficulty of blinding in manual therapy, and the use of various combinations of therapies. A scoping review by also highlights significant variation in the frequency and duration of MFR for chronic neck pain, with a tendency for studies to measure pain rather than quality of life. A study by Yadav & Sharma, (2024) even designed a controlled clinical trial to compare MFR with positional release therapy for active *upper trapezius* trigger points, indicating that questions regarding dosage and choice of technique remain an active area of research.

Several previous systematic reviews and meta-analyses have evaluated the effectiveness of MFR for chronic neck pain in general; however, the populations included in these studies



encompassed a variety of clinical conditions with heterogeneous characteristics, such as chronic mechanical neck pain, cervical myofascial pain syndrome, and other cervical conditions. However, this heterogeneity means that the results obtained do not yet fully reflect the therapeutic response in patients with myofascial pain specifically involving *upper trapezius myofascial trigger points*. Furthermore, the *upper trapezius* has distinct clinical characteristics as it is one of the most common sites for trigger points due to static postural strain, computer use, smartphone use, and repetitive overhead activities. Consequently, the findings of reviews addressing chronic neck pain in a broad sense still have limitations in explaining the effectiveness of MFR specifically in the population with *upper trapezius* myofascial pain.

Several previous studies have also combined various tissue sites, MFR techniques, intervention doses and different patient groups; consequently, the specific contribution of MFR to outcomes such as pain, pressure pain threshold (PPT), *cervical range of motion* (CROM) and neck disability has not yet been fully understood. This situation highlights the need for a study specifically focusing on *upper trapezius* myofascial pain to obtain a more targeted understanding of the clinical effectiveness and limitations of the available evidence.

Given these circumstances, a systematic review is required that specifically places *upper trapezius* myofascial pain at the centre of clinical

attention. This review aims to analyse the effectiveness of MFR on pain, PPT, CROM, disability, and function; to compare the results of MFR with those of soft tissue interventions or other therapies; and to identify methodological limitations and clinical implications for physiotherapy. With this approach, the findings of the literature review are expected to provide a more targeted overview of when MFR is beneficial, which outcomes respond most effectively, and which aspects still require more robust research.

METHODS

Design and Literature Search Strategy

This study employed a structured literature review approach, with reporting based on the principles of the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) (Page et al., 2021) . This review did not conduct a meta-analysis due to considerable heterogeneity in the characteristics of the study populations, myofascial release (MFR) techniques, intervention doses, comparison groups, and the outcome measures used in each study. A literature search was conducted between January 2026 and March 2026 using the PubMed/PMC database, Google Scholar, the websites of relevant journal publishers, and reference lists from relevant articles. The final search was carried out on 15 March 2026. The PRISMA analysis is shown in Figure 1.



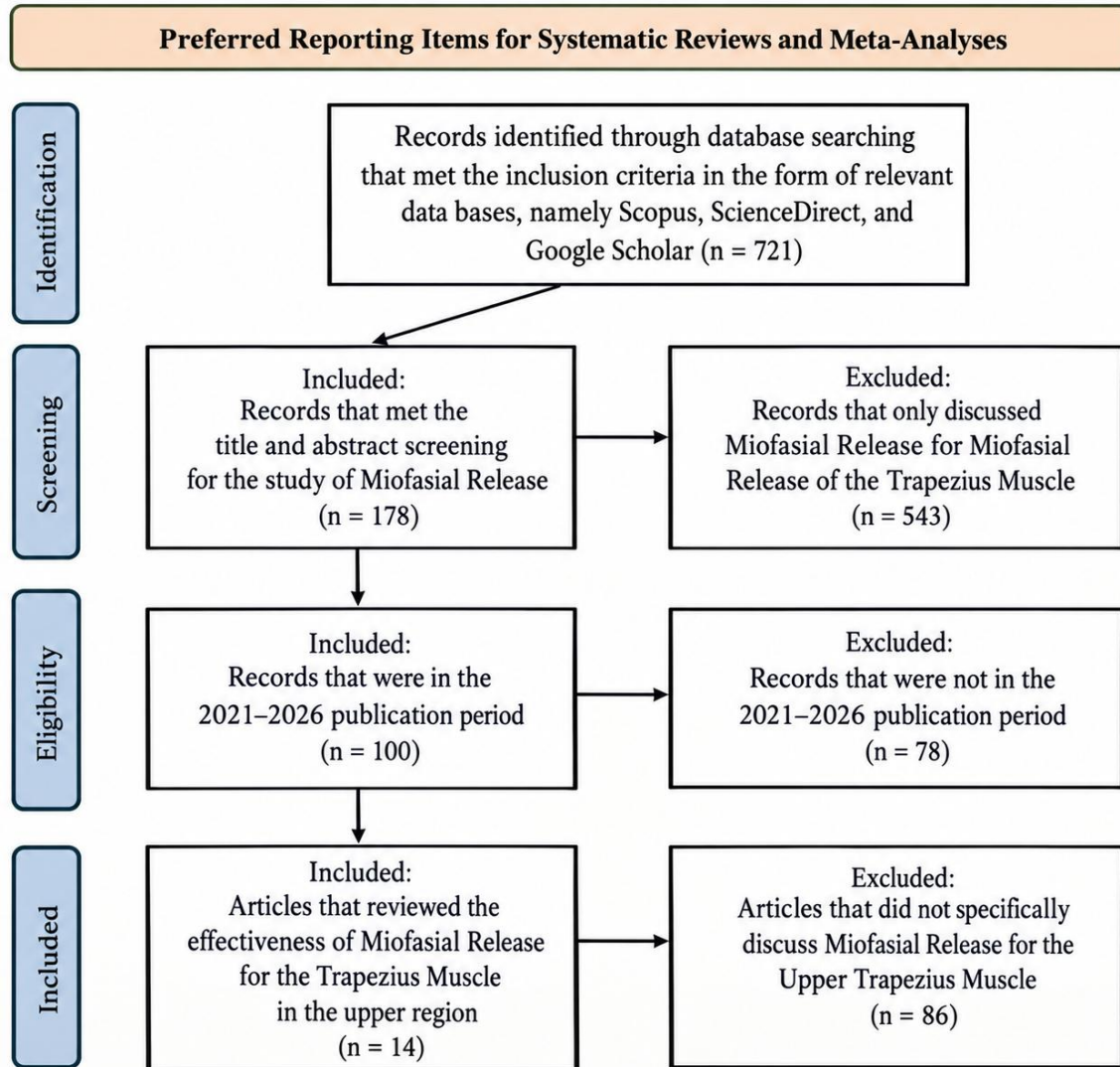


Figure 1. Literature Selection Flowchart Based on the PRISMA Framework

The search strategy was devised using a combination of keywords covering three main components: intervention, location or diagnosis, and outcome. The search string used was (“myofascial release” OR “manual myofascial release” OR “myofascial release therapy”) AND (“upper trapezius” OR “trapezius muscle” OR “myofascial trigger point” OR “myofascial pain syndrome” OR “neck pain” OR “cervical myofascial pain”) AND (“pressure pain threshold” OR “pain” OR “cervical range of

motion” OR “neck disability” OR “functional disability”). The Boolean operator AND was used to combine the main concepts, whilst the OR operator was used to broaden the range of terms with similar meanings. The initial search yielded a total of 721 articles, comprising 214 articles from PubMed/PMC, 452 articles from Google Scholar, and 55 articles obtained via publishers’ websites and reference searches. All search results were then compiled and checked for duplicates before proceeding to the article selection stage.

Study Selection

Article selection was carried out in stages based on a review of the title, abstract and full text, in accordance with the PRISMA 2020 guidelines. The screening process was conducted independently by two reviewers to minimise the risk of selection bias. Where there were differences of opinion regarding an article's eligibility, discussions were held until a consensus was reached. Of the 721 articles identified in the initial search phase, 178 met the initial criteria based on the relevance of the research topic. Subsequently, a further screening was carried out based on year of publication, study design, population characteristics, and the inclusion of MFR as the primary intervention, resulting in 100 articles being selected for further evaluation (Page et al., 2021) . During the full-text review stage, 86 articles were excluded for failing to meet specific criteria, such as not evaluating MFR as the primary intervention, not involving the *upper trapezius* or relevant cervical regions, not reporting clinical outcomes, or being theoretical articles, editorials, or case reports.

A total of 14 articles subsequently met the final selection criteria. Of these, 10 core publications were used as the primary basis for synthesising the results, as they were directly relevant to the study's objectives, particularly in evaluating the effectiveness of MFR for *upper trapezius* myofascial pain. Meanwhile, four additional sources were used to support the discussion, primarily to provide further context regarding the mechanisms of MFR, intervention dosage, methodological aspects, and related research developments. Consequently, the number of articles in the PRISMA diagram and the methods section are consistent, comprising a

total of 14 articles: 10 core publications and four supporting sources.

PICO Framework

The PICO framework (*Population, Intervention, Comparison, Outcome*) was used to ensure relevance and consistency in the literature selection process (Cumpston et al., 2021) . The study population was divided into two groups based on their level of relevance. Direct evidence included individuals with active or latent *upper trapezius myofascial trigger points* (MTrPs) and *upper trapezius* myofascial pain syndrome. Meanwhile, supporting evidence covers populations with cervical myofascial pain syndrome, chronic mechanical neck pain, and cervical radiculopathy involving cervical tissues. Supporting evidence is not used as the primary basis for concluding the specific effectiveness of MFR on *upper trapezius* MTrPs, but is used to reinforce understanding of the effects of MFR on the cervical region.

The interventions examined were myofascial release (MFR), comprising both manual MFR and MFR therapy, administered either as the primary intervention or as an adjunct to other physiotherapy programmes. The comparison groups included standard care, stretching, trigger point release, dry-needling, instrument-assisted soft tissue mobilisation (IASTM), exercise, and other physiotherapy modalities. The primary outcomes analysed were pain intensity and the pressure pain threshold (PPT). Secondary outcomes included *cervical range of motion* (CROM), the *Neck Disability Index* (NDI), the number of trigger points, function, and quality of life.



Inclusion and Exclusion Criteria

The inclusion criteria for this review comprised human studies, publications from 2021 to 2026, the use of MFR as an identifiable intervention, populations with upper trapezius MTrPs, cervical myofascial pain syndrome, or chronic neck pain involving the upper trapezius, as well as studies reporting at least one clinical outcome such as pain, PPT, ROM, disability, function, or quality of life. Eligible study types include randomised controlled trials, clinical trials, systematic reviews, and relevant meta-analyses. Exclusion criteria include animal studies, single-case reports, editorials or opinion pieces, studies without MFR intervention, and articles that discuss theoretical aspects only without reporting clinical outcomes.

Study Quality Assessment

The methodological quality of the articles was assessed using a descriptive 'risk of bias' approach, taking into account several aspects, namely the randomisation method, the presence of a control group, assessor blinding, sample size, the validity of the outcome measures, the presence of co-interventions, and the duration of follow-up (Creswell, 2014) . A descriptive approach was chosen because the articles included in the synthesis featured a wide variety of study designs, ranging from clinical trials to systematic reviews and meta-analyses, and exhibited significant differences in MFR

protocols, population characteristics, and comparison groups. Consequently, the use of a single risk-of-bias instrument was deemed not entirely appropriate for all types of studies analysed. The interpretation of the results focused more on the consistency of the direction of effect, clinical relevance, and methodological limitations of each study, rather than relying solely on statistical significance.

RESULTS

Based on the literature review, a total of 14 articles were analysed, comprising 10 core publications and 4 supporting sources. Direct evidence, which formed the main basis of the review, comprised 8 studies that specifically involved individuals with upper trapezius myofascial trigger points (MTrPs), upper trapezius myofascial pain syndrome, or MFR interventions administered directly to the upper trapezius (see Table 1). Meanwhile, the remaining 6 studies were categorised as supporting evidence as they involved a broader population, such as those with chronic mechanical neck pain, cervical myofascial pain syndrome, trapezius myalgia, or cervical radiculopathy (see Table 2). Supporting evidence was used to reinforce the interpretation of the effects of MFR on the cervical region, but was not used as the primary basis for concluding specific efficacy regarding upper trapezius MTrP.

Table 1. Results of the Direct Evidence Analysis for Upper Trapezius Myofascial Pain

No	Author & Year	Design / Intervention	Subjects	Outcome	Key Findings	Effect size / Quality of evidence
1	(Stieven et al., 2021)	RCT; dry needling versus MFR versus sham dry needling; single session	44 individuals with chronic neck pain and unilateral active upper trapezius MTrP	Upper trapezius and radius PPT; pain intensity	MFR and dry needling increased both local and contralateral PPT and reduced pain. Immediate analgesic effects were observed, but differences between groups were inconsistent across all outcomes.	No confidence intervals (CI) reported. Moderate evidence; limitations include short follow-up and non-specific effects of manual therapy.



No	Author & Year	Design / Intervention	Subjects	Outcome	Key Findings	Effect size / Quality of evidence
2	(Zutshi et al., 2021)	Comparative study; standard care (TENS + ultrasound + stretching) versus manual soft tissue therapy/MFR + stretching; 8 sessions over 4 weeks	40 participants with active <i>upper trapezius</i> trigger points	VAS, PPT, Neck Pain and Disability Scale, CROM	Both groups experienced significant improvements in pain, PPT, disability and CROM. There were no statistically significant differences between the groups.	No confidence interval (CI) reported. Moderate evidence; indicates clinical benefit but does not demonstrate the superiority of MFR.
3	(Suresh et al., 2021)	Clinical comparative trial; trigger point release versus MFR with ultrasound; 15-day follow-up	106 smartphone users with <i>upper trapezius</i> trigger points	VAS, NDI, cervical lateral flexion	Both interventions reduced pain and NDI and improved lateral flexion. There was no significant difference between MFR and trigger point release.	No confidence intervals (CI) reported. Moderate evidence; specific population of smartphone users.
4	(Shewail et al., 2023)	RCT; IASTM versus MFR on <i>the upper trapezius</i> and levator scapulae; 8 sessions over 4 weeks	33 students with chronic mechanical neck pain	VAS, NDI, PPT	Both groups experienced improvements in pain, function and PPT with no significant differences between groups.	No confidence interval (CI) reported. Moderate-to-low-quality evidence as there was no control group without active treatment.
5	(Agarwal et al., 2024)	Single-blinded RCT; IASTM + conventional treatment versus manual MFR + conventional treatment	31 patients with <i>upper trapezius</i> MPS	Pain, PPT, CROM, NDI	Both interventions improved clinical outcomes. IASTM was superior in reducing pain, whilst PPT, ROM and function were relatively equivalent.	No confidence intervals (CI) reported. Moderate evidence; limitation of small sample size.
6	(N. Khan et al., 2026)	Two-arm RCT; MFR + high-powered pulsed ultrasound versus stretching + ultrasound	32 overhead athletes with unilateral active <i>upper trapezius</i> MTrP	VAS, CROM, muscle length, NDI	Both groups improved, but the MFR + ultrasound group showed better follow-up results. The specific effect of MFR is difficult to isolate due to the presence of co-interventions.	No confidence intervals (CI) reported. Moderate-to-low evidence due to small sample size and short follow-up.
7	(Iakovidis et al., 2023)	RCT; MFR + TENS conductive glove, MFR alone, conventional TENS, placebo TENS	80 individuals with neck myofascial syndrome	VAS, <i>upper trapezius</i> PPT, cervical ROM, NDI	MFR was more effective than conventional TENS for pain, disability, lateral flexion ROM, and PPT. The combination of MFR + TENS yielded the greatest benefits.	No confidence interval (CI) reported. Moderate evidence; the effect of the combination is difficult to distinguish from that of MFR alone.
8	(Chen et al., 2025)	Double-blind RCT; MFR plus conventional physiotherapy versus conventional physiotherapy	40 patients with chronic neck pain receiving MFR applied to <i>the upper trapezius</i> and scalene muscles	Pain, cervical range of motion (ROM), functional disability	The addition of MFR provided greater clinical benefits than standard physiotherapy alone.	No CI reported. Moderate evidence; relevant as the target muscle involves <i>the upper trapezius</i> .



Based on Table 1 in the direct evidence group, MFR generally showed a trend towards improvement in primary clinical outcomes, particularly a reduction in pain intensity, an increase in the pressure pain threshold (PPT) and cervical range of motion (CROM), and improvements in function and disability. Of the eight direct studies, the majority reported a reduction in VAS/NPRS scores following MFR intervention, whether after a single session or a therapy programme lasting several weeks (Stieven et al., 2021; Zutshi et al., 2021; Suresh et al., 2021; Agarwal et al., 2024). An increase in PPT was also reported in several studies evaluating tissue mechanical sensitivity, indicating improved pressure tolerance following MFR therapy. However, the majority of primary studies did not report effect sizes and confidence intervals (CI) in full; consequently, the quantitative magnitude of the effects across studies cannot be directly compared.

Differences between groups indicate that MFR has not consistently shown superior results

compared with soft tissue interventions or other forms of manual therapy. In the study by Stieven et al. (2021), both MFR and dry needling resulted in improvements in local and contralateral PPT as well as a reduction in pain; however, differences between groups were not consistent across all outcomes. Suresh et al. (2021) also demonstrated that MFR and trigger point release led to improvements in pain, the Neck Disability Index (NDI), and cervical lateral flexion, with no significant differences between the interventions. Furthermore, Shewail et al. (2023) and Agarwal et al. (2024) found that MFR and IASTM provided relatively comparable improvements in PPT, ROM and function, although Agarwal et al. reported that IASTM was superior in terms of pain reduction. These findings suggest that the benefits of MFR are unlikely to be universally superior, but it may be one of several soft tissue therapy options depending on the patient's condition and clinical context.

Table 2. Supporting Evidence

No	Author & Year	Population	Reason for Supporting Evidence	Findings
1	(Guo et al., 2023)	Chronic mechanical neck pain (601 participants)	Larger population; not all participants had specific <i>upper trapezius</i> MTrPs	The meta-analysis showed an increase in trapezius (SMD 0.41) and suboccipital (SMD 0.47) PPT, but results were inconsistent for pain, ROM and NDI. The quality of evidence was low to moderate.
2	(Overmann et al., 2024)	Chronic neck pain (10 RCTs; 549 participants)	Not limited to <i>upper trapezius</i> MTrPs	MFR showed a modest effect on pain reduction and in some directions of ROM, but no significant effect on PPT. Heterogeneity limits the certainty of the results.
3	(Öcalan et al., 2025)	Cervical myofascial pain syndrome	Covers a broad cervical area, not just <i>the upper trapezius</i>	The addition of MFR to standard physiotherapy improves pain, trigger points, PPT, ROM, NDI and quality of life.
4	(Bali & Aras Bayram, 2024)	Cervical radiculopathy	The diagnosis differs from MPS and has a different pathological mechanism	MFR improves ROM, PPT, pain, disability and muscle strength, but is used only as supporting evidence.
5	(Joshi et al., 2022)	Trapezius myalgia	Not all subjects were confirmed to have <i>upper trapezius</i> MTrPs	MFR improves pain and function compared with TENS.
6	(Khan et al., 2022)	Non-specific neck pain	A heterogeneous population without a focus on <i>upper trapezius</i> MTrPs	MFR improves several aspects of range of motion (ROM) and function, but there is no direct evidence regarding <i>upper trapezius</i> MTrP.



The effects of MFR appear to be more consistent when used as part of a multimodal approach. In the study by Öcalan et al. (2025), the addition of MFR to standard physiotherapy resulted in greater improvements in pain, the number of trigger points, PPT, CROM, NDI and quality of life compared with standard physiotherapy alone. However, that study involved a broader population with cervical myofascial pain syndrome and is therefore categorised as ‘ ’ supporting evidence, rather than evidence specific to upper trapezius MTrPs. Similarly, the study by Khan et al. (2026) on overhead athletes with active upper trapezius MTrPs showed that the combination of MFR and high-powered pulsed therapeutic ultrasound yielded better follow-up results than stretching with ultrasound in terms of VAS, CROM, muscle length, and NDI. However, the presence of co-interventions meant that the specific effects of MFR could not be fully separated from those of the additional modalities.

At the level of evidence synthesis, the results of systematic reviews and meta-analyses indicate a more limited effect. Guo et al. (2023), in a population with chronic mechanical neck pain, reported that MFR increased the trapezius PPT by a standardised mean difference (SMD) of 0.41 and the suboccipital PPT by an SMD of 0.47, but did not show consistent significant differences in pain, ROM, and NDI. The quality of evidence in these studies was rated as low to moderate due to heterogeneity in interventions and comparison groups. Meanwhile, Overmann et al. (2024) reported modest effects on pain reduction and ROM in some directions, but found no significant effects on PPT in their pooled analysis. Differences in results between these systematic reviews are likely influenced by variations in the study populations, definitions of MFR, therapeutic dosage, comparators, and the outcomes used.

Overall, the available evidence suggests that MFR has the potential to provide short-term improvements in pain, PPT, CROM and disability in patients with upper trapezius myofascial pain. However, the certainty of the evidence remains limited as most studies have small sample sizes, short follow-up periods, variations in intervention protocols, the use of co-interventions, and limitations in the reporting of effect sizes and confidence intervals. Therefore, MFR may be considered as one component of multimodal rehabilitation, but there is not yet sufficient evidence to state that MFR is more effective than other manual interventions or physiotherapy as a whole.

DISCUSSION

The Effect of Myofascial Release on Pain and Pressure Pain Threshold in the Upper Trapezius

The synthesis results indicate that pain reduction is the most frequently reported finding following MFR. In the most direct study of the upper trapezius an immediate reduction in pain following MFR and an increase in PPT in the upper trapezius were observed, both on the treated side and the contralateral side. Responses also observed at sites distant from the intervention area may indicate the possible involvement of neurophysiological pain modulation mechanisms, although these mechanisms were not directly measured in the analysed studies. However, as some outcomes did not show significant group-by-time interactions and the sham group also experienced a reduction in pain, contextual effects and natural responses following measurement need to be taken into account. In line with Geri et al., (2022) , a similar picture emerges for a longer programme. Over eight sessions spanning four weeks, both the standard care group and the manual soft-tissue release group experienced reductions in VAS scores, increases in PPT, reductions in disability, and improvements in CROM. The absence of



significant differences between the groups suggests that MFR is not the sole pathway to achieving clinical improvement. In the context of rehabilitation, these findings serve to further support MFR as an effective option rather than proving its absolute superiority. According to , Xu et al. (2023) also found comparable results when MFR was compared with trigger point release in smartphone users.

Although several hypotheses suggest that the effects of MFR may be related to changes in the mechanical response of tissues, the activation of mechanoreceptors, and the modulation of the sensory and nociceptive systems, these mechanisms have not been directly measured in the majority of the studies analysed in this review. The available studies primarily evaluate clinical changes through parameters such as pain intensity, pressure pain threshold (PPT), cervical range of motion (CROM), and disability; consequently, the relationship between MFR treatment and specific biological changes in the fascia or nervous system remains a supporting hypothesis (possible mechanisms). Consequently, the increase in PPT and reduction in pain following MFR cannot be directly interpreted as evidence of changes in fascial structure or normalisation of the sensory system, but rather as a clinical response likely involving a combination of mechanical, neurophysiological, psychological and contextual factors. Further research involving objective measurements of tissue characteristics, sensory sensitivity, or pain-related biomarkers is required to confirm the mechanisms underlying the effects of MFR.

Changes in PPT are important because this outcome measure reflects the mechanical sensitivity of tissue to pressure. In cases of myofascial pain, an increase in PPT following therapy can be interpreted as a clinical reduction in mechanical hyperalgesia. However, such changes cannot yet confirm the presence of structural tissue changes or specific

neurophysiological mechanisms, as PPT is an indicator of the sensory response to pressure. The findings of provide fairly clear support by demonstrating an increase in PPT in the trapezius and suboccipital muscles. Meanwhile, the study by Overmann et al. (2024) found no significant overall effect on PPT, although it did observe a modest effect on pain. The discrepancy between these two meta-analyses is likely due to differences in eligibility criteria, the composition of the RCTs, comparators, treatment duration, and the definition of MFR techniques.

The difference between subjective pain outcomes and PPT is also clinically significant. Pain is influenced by biological and psychological factors, activity, expectations, sleep and social context, whilst PPT provides an estimate of sensitivity to mechanical stimuli at a specific site. MFR can alter one domain more rapidly than another. Therefore, based on the above, the evaluation of effectiveness should not rely solely on the VAS/NPRS, but should combine these with PPT and functional outcomes. A multi-parameter approach will provide an indication of whether the patient is merely experiencing temporary relief or is actually undergoing a change in tissue tolerance and functional capacity.

The study by Öcalan et al. (2025) strengthens the evidence that repeated sessions can produce a broader response. The addition of MFR to a standard physiotherapy programme resulted in greater improvements in pain at rest and during movement, the number of trigger points, and the PPT . Although the study population comprised patients with cervical myofascial pain syndrome (MPS) rather than isolated upper trapezius myofascial trigger points (MTrPs), the upper trapezius is one of the key areas relevant to this syndrome. These findings support the use of MFR as an adjunctive component when clinical reasoning indicates the



presence of reproducible tissue restrictions and trigger points.

Effects on Cervical Range of Motion, Disability and Function

In addition to pain relief, the aim of therapy for upper trapezius myofascial pain is to restore neck movement and functional ability. Trigger points may be associated with muscle guarding, a feeling of tension, and restricted movement, particularly lateral flexion and rotation. In the study ‘ both trigger point release and MFR improved lateral flexion. In line with Tehrani et al., (2022) also found improvements in CROM and NDI following both manual MFR and IASTM. This suggests that as pain and tissue sensitivity decrease, patients can achieve better range of motion even though the specific techniques used differ.

A study by , Valera-Calero et al. (2023) found no significant difference between IASTM and MFR in chronic mechanical neck pain after eight sessions. In practical terms, these results suggest that the choice of technique may be guided by patient comfort, the therapist’s skills, equipment availability, cost and individual response. However, as the study lacked a control group without active intervention, it cannot be definitively concluded that the pre-post changes were entirely attributable to the techniques administered. This limitation is common in studies of manual therapy and should be borne in mind when interpreting claims of effectiveness.

According to , myofascial release (MFR) yields greater improvements than exercise programmes in several measures CROM, PPT, pain, disability and muscle strength in cervical radiculopathy. This study does not directly pertain to upper trapezius MPS, as radiculopathy involves a different pathological mechanism. However, the research nevertheless provides supporting evidence that myofascial intervention in the cervical region can influence range of

motion (ROM) and functional outcomes. In this review, this evidence is interpreted contextually and is not equated with direct evidence regarding upper trapezius MTrPs.

In cervical MPS, Öcalan et al. (2025) demonstrated greater improvements in the NDI and the Nottingham Health Profile when MFR was added to standard physiotherapy. These findings are significant because quality-of-life outcomes are rarely reported in MFR studies. Mittal and Sharma (2024) also highlighted that the literature on chronic neck pain more frequently focuses on pain and range of motion (ROM) rather than quality of life. In light of this, future research should measure activities of daily living, work participation, sleep and patient-specific function so that the benefits of MFR are not assessed solely on the basis of impairment indicators.

The findings of Khan et al. (2026) in overhead athletes showed greater improvements in VAS, CROM, muscle length and NDI when MFR was combined with high-powered pulsed therapeutic ultrasound compared to stretching with the same ultrasound modality. As both groups received ultrasound, the differences between the groups suggest that the MFR component may provide added benefit. However, the number of participants analysed was relatively small and the follow-up period was only one week after the intervention. These results are promising for the athlete population, but generalisation to office workers, students, or patients with chronic MPS should be undertaken with caution.

Variations in Technique, Intervention Dose, and Clinical Implications

One of the main issues in the literature is the lack of uniformity in the definition of MFR. Some studies use sustained manual pressure and focused stretch; some use deep transverse friction or manual soft tissue release; whilst other studies combine MFR with stretching, conventional



therapy, TENS, ultrasound, or exercise. These differences may alter the mechanical and sensory stimuli received by the patient. In light of this, the term 'MFR' should not be regarded as a single, homogeneous intervention. Ideally, study reports should specify the patient's position, the site of application, the direction of pressure, the duration, the intensity, the number of repetitions, the number of sessions, the interval between sessions, and the therapists' training.

The intervention doses in the analysed studies ranged from a single session to eight sessions over four weeks, three times a week for two weeks, or the addition of MFR to a physiotherapy programme lasting several days. Immediate responses, such as those reported by Stieven et al. (2021), are important for understanding acute effects, but cannot be used to draw conclusions about the sustainability of benefits. Conversely, repeated studies such as those by Shewail et al. (2023), Öcalan et al. (2025) and Khan et al. (2026) provide information on the cumulative effect, although the duration of follow-up remains relatively short. A scoping review by Mittal and Sharma (2024) concluded that there remains considerable heterogeneity in MFR prescriptions, including variations in frequency ranging from two to five times per week.

In clinical practice, MFR should be positioned as part of a multimodal strategy. Upper trapezius pain is often associated with postural strain, repetitive tasks, ergonomic factors, muscle capacity, sleep, stress and activity patterns. Manual therapy can help reduce pain and improve range of motion, but long-term functional benefits are more likely to be maintained when combined with exercise, activity education, correction of occupational exposure, increased movement variation, and self-management. This approach also prevents reliance on passive therapy alone.

From the perspective of intervention selection, findings indicating that MFR is

equivalent to IASTM or trigger point release can be regarded as positive. This means that clinicians have several options that can be tailored to patient preferences and available resources. MFR does not require specialised equipment and is relatively easy to integrate into physiotherapy sessions, whilst IASTM can reduce the manual workload on the therapist. The choice should take into account the patient's response, pressure tolerance, contraindications, and the aims of the session, rather than the assumption that one technique is always superior. Safety aspects in the studies discussed were generally good, and the systematic review by Guo et al. (2023) reported no adverse events in the studies they synthesised. Nevertheless, manual therapy must still be administered following adequate clinical screening, particularly in patients with suspected severe radiculopathy, trauma, vascular abnormalities, infection, cancer, skin conditions, or other red flags. The intensity of MFR needs to be adjusted to avoid causing excessive flare-ups of . Documentation of minor side effects such as soreness also needs to be improved in future research.

CONCLUSION

Based on a review of the literature, myofascial release (MFR) has the potential to serve as a conservative intervention to reduce pain and increase the pressure pain threshold (PPT), as well as to improve cervical range of motion (CROM), neck disability, trigger points and quality of life, particularly when used as a repeated or multimodal intervention. However, the available evidence remains heterogeneous in terms of population characteristics, MFR techniques and dosage, comparison groups, and measurement instruments; consequently, its effectiveness has not yet demonstrated consistent superiority over other interventions such as IASTM, trigger point release, dry needling, stretching, or standard care. Therefore, MFR may be considered as part of multimodal rehabilitation, rather than a stand-alone therapy,



with evaluation using VAS/NPRS, PPT, CROM and NDI. Further research is required with stronger controlled designs, larger samples, standardised MFR protocols, longer follow-up periods, and populations specifically presenting with upper trapezius myofascial trigger points.

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