

# Massage Therapy Versus Conventional Physiotherapy for Chronic Non-Specific Low Back Pain: Evidence from Randomized Trials and Systematic Reviews

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**Abstract: Background and Objectives:** Chronic non-specific low back pain (CNSLBP) is a leading cause of disability worldwide. Although conventional physiotherapy is widely used, its effectiveness is often modest. Massage-based interventions have gained attention as alternative or adjunct therapies, but their comparative effectiveness remains unclear. The objectives were to systematically evaluate and compare the effectiveness of conventional physiotherapy and various massage techniques in the management of CNSLBP.

**Methods:** A systematic search of databases including PubMed, Google Scholar, Cochrane Library, PEDro, Embase, Scopus, and Web of Science was conducted. A total of 103 records were identified, of which 28 studies (2003–2025) met the inclusion criteria, including randomized controlled trials, systematic reviews, and meta-analyses. Outcomes assessed included pain intensity, functional disability, mobility, and quality of life.

**Results:** Most interventions demonstrated significant short-term improvements in pain and function. Massage therapies showed consistent short-term benefits, though no clear superiority among different techniques was observed. Manual therapy combined with exercise demonstrated enhanced outcomes compared to isolated interventions. Exercise therapy showed limited correlation between physical performance improvements and disability reduction. Evidence for electrotherapy modalities (UST, TENS, LLLT) was mixed, with no clear superiority. Overall, the magnitude of clinical benefit across interventions was modest, and long-term effects remain uncertain.

**Conclusion:** Both conventional physiotherapy and massage-based interventions are effective in CNSLBP management, with no single approach demonstrating clear superiority. A multimodal, individualized rehabilitation strategy appears most beneficial. Further high-quality comparative studies with long-term follow-up are needed to establish optimal treatment approaches.

**Keywords:** Non-specific low back pain, Massage therapy, Conventional physiotherapy.

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## 1. INTRODUCTION

Low back pain is an incapacitating disease that affects many people worldwide. It is a major health problem in modern societies [1]. Low back pain is defined as pain and discomfort, localised below the costal margin and above the inferior gluteal folds, with or without leg pain. It seems that pain is one of the first pathological manifestations of low back pain that often limits the activity. Low back pain covers a spectrum of different types of pain (e.g., nociceptive, neuropathic and oncoplasic, or non-specific) that frequently overlap. Approximately, 90 % of the patients who suffer from low back pain, have non-specific pain, Chronic non-specific low back pain (CNSLBP) is one of the most prevalent and disabling

musculoskeletal disorders worldwide, representing a major public health concern. It is the leading cause of years lived with disability and significantly impacts functional capacity, work productivity, and quality of life [2]. Low back pain is defined as pain localized between the costal margin and inferior gluteal folds, with or without radiation to the lower extremities. Approximately 85–90% of cases are classified as non-specific, where no definitive pathological cause can be identified [3].

CNSLBP is a multifactorial condition influenced by biomechanical, postural, and psychosocial factors. The absence of a clear structural diagnosis complicates management and contributes to variability in treatment outcomes. Pain mechanisms often involve a combination of nociceptive and central sensitization processes, which further promote chronicity and recurrence [4].

Conventional physiotherapy remains a first-line treatment and typically includes electrotherapy, thermotherapy, strengthening and stretching exercises, and patient education. However, recent evidence suggests that many non-surgical interventions, including commonly used physiotherapy modalities, provide only modest or uncertain clinical benefits, highlighting limitations in current treatment approaches [5].

In this context, manual therapy—particularly massage techniques—has gained increasing attention as a potential adjunct or alternative treatment strategy. Various massage approaches, including classical massage, connective tissue massage, myofascial release (MFR), and trigger point therapy, are proposed to reduce muscle tension, improve circulation, and modulate pain through neurophysiological mechanisms [6].

Recent randomized controlled trials (RCTs) provide emerging evidence supporting the role of massage in CNSLBP management. A three-arm RCT (2024) demonstrated that both connective tissue massage and classical massage significantly improved pain, lumbar mobility, and functional disability in patients with chronic low back pain, although differences between techniques were not always clinically significant. Similarly, a recent RCT (2025) reported that Thai massage, alone or combined with herbal therapy, significantly reduced pain intensity and improved mobility among individuals with chronic low back pain [7].

Additionally, studies investigating combined interventions have suggested that massage integrated with thermotherapy or other physiotherapy modalities may enhance clinical outcomes, supporting the concept of multimodal rehabilitation [8]. However, despite these findings, the overall quality of evidence remains inconsistent. Recent systematic evaluations indicate that the certainty of evidence supporting massage therapy in low back pain is generally low to moderate, with variability in treatment protocols, duration, and outcome measures limiting definitive conclusions [9].

Furthermore, although conventional physiotherapy and massage therapies are both widely used in clinical practice, there is a lack of high-quality comparative studies directly evaluating their relative effectiveness. Most existing research focuses on isolated interventions rather than head-to-head comparisons, thereby limiting clinical decision-making.

Therefore, given the increasing use of massage techniques and the ongoing uncertainty regarding their comparative efficacy, it is essential to systematically evaluate whether various massage techniques offer superior or additional benefits over conventional physiotherapy in the management of chronic non-specific low back pain.

Chronic non-specific low back pain (CNSLBP) remains a leading cause of disability worldwide, significantly impairing functional capacity and quality of life. Although conventional physiotherapy is widely recommended as a first-line treatment, recent evidence indicates that its clinical benefits are often modest and influenced by multiple prognostic factors [10]. Furthermore, large-scale analyses suggest that only a small proportion of non-surgical interventions for low back pain provide meaningful pain relief, highlighting limitations in current management strategies [11].

Massage-based interventions, including myofascial release, connective tissue massage, and trigger point therapy, have gained increasing attention for their potential to modulate pain and improve function. However, the existing evidence is heterogeneous, with inconsistent findings and varying methodological quality, limiting definitive conclusions regarding their effectiveness [12].

Importantly, there is a lack of high-quality randomized controlled trials directly comparing conventional physiotherapy with different massage techniques. Most studies evaluate these interventions independently, restricting evidence-based clinical decision-making.

Therefore, there is a clear need for comparative research to determine the relative effectiveness of conventional physiotherapy versus various massage techniques in managing CNSLBP, to guide optimal rehabilitation strategies and improve patient outcomes.

## 2. MATERIALS AND METHODS

A total of 103 records were initially retrieved through database searching. After the removal of duplicate entries, 84 records remained, of which 57 were screened based on their titles and abstracts. Subsequently, 39 full-text articles were evaluated for eligibility. Finally, 28 scientific studies published between 2003 and 2025 met the inclusion criteria and were selected for detailed analysis in the present review.

The literature search was performed systematically using several major electronic databases, including PubMed, Google Scholar, EBSCO, Cochrane Library, PEDro, Embase, Scopus, and Web of Science. A comprehensive search strategy was employed using a combination of Medical Subject Headings (MeSH) and relevant free-text keywords. The primary search terms included “Non-specific low back pain,” “Massage therapy,” and “Conventional physiotherapy”. Boolean operators (AND/OR) were utilized to refine and expand the search in order to capture all relevant studies. Furthermore, the reference lists of the selected articles were manually examined to identify additional studies that might not have been retrieved through the electronic database search. Well-defined inclusion criteria were applied to ensure the methodological quality and clinical relevance of the studies included in the review.

## 3. RESULTS

**Table 1: Critical analysis of the closely related articles reported between 2003 and 2025**

Author & Year	Study Design	Intervention Compared	Outcome Measures	Key Findings	Limitations
Gebremedh in Haile et al. (2021) [13]	Systematic Review	Ultrasound Therapy vs Control/Other Modalities	Pain intensity (VAS), function	Ultrasound therapy may reduce pain intensity in chronic non-specific LBP	Heterogeneity of included studies; limited high-quality RCTs
Ulger et al. (2017) [14]	Double-blind RCT	Manual Therapy + Exercise vs Exercise	Pain, function, quality of life	Both groups improved significantly; no strong superiority between groups	Short follow-up; small sample size
Cashin et al. (2025) [5]	Systematic Review & Meta-analysis	Non-surgical interventions vs placebo/sham	Pain intensity, disability	Only a small proportion of interventions showed clinically meaningful pain relief	Variability in interventions; low certainty evidence
Gedin et al. (2025) [12]	Multicenter RCT	Physiotherapy vs Standard Care	Pain, disability, cost-effectiveness	Physiotherapy improved outcomes but with modest clinical effect	Limited long-term follow-up
Dal et al. (2024) [7]	RCT	Connective tissue massage vs classical massage	Pain (VAS), ROM, disability	Both massage techniques significantly improved pain and function	No significant difference between techniques; short duration
Manjit et al. (2025) [8]	RCT	Thai massage ± herbal therapy	Pain intensity, mobility	Significant reduction in pain and improved mobility	Small sample size; limited generalizability
Furlan et al. (2021) [1]	Systematic review	Massage therapy vs placebo/usual care	Pain, function	Massage provides short-term relief in chronic LBP	Effects not sustained long-term
Qaseem et al. (2021) [15]	Clinical guideline review	Non-pharmacological therapies (exercise, massage, heat)	Pain, function	Recommends non-pharmacological interventions as first-line treatment	Based on variable quality evidence
Kamali et al. (2014) [16]	RCT	Massage vs routine physiotherapy	VAS, ODI, ROM	Both improved; massage superior for pain & function	Small sample (n=30), females only, short

Steiger et al. (2012) [17]	Systematic review	Exercise therapy (CNSLBP)	disability (ODI/RMDQ), strength, endurance, mobility	Weak link: disability largely independent of performance gains	Limitations: heterogeneity, variable measures/protocols, few high-quality studies.
Kumar et al. (2013) [18]	Umbrella review	Massage vs placebo/active care (NSLBP)	pain, disability, PROs	Short-term pain relief; limited long-term evidence	Review quality dependence, heterogeneity, few high-quality RCTs
Geisser et al. (2005) [19]	RCT	Manual therapy + exercise vs control	Outcomes: pain, disability	Significant ↓ pain (P=0.04) & disability (P=0.05); superior to control	dropouts (72/100), short follow-up,
Aure et al. (2003) [20]	RCT	Manual vs exercise therapy (CLBP)	Pain, disability, RTW	Both improved; manual therapy superior; RTW 67% vs 27% (P<0.01); sustained	Moderate sample, no blinding, therapist variability, limited generalizability
Ebadi et al. (2020) [21]	Systematic review (Cochrane, RCTs)	Ultrasound therapy vs placebo/other care	Pain, disability	No clinically meaningful benefit; small effect sizes	Low-quality evidence; heterogeneity
Li et al. (2024) [22]	Systematic review & meta-analysis (RCTs)	Low-intensity ultrasound vs sham/other	Pain (VAS), PPT, function	Significant pain reduction; functional gains inconsistent	High heterogeneity; parameter var
Chen et al. (2025) [23]	RCT	Focused vs planar ultrasound	Pain (VAS), disability	Both modalities improved pain and function	Short-term outcomes only
Bhoi et al. (2025) [24]	RCT	TENS vs LLLT vs UST	Pain, function	All modalities reduced pain; comparable effectiveness	Small sample; condition-specific (TMD)
Diyarbakır et al. (2025) [25]	RCT	LLLT vs UST	Pain, function, QoL	Both effective; no significant difference	Baseline imbalance; limited generalizability
de la Barra Ortiz et al. (2025) [26]	RCT	High/Low-Level Laser vs Control	Pain, disability, ROM	Laser therapy improves pain, ROM, QoL	Low certainty evidence; heterogeneity
Cordero et al. (2025) [27]	Systematic Review (RCTs)	MFR/manual therapy vs other physiotherapy	Pain, function	Manual therapy (including MFR) beneficial as part of multimodal rehab	Variable protocols; short follow-up
Steen et al. (2025) [28]	Review	TENS, pharmacological vs MFR/manual	Pain, trigger points	Limited strong evidence for TENS; supports multimodal approach	Lack of standardized protocols

In the present study, a total of 28 studies (2003–2025) were included, comprising RCTs, systematic reviews and guidelines. Overall, most interventions showed short-term improvements in pain and function, though clinical effects were generally modest [5,12].

As was the objectives of the study, massage and manual therapy consistently demonstrated short-term pain relief and functional gains [1,18]. RCTs showed that both connective tissue and classical massage improved outcomes with no clear superiority [7], while Thai massage significantly reduced pain and improved mobility [8]. Manual therapy, especially with exercise, was more effective than control or exercise alone, with better pain reduction and return-to-work outcomes [19,20]. Multimodal approaches including MFR also showed benefit [27]. Exercise therapy improved outcomes but showed a weak

relationship between physical performance gains and disability reduction [17]. Evidence for electrotherapy (UST, TENS, LLLT) was mixed. Some studies reported pain reduction [13,22], while others found minimal or no clinically meaningful benefit [21]. Comparative trials showed similar effectiveness across modalities with no clear superiority [24,25], and laser therapy showed benefits with low certainty evidence [26]. Clinical guidelines recommend non-pharmacological interventions as first-line treatment, though based on variable evidence quality [15].

Overall, findings suggest that no single intervention is clearly superior, and multimodal rehabilitation approaches are more effective, though long-term benefits remain uncertain due to methodological.

#### **4. DISCUSSION**

The present review highlights that both conventional physiotherapy and massage-based interventions are effective in managing CNSLBP; however, their clinical benefits are generally modest and predominantly short-term. Large-scale evidence indicates that only a limited proportion of non-surgical interventions provide clinically meaningful pain relief, emphasizing the need for optimized treatment strategies [5].

Massage therapy demonstrates consistent short-term improvements in pain and function, supporting its role as a valuable adjunct in rehabilitation. Systematic and umbrella reviews confirm that these benefits are not sustained long-term, likely due to variability in treatment protocols and patient characteristics [1,18]. Recent RCTs further support these findings, showing that different massage techniques (e.g., connective tissue, classical, Thai massage) are effective but not significantly different from each other, suggesting that the mechanism of benefit may be generalized rather than technique-specific [7,8].

Manual therapy, particularly when combined with exercise, appears to offer greater clinical benefits compared to isolated interventions. Evidence from RCTs demonstrates significant reductions in pain and disability, along with improved return-to-work outcomes, indicating its importance in functional recovery [19,20]. Additionally, integrating manual therapy approaches such as MFR within a multimodal rehabilitation framework enhances overall outcomes, supporting current physiotherapy practices [27].

Despite its widespread use, exercise therapy alone shows a weak association between physical performance improvements and disability reduction, suggesting that CNSLBP is influenced by multidimensional factors beyond biomechanical impairments, including psychosocial and central sensitization mechanisms [17]. This finding reinforces the need for a biopsychosocial approach to management.

The role of electrotherapy modalities (UST, TENS, LLLT) remains controversial. While some studies report pain reduction, others demonstrate minimal or no clinically meaningful effects, with high heterogeneity in treatment parameters [13,21,22]. Comparative trials indicate no clear superiority among these modalities, limiting their standalone clinical value [24,25]. Although laser therapy shows potential benefits, the low certainty of evidence restricts definitive conclusions [26].

Clinical guidelines recommend non-pharmacological interventions as first-line treatment, including exercise, manual therapy, and massage; however, these recommendations are often based on low to moderate quality evidence, highlighting gaps in high-quality research [15].

A key limitation identified across the literature is the lack of direct comparative RCTs between conventional physiotherapy and various massage techniques, which restricts evidence-based clinical decision-making. Additionally, small sample sizes, short follow-up durations, and heterogeneity in interventions and outcome measures further limit the generalizability of findings [7,12,22].

Overall, the evidence suggests that no single intervention is superior, and the most effective management strategy for CNSLBP involves a multimodal, individualized approach combining exercise, manual therapy, and adjunct modalities. Future research should focus on high-quality, long-term comparative trials to establish the relative effectiveness of different treatment approaches and to guide clinical practice more definitively.

#### **5. CONCLUSION**

Both conventional physiotherapy and massage-based interventions are effective in reducing pain and improving function in CNSLBP; however, their effects are generally modest and predominantly short-term. Current evidence does not demonstrate clear superiority of any single intervention, although combining manual therapy with exercise appears to provide relatively greater clinical benefit. These findings support the adoption of a multimodal and individualized rehabilitation approach

tailored to patient-specific needs and functional goals. Nevertheless, the overall quality of evidence remains limited due to heterogeneity in study designs, small sample sizes, and a lack of long-term follow-up. Therefore, well-designed, high-quality comparative randomized controlled trials with standardized protocols and extended follow-up periods are warranted to determine the most effective and sustainable treatment strategies and to inform evidence-based clinical decision-making in the management of CNSLBP.

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#### Ethical Approval

Not applicable.

#### Competing Interests

The authors declare no competing interests.

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