

## **Soft tissue-oriented relaxation techniques in physiotherapy: a narrative review of randomized controlled trials**

**Katarzyna Joanna Rajfur**<sup>1(A,B,C,D,E,F,G)</sup>, **Joanna Barbara Rajfur**<sup>1(A,B,C,D,E,F)</sup>,  
**Bartłomiej Kopcisz**<sup>1(A,B,C)</sup>, **Beata Fras-Łabanc**<sup>1(B,D,F)</sup>

<sup>1</sup>Institute of Health Sciences, University of Opole, Opole, Poland

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**Address for correspondence:** Joanna Barbara Rajfur, Institute of Health Sciences, University of Opole, Plac Kopernika 11a, 45-040 Opole, Poland, e-mail: [joanna.rajfur@uni.opole.pl](mailto:joanna.rajfur@uni.opole.pl)

ORCID: Katarzyna Joanna Rajfur <https://orcid.org/0000-0002-0310-6869>, Joanna Barbara Rajfur <https://orcid.org/0000-0003-0804-1301>, Bartłomiej Kopcisz <https://orcid.org/0009-0009-2440-9517>, Beata Fras-Łabanc <https://orcid.org/0000-0003-1794-0384>

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## Abstract

Soft tissue relaxation plays a significant role in contemporary physiotherapy and manual therapy, supporting pain management, rehabilitation, and the improvement of musculoskeletal function. The aim of this study was to present and discuss the current literature on selected soft tissue relaxation techniques, their mechanisms of action, and their reported effects on the musculoskeletal system. A literature review was conducted using PubMed and the Physiotherapy Evidence Database (PEDro), covering publications from 2015 to 2025. The following keywords were used: “soft tissues”, “muscles”, “fascia”, “relaxation”, “physiotherapy”. Massage therapy was the most frequently evaluated intervention (4 studies), demonstrating effects such as reduced muscle tension, improved relaxation, and pain relief. Dry needling (3 studies) was effective in reducing pain and increasing the range of motion. Techniques such as foam rolling, hold-relax, instrument-assisted soft tissue mobilization (IASTM), and soft tissue release also demonstrated positive effects on muscle flexibility, range of motion, and pain reduction. Other techniques, reported in individual studies, showed varied clinical outcomes. The effectiveness of soft tissue relaxation techniques depends on individual patient characteristics, the type of dysfunction, and the clinical context.

**Keywords:** soft tissue, muscles, fascia, relaxation, physiotherapy

## Introduction

Soft tissue relaxation is a crucial element of contemporary physiotherapy, osteopathy, and manual medicine. These techniques are commonly used to treat pain, improve musculoskeletal function, and aid in recovery from injuries and overuse injuries associated with physical activity or chronic biomechanical stress. Interest in this form of therapy is growing in clinical practice due to its non-invasive nature, wide application, and relatively low risk of adverse events [1,2].

Soft tissues, including muscles, fascia, ligaments, tendons, and skin, play not only a structural role but also perform sensory, metabolic, and biomechanical functions. Their proper functioning is essential for the effective cooperation of the musculoskeletal system and the maintenance of homeostasis throughout the body. Disturbances in soft tissues, such as increased tension, fascial restrictions, or trigger points, can lead to a limited range of motion (ROM), compensatory overload, chronic pain, and a significant decline in the quality of life of patients. [3,4].

In recent years, a number of techniques aimed at influencing soft tissue have been identified and described, including deep tissue massage, trigger point therapy, myofascial release (MFR) techniques, fascial manipulation, stretching, and tissue mobilization. Despite their popularity in physiotherapy and osteopathic practice, the effectiveness and mechanisms of action of these techniques remain unclear and require further research [5-7].

One of the key challenges remains the lack of consensus regarding the measurement tools used to assess the effects of therapy. The diversity of research methods, patient populations, and techniques used leads to heterogeneity of data, which limits the possibility of conducting meta-analyses and comparisons between studies. There is also a need for further research on the effect of relaxation techniques on biomechanical parameters (such as muscle flexibility and length, or ROM), as well as neurophysiological parameters (e.g. activation of mechanoreceptors, reduction of nociceptive activity, modulation of the sympathetic response) [8,9]. More and more attention is being paid to the influence of relaxation techniques on the functions of the autonomic nervous system and on inflammatory processes, which may expand the scope of their applications beyond the classic diseases of the musculoskeletal system [10].

Given the growing popularity of soft tissue relaxation techniques in physiotherapy and the rapid development of therapeutic methods, there is a need to analyze current scientific evidence regarding their effectiveness. Given the diversity of techniques used, measurement methods, and assessed parameters, it is crucial to collect and compare research results to better understand their therapeutic effects.

For the purpose of this review, soft tissue relaxation techniques are defined as therapeutic interventions primarily targeting muscles, fascia, and related myofascial structures with the aim of reducing tissue tension, pain, and movement restriction. Techniques were included if their primary mechanism involved direct mechanical, neurophysiological, or reflex-mediated effects on soft tissues.

Interventions such as joint mobilization or electrotherapy were included only when applied in combination with soft tissue techniques or when their primary therapeutic rationale involved modulation of myofascial tone rather than joint-specific or purely neurostimulatory mechanisms.

## **Aim of the work**

The aim of the study was to present and discuss the current literature on selected soft tissue relaxation techniques, their mechanisms of action, and the described impact on the function of the musculoskeletal system.

## **Methods**

This study was designed as a narrative literature review with a structured search strategy. Although elements of systematic searching were applied (database searching and predefined inclusion criteria), the review did not aim to meet full PRISMA requirements, and no quantitative synthesis or meta-analysis was performed.

A literature search was conducted in PubMed and the Physiotherapy Evidence Database (PEDro) for studies published between January 2015 and April 30, 2025. The search strategy in PubMed was as follows: (“soft tissue” OR muscle OR fascia\*) AND (relaxation OR release OR mobilization) AND (physiotherapy OR “physical therapy”) AND (“randomized controlled trial”). In PEDro, the following keywords were used: “soft tissue”, “muscle”, “fascia”, “relaxation”, “physiotherapy”, with filters applied for randomized controlled trials and English language.

The initial search yielded 117 records, and after removal of duplicates, 101 titles and abstracts were screened for relevance. Studies were excluded if they were reviews, case reports, non-randomized studies, conference abstracts, or if the full text was unavailable. After full-text assessment, 15 randomized controlled trials were included in the narrative synthesis.

Due to heterogeneity in interventions, populations, and outcome measures, results were synthesized descriptively rather than quantitatively.

### *Methodological quality assessment*

The PEDro scale consists of 11 items, 10 of which are scored. It is used to assess the methodological quality of randomized clinical trials (RCTs), particularly in the field of physiotherapy. Higher scores indicate better methodological quality and a lower risk of bias. Studies scoring 9-10 points are classified as high quality, with a low risk of bias; scores of 6-8 indicate moderate quality and an acceptable risk of bias; 3-5 points indicate low quality and a high risk of bias; while 0-2 points indicate unacceptable methodological quality.

The methodological quality of the included studies, assessed using the PEDro scale, was mixed. Most studies met criteria for random assignment (93.3%), comparability at baseline (93.3%), and reporting results with effect estimates and variability (100%). The poorest were blinding of therapists (26.7%) and participants (26.7%), as well as concealment of group allocation (20%). Adequate participant tracking was met in 80% of the studies, and intention-to-treat analysis was used in 40%. Table 3 shows the number and percentage of studies meeting each criterion of the PEDro scale. Criterion 1 (inclusion criteria) is not included in the total PEDro score (Table 1). Given these limitations, the certainty of evidence should be interpreted with caution, particularly when considering between-group effects and long-term clinical applicability.

**Table 1.** Summary of methodological quality of included studies based on the PEDro scale (n=15)

PEDro criterion	Number of studies fulfilling criterion	%
<b>1. Eligibility criteria (does not contribute to total score)</b>	15/15	100
<b>2. Random allocation</b>	14/15	93.3
<b>3. Concealed allocation</b>	3/15	20
<b>4. Baseline comparability</b>	14/15	93.3
<b>5. Blind subjects</b>	4/15	26.7
<b>6. Blind therapists</b>	4/15	26.7
<b>7. Blind assessors</b>	10/15	66.7
<b>8. Adequate follow-up</b>	12/15	80
<b>9. Intention-to-treat analysis</b>	6/15	40
<b>10. Between-group comparisons</b>	14/15	93.3
<b>11. Point estimates and variability</b>	15/15	100

## Literature review results

The reviewed studies demonstrated the effectiveness of various therapeutic techniques, including massage, manual therapy (MT), dry needling (DN), foam rolling (FR), joint mobilization, taping, and electrotherapy, in improving ROM, flexibility, reducing pain and muscle tension, and enhancing overall well-being. The results suggest that the choice of therapeutic technique should be tailored to the specific clinical goal, such as muscle relaxation, increased ROM, or pain reduction, as different interventions may produce varying outcomes.

Although most included studies reported statistically significant improvements within intervention groups, evidence for consistent superiority among different soft tissue relaxation techniques remains limited. In several trials, improvements were comparable to control or placebo interventions, particularly in asymptomatic populations. Therefore, the observed benefits should be interpreted primarily as short-term, technique-dependent effects rather than definitive evidence of the superiority of one intervention over another. A summary of the included articles is presented in Table 2.

**Table 2.** Characteristics of included articles

Author/publication year	Research objective	Methods	Results
Junker et al. 2015 [11]	To evaluate the effect of a 4-week foam rolling (FR) program on hamstring flexibility	40 healthy males randomized into: FR (n=13): FR 3×/week (12 sessions); contract-relax proprioceptive neuromuscular facilitation (CRPNF) (n=14): CRPNF stretching (12 sessions); control group (CG) (n=13): no intervention. Flexibility assessed via stand-and-reach test pre/post intervention.	Significant time effect ( $p<0.001$ ) and time × treatment interaction ( $p=0.004$ ). FR and CRPNF improved more than CG; no difference between FR and CRPNF.
Sedighi et al. 2017 [12]	To compare the effects of superficial and deep dry needling (DN) of trigger points in the suboccipital and upper trapezius muscles in patients with cervicogenic headache	30 patients with cervicogenic headache were randomly assigned to superficial or deep DN groups. Headache index, trigger point tenderness, cervical range of motion (CROM), and functional rating index were assessed at baseline, immediately post-treatment, and one week later.	Both techniques reduced headache index and trigger point tenderness. Deep DN led to significantly greater improvements in CROM ( $p<0.001$ ) and functional rating index ( $p<0.01$ ).
MacSween et al. 2018 [13]	To compare the efficacy of Thai massage (TM) and Swedish massage (SM) for patients experiencing fatigue or depleted energy	20 participants were randomized to receive three weekly TM and three weekly SM treatments. Symptoms were assessed at three time points using the Activation-Deactivation Adjective Checklist and VAS. Qualitative data were gathered via semi-structured interviews and diaries.	Both massage types improved physical, emotional, and mental wellbeing by enhancing sleep, relaxation, and relieving stress and muscle tension. TM specifically provided energizing effects, psychological stimulation, and longer-lasting benefits. 95% of participants experienced symptom relief.

<p>Winkelmann et al. 2018 [14]</p>	<p>To explore the effectiveness of deep oscillation therapy (DOT) to improve hamstring flexibility</p>	<p>29 healthy, physically active individuals received a single DOT session on a randomized leg (1:1 mode, 70-80% dosage, 28 minutes). Flexibility was assessed via passive straight leg raise (SLR) using a digital inclinometer. Patient-reported outcomes included the Copenhagen Hip and Groin Outcome Score and Global Rating of Change (GRoC).</p>	<p>Passive SLR improved significantly post-DOT. Participants reported enhanced hamstring flexibility (<math>5.41 \pm 1.02</math>) and a relaxing effect (<math>6.21 \pm 0.86</math>).</p>
<p>Kamali et al. 2019 [15]</p>	<p>Effectiveness of DN and friction massage to treat tension type headache</p>	<p>44 patients were randomly assigned to DN or massage groups (3 sessions each). Headache frequency and intensity, pressure pain threshold (PPT) at trigger points, and CROM were assessed.</p>	<p>Both treatments significantly reduced headache frequency and intensity and increased pain threshold. CROM remained unchanged, except for extension, which improved in the DN group. DN was more effective than massage in increasing pain threshold.</p>
<p>Lee et al. 2021 [16]</p>	<p>To compare the effects of the static stretching (SS), hold-relax (HR) manual techniques, and instrument-assisted manual (IM) techniques on muscle activity, kinematics, and strength in limited ankle dorsiflexion (DF) syndrome</p>	<p>40 adults divided into three groups: SS group: 13, HR group: 13, IM group: 13. Outcome measures were the tibialis anterior: gastrocnemius balance ratio and ankle, knee, hip, and thoracolumbar junction angles.</p>	<p>Tibialis anterior: gastrocnemius balance ratio, ranges of motion of ankle DF and knee flexion, and TA muscle strength in the IM group improved significantly compared to that in either the SS group or HR group (<math>p &lt; 0.05</math>).</p>
<p>Pérez-Bellmunt et al. 2022 [17]</p>	<p>To evaluate the effects of ischemic compression on latent trigger points (TrPs) in the gastrocnemius muscle in asymptomatic individuals</p>	<p>29 asymptomatic participants underwent bilateral assessment. Each leg was randomly assigned to control (no treatment) or experimental group (90 s ischemic compression per TrP). Outcomes included pain perception (0-10 scale), pressure pain threshold, muscle flexibility (lunge test, passive ankle ROM), strength (MicroFET2), and neuromuscular properties (MyotonPro).</p>	<p>The treatment group showed a 15.8% reduction in pain perception and 9.9% increase in pressure tolerance. Changes in muscle flexibility and neuromuscular parameters were noted but were not significantly different between groups.</p>

<p>Maden et al. 2022 [18]</p>	<p>To evaluate the effect of repeated cervical mobilization (CM) on balance and plantar pressure distribution in patients with multiple sclerosis</p>	<p>12 patients received traditional treatment and CM twice a week for 4 weeks in a randomized order. CM included joint traction, sliding techniques, and soft tissue mobilization for myofascial relaxation. Assessments included the Romberg test (RT), sharpened Romberg test (SRT), and functional reach test (FRT). Plantar pressure distribution was measured using pedobarography.</p>	<p>Forefoot loading increased after CM (<math>p&lt;0.05</math>). RT and SRT durations improved, and average plantar pressure decreased in the CM group (<math>p&lt;0.05</math>). Body weight distribution between the right and left foot approached symmetry (50%) following CM (<math>p&lt;0.05</math>).</p>
<p>Nazary-Moghadam et al. 2023 [19]</p>	<p>To compare the immediate effects of modified hold-relax, muscle energy technique (MET), and instrument-assisted soft tissue mobilization (IASTM-GT) on biceps femoris length in young athletes</p>	<p>60 athletes were assigned to three groups: IASTM-GT, HR, and MET. Active knee extension, passive SLR, and toe touch tests were conducted before and immediately after the intervention.</p>	<p>All groups showed significant improvement. Effect sizes (Cohen's d) were: 1.7 (IASTM-GT), 3.17 (HR), and 3.12 (MET).</p>
<p>Vicente-Mampel et al. 2024 [20]</p>	<p>To compare the acute effects of self-myofascial foam rolling (SFR) and DN on ankle dorsiflexion ROM, post-needling soreness, and countermovement jump (CMJ) height</p>	<p>12 participants with DF were randomized into SFR and DN groups. Ankle dorsiflexion ROM, muscle soreness, and CMJ height were assessed pre-, post-, and 24 h post-intervention.</p>	<p>DN improved dorsiflexion ROM at 24 h; SFR reduced muscle soreness. No significant differences were found between groups.</p>
<p>Kerautret et al. 2024 [21]</p>	<p>To assess the effect of manual massage (MM) and robotic massage (RM) on hamstring flexibility and psychophysiological relaxation</p>	<p>21 participants experienced two back soft tissue massage interventions: MM by a physiotherapist and robotic massage. Objective and subjective performance and well-being measures were collected before and after each intervention.</p>	<p>Both interventions improved subjective sensations (pain, warmth, well-being), as well as objective measures of hamstring flexibility and psychophysiological relaxation, with MM showing greater effectiveness.</p>
<p>Lin et al. 2024 [22]</p>	<p>To compare immediate effects of thoracic mobilization and soft tissue release on trunk movement, pain, and muscle activity in chronic low back pain (CLBP) patients</p>	<p>28 participants were randomly assigned to mobilization or soft tissue release groups. Mobilization targeted hypomobile trunk joints; soft tissue release involved thoracolumbar fascia release and lumbar massage. ROM, tissue hardness, PPT, and erector spinae activity during light lifting were measured before and after interventions.</p>	<p>All outcomes improved (<math>p&lt;0.05</math>). Mobilization significantly improved side bending, rotation, PPT, and tissue hardness vs. soft tissue release. Lumbar muscle activation decreased more in the soft tissue release group.</p>

<p>Espejo-Antúnez et al. 2024 [23]</p>	<p>To evaluate the effect of adding dynamic cervical electrical stimulation (electro-massage, ES) to MT, compared to MT alone, in individuals with myofascial temporomandibular pain</p>	<p>46 participants were divided into 2 groups: Group 1 (n=21) received MT including soft tissue mobilization and release techniques over the neck and temporomandibular regions. Group 2 (n=25) also received ES in the cervical region. The protocol lasted 2 weeks. Pain intensity (VAS), PPT at the masseter and trapezius muscles, CROM, and pain-free mouth opening were measured at baseline, immediately after intervention, and at 4-week follow-up.</p>	<p>Group 2 showed better outcomes in pain intensity (<math>p&lt;0.001</math>), pressure pain sensitivity, and mouth opening (<math>p&lt;0.001</math>). Similar improvements were found for CROM in all directions (<math>p&lt;0.001</math>), except rotation (<math>p\geq0.05</math>).</p>
<p>Sipko et al. 2025 [24]</p>	<p>To evaluate and compare the effects of kinesiотaping (KT) with or without tension (placebo) and post-isometric relaxation (PIR) on pain intensity and mechanical properties of myofascial tissues in chronic low back pain (LBP) patients</p>	<p>64 patients with chronic back pain were randomly assigned to 3 groups: PIR, KT, and KT-PEBO (placebo KT without tension). Pain (NRS), disability (Oswestry Disability Index), and tone, stiffness, and relaxation of spinal erector muscles were assessed before, immediately after, and at 7-day follow-up.</p>	<p>Pain and disability were reduced in all groups (<math>p&lt;0.01</math>). KT group showed increased tension and stiffness of erector spinae and decreased relaxation at follow-up on the contralateral side (<math>p&lt;0.01</math>).</p>
<p>Gugliotti et al. 2025 [25]</p>	<p>To examine the immediate effects of MFR on lumbar ROM and flexibility in healthy young adults</p>	<p>40 participants were randomized to an experimental group (EG, receiving MFR to lumbar paraspinal muscles) or a control group (CG, receiving non-therapeutic hand contact). Baseline and post-intervention measurements of lumbar flexion, side-bending, active knee extension test, and modified sit-and-reach test were taken.</p>	<p>No statistically significant differences between groups were found. Both groups showed statistically significant within-group improvements.</p>

In Table 3, the prevalence of various therapeutic methods used in the analyzed RCTs and their main clinical effects are presented. The most frequently used therapeutic method was massage (4 studies), demonstrating effects such as reducing muscle tension, improving relaxation, and alleviating pain. DN (3 studies) effectively reduced pain and improved ROM, surpassing massage in some parameters. Methods such as FR, the HR technique, IASTM, and soft tissue release also demonstrated beneficial effects on muscle flexibility, ROM, and pain reduction. Other techniques, present in individual studies, had mixed clinical effects (Table 3).

**Table 3.** Frequency of therapeutic methods used in RCTs and their clinical effects

Therapeutic method	Number of studies	Therapeutic effect	Authors/publication year
<b>Massage (manual, Swedish, Thai, friction, robotic)</b>	4	Reduced muscle tension, improved relaxation and pain relief; less effective than DN or IFC in some outcomes	MacSween et al. 2018 [13], Kamali et al. 2019 [15], Kerautret et al. 2024 [21], Espejo-Antúnez et al. 2024 [23]
<b>Dry needling (DN)</b>	3	Reduction in pain and trigger point tenderness; improved ROM; superior to massage in some outcomes	Sedighi et al. 2017 [12], Kamali et al. 2019 [15], Vicente-Mampel et al. 2024 [20]
<b>Foam rolling (FR)</b>	2	Improved muscle flexibility and ROM; reduced post-intervention soreness	Junker et al. 2015 [11], Vicente-Mampel et al. 2024 [20]
<b>Hold-relax technique (HR)</b>	2	Significant improvement in muscle length and ROM	Lee et al. 2021 [16], Nazary-Moghadam et al. 2023 [19]
<b>Instrument-assisted soft tissue mobilization (IASTM)</b>	2	Increased ROM and flexibility; sometimes more effective than manual methods	Lee et al. 2021 [16], Nazary-Moghadam et al. 2023 [19]
<b>Soft tissue release (STR)</b>	2	Reduced tissue stiffness and pain; increased ROM	Lin et al. 2024 [22], Nazary-Moghadam et al. 2023 [19]
<b>Manual therapy (MT)</b>	2	Reduced pain and improved function; less effective than MT + IFC	Espejo-Antúnez et al. 2024 [23], Lin et al. 2024 [22]
<b>Proprioceptive neuromuscular facilitation (PNF)</b>	1	Significant increase in hamstring flexibility and ROM	Junker et al. 2015 [11]
<b>Deep oscillation therapy (DOT)</b>	1	Significant increase in hamstring flexibility; relaxation effect reported	Winkelmann et al. 2018 [14]
<b>Static stretching (SS)</b>	1	Less effective than IASTM and HR techniques in improving ankle dorsiflexion	Lee et al. 2021 [16]
<b>Ischemic compression of trigger points</b>	1	Increased pain pressure threshold and pain perception; no significant ROM changes	Pérez-Bellmunt et al. 2022 [17]
<b>Cervical mobilization (CM)</b>	1	Improved balance and plantar pressure symmetry; increased postural control	Maden et al. 2022 [18]
<b>Thoracic mobilization</b>	1	Improved trunk ROM, tissue compliance, and PPT	Lin et al. 2024 [22]
<b>Interferential current stimulation (IFC – electrotherapy)</b>	1	Greater clinical benefit than MT alone in pain reduction and mouth opening	Espejo-Antúnez et al. 2024 [23]

<b>Kinesiotaping (KT)</b>	1	Pain and disability reduction; increased muscle tone and stiffness on contralateral side	Sipko et al. 2025 [24]
<b>Post-isometric relaxation (PIR)</b>	1	Comparable pain and disability relief to KT methods	Sipko et al. 2025 [24]
<b>Self-myofascial release (SMR)</b>	1	Improved dorsiflexion ROM and decreased muscle soreness	Vicente-Mampel et al. 2024 [20]
<b>Myofascial release (MFR)</b>	1	No significant benefit over placebo in improving lumbar flexibility in healthy adults	Gugliotti et al. 2025 [25]

Soft tissue release is an essential element of contemporary physiotherapy and rehabilitation, aiming to reduce myofascial tension, reduce pain, improve flexibility, and restore normal musculoskeletal function. Analysis of the presented RCTs demonstrated that a wide range of soft tissue release techniques, both used alone and in combination with other methods, can lead to improved musculoskeletal function and pain reduction. However, it should be emphasized that therapeutic effects vary and depend on the type of intervention, the characteristics of the study population, and the clinical assessment parameters.

Among the most frequently analyzed interventions were various forms of massage and DN. Massage, including classical and Thai techniques, as well as massage performed using robotic devices and electromassage, demonstrated a beneficial effect on reducing muscle tension, improving relaxation, and alleviating pain [13,21,23]. However, its effectiveness was sometimes lower compared to more targeted methods such as DN [12,15,20]. In the study by Kamali et al. [15], both friction massage and DN produced comparable therapeutic effects in patients with tension-type headache, suggesting a potential equivalence of these techniques in certain disease entities.

DN has been shown to be effective in reducing pain and tenderness of trigger points, as well as improving ROM, especially in the cervical spine [12]. In the analyzed studies, this technique was consistently effective in functional parameters, especially in the context of chronic pain.

Self-administered soft tissue relaxation techniques, such as FR and PNF stretching, have been shown to positively affect hamstring flexibility and joint ROM, particularly in jumping performance [11]. Neuromuscular interventions such as the HR technique, MET, and IASTM have also been shown to significantly improve ROM and muscle length [16,19].

The most recent meta-analysis from 2025, which included RCTs comparing IASTM with other forms of therapy, found moderate-certainty evidence for the effectiveness of IASTM

in reducing pain and low-certainty evidence for improvement in subjectively assessed function patients [26]. The authors of the meta-analysis emphasize the need for further research using objective measurement tools, which is also confirmed by our analysis.

The studies also included other interventions such as ischemic trigger point pressure [17], mobilization of the cervical spine and pectoral region [18,22], KT [24], DOT [14] and SMR [20]. These methods are less commonly used, but research suggests they can be valuable adjuncts to conventional therapy. For example, Sipko et al. [24] demonstrated that both KT (with and without tension) and PIR have similar analgesic effects in patients with chronic lower back pain. These results support the concept of combined therapy. A study conducted in Spain showed that combining manual therapy with IFC produced better therapeutic outcomes than manual therapy alone in patients with temporomandibular joint pain [23]. Similar results were presented by Lin et al. [22], indicating the effectiveness of a combined approach involving chest mobilization and soft tissue release in patients with chronic lower back pain.

It is also worth noting that the only intervention that did not demonstrate superiority over placebo was MFR in healthy adults [25]. This may suggest limited effectiveness of this technique in the asymptomatic population or the need to use it only for strictly defined clinical indications. However, Dhiman et al. [27], in their study, assessed the effectiveness of the MFR technique in improving the flexibility of structures along the superficial back line. Although the MFRT technique showed potential for improving flexibility, it was not found to be superior to other techniques, such as stretching [27]. This may suggest that the choice of method should depend on the individual characteristics of the patient and the specificity of the clinical problem.

The reviewed studies indicate that soft tissue relaxation techniques can be an effective component of therapy aimed at improving musculoskeletal function, increasing ROM, reducing pain, and decreasing muscle tension. These findings highlight the importance of tailoring therapeutic approaches to the individual patient's condition, goals, and needs, as different techniques may yield varying outcomes. Although most studies reported statistically significant improvements within intervention groups, evidence for consistent superiority among different soft tissue techniques remains limited, and some effects were comparable to control or placebo interventions, particularly in asymptomatic populations.

### *Limitations*

A major limitation of the analyzed studies is the significant heterogeneity in therapeutic

protocols, intervention duration, patient populations, and outcome assessment methods. Most interventions were short-term, limiting the ability to draw conclusions about long-term effectiveness. Many studies relied on subjective measurement tools, which may affect the reliability of reported outcomes. Furthermore, clear criteria for selecting specific techniques for particular conditions are often lacking, which hinders the formulation of precise clinical recommendations.

### *Clinical implications*

The results suggest that soft tissue relaxation techniques can be a valuable component of comprehensive physiotherapy programs. Their selection should be individualized based on the patient's presentation and therapeutic goals. Combination therapy may provide better results than single techniques alone. In clinical practice, monitoring patient response and adapting interventions flexibly is essential. Further high-quality randomized controlled trials (RCTs) with standardized protocols, objective outcome measures, and longer follow-up periods are needed. Studies comparing the effectiveness of combined versus single-component approaches, as well as examining the durability of therapeutic effects, are particularly warranted.

### **Conclusions**

Soft tissue-oriented relaxation techniques appear to be a useful adjunct in physiotherapy for improving ROM, reducing pain, and decreasing muscle tension. However, the strength of evidence varies across techniques and clinical contexts. Most findings are based on short-term, within-group improvements, with limited and inconsistent evidence for clear superiority of any single intervention. Clinical decision-making should therefore prioritize individual patient presentation, treatment goals, and therapist expertise rather than reliance on a single preferred method. Combining soft tissue techniques with other physiotherapeutic interventions may enhance short-term outcomes, but further high-quality RCTs with standardized methodologies and long-term follow-up are required to confirm these effects.

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