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Comparative Effectiveness and Cost Considerations of Manual Therapy Techniques in Peripheral Nerve Entrapments: A Narrative Review of Recent Evidence (2021–2024)

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ABSTRACT

Background: Peripheral nerve entrapments are common neuromuscular disorders that cause pain, sensory disturbance, and functional impairment, with increasing emphasis on conservative, non-surgical management. **Objective:** To synthesize recent evidence (2021–2024) on the clinical effectiveness and cost-related considerations of manual therapy techniques—neural mobilization, Maitland mobilization, the Mulligan concept, myofascial release, and Cyrix friction massage—for peripheral nerve entrapments. **Methods:** This narrative review searched PubMed/MEDLINE, Scopus, Google Scholar, and PEDro for English-language, peer-reviewed studies published from January 2021 to December 2024 (search conducted and updated in January 2025), supplemented by hand-searching reference lists. Eligible studies included adults with clinically or electrophysiologically diagnosed entrapment neuropathies receiving one or more target manual therapy techniques. **Results:** Thirty-two studies were included (14 randomized controlled trials, 6 non-randomized/quasi-experimental studies, 5 observational/case series studies, and 7 systematic reviews/meta-analyses), most frequently addressing carpal tunnel syndrome. Across conditions, neural mobilization and Mulligan-based interventions showed the most consistent improvements in pain and functional outcomes, with occasional accompanying gains in grip strength and nerve conduction parameters in carpal tunnel syndrome. Maitland mobilization and myofascial release demonstrated mixed or adjunctive benefits, while Cyrix friction massage showed limited and inconsistent effects. No study reported formal cost-effectiveness outcomes; cost-related findings were restricted to indirect indicators such as session burden and treatment duration. **Conclusion:** With moderate certainty and acknowledging heterogeneous protocols and variable risk-of-bias across primary studies, neural mobilization and the Mulligan concept appear to be the most consistently supported manual therapy options for conservative management of peripheral nerve entrapments, while other techniques may be considered adjunctive based on clinical presentation. Future trials should prioritize standardized protocols, longer follow-up, and integrated health-economic outcomes.

Keywords

Peripheral nerve entrapments; manual therapy; neural mobilization; Mulligan concept; conservative treatment; cost considerations

INTRODUCTION

Peripheral nerve entrapments (PNEs) comprise a heterogeneous group of neuromuscular disorders in which a peripheral nerve is mechanically compressed or irritated along an anatomically constrained course, producing neuropathic pain, paresthesia, sensory loss, and, in more advanced cases, motor weakness and functional limitation (1,2). Entrapment syndromes are frequently encountered across primary care, orthopedics, rehabilitation, and sports medicine, with common clinical presentations including median nerve compression at the carpal tunnel, ulnar nerve compression at the cubital tunnel, radial nerve entrapment in the proximal forearm, and sciatic nerve irritation in the deep gluteal region (1-4). Beyond symptom burden, these conditions contribute to activity restriction, reduced work capacity, and healthcare utilization, thereby generating both direct costs (consultations, diagnostics, treatment) and indirect costs (absenteeism and productivity loss), particularly in working-age populations exposed to repetitive load, sustained postures, and occupational vibration (1,4). Although surgical decompression remains a key option for severe or refractory cases, contemporary care pathways emphasize early conservative management to limit progression, reduce symptom persistence, and avoid unnecessary escalation when deficits are mild to moderate and potentially reversible (2,4).

Within conservative care, manual therapy is widely used in physiotherapy practice and encompasses approaches intended to optimize neuromechanical function by improving neural excursion, reducing mechanosensitive, and addressing adjacent joint and soft tissue contributors to nerve compression (7,8). Neural mobilization (neurodynamic techniques) is proposed to enhance nerve gliding and reduce intraneural pressure, with mechanistic support from foundational work describing the rationale and biomechanical behavior of “sliders” and “tensioners” (9,10). Experimental studies further suggest that neurodynamic loading can influence intraneural fluid dynamics, offering biologically plausible pathways for symptom modulation in compressive neuropathies (14,15). In parallel, joint-based manual therapies such as Maitland mobilization and the Mulligan concept (mobilization-with-movement) target kinematic restrictions that may perpetuate neural irritation, while myofascial release aims

to reduce fascial and muscular tension that can contribute to regional compression or altered movement strategies (7,8). Cyriax deep transverse friction massage is also used clinically to address peri-neural soft tissue adhesions and local tissue sensitivity, although its application and theoretical relevance to neural entrapment vary by region and diagnosis (22). Collectively, these approaches are attractive because they are non-invasive, require limited equipment, and can be integrated into multimodal rehabilitation programs alongside activity modification, exercise, and ergonomic interventions (1,8).

Despite broad clinical uptake, uncertainty persists regarding the comparative effectiveness of specific manual therapy techniques across different entrapment syndromes and outcomes. Prior syntheses have reported beneficial effects of neural mobilization in neuromusculoskeletal conditions and musculoskeletal pain, yet the evidence base spans diverse diagnoses and varies in methodological quality, limiting the specificity of inferences for discrete PNE entities such as carpal tunnel syndrome (CTS) or cubital tunnel syndrome (CuTS) (8). Updated evidence continues to accumulate, including systematic evaluations indicating improvements in pain intensity and functional status with neural mobilisation, but heterogeneity in protocols, comparator interventions, follow-up duration, and outcome selection complicates translation into technique-specific recommendations for routine practice (7). In addition, clinical trials in related upper-limb conditions and adjacent symptom complexes frequently evaluate manual therapy within combined programs, making it difficult to distinguish the independent contribution of each technique or to identify which approach is most suitable for particular biomechanical presentations (18,19). For soft tissue-dominant syndromes such as piriformis-related sciatic symptoms, reported benefits of myofascial and neurodynamic strategies are often derived from smaller trials or observational designs, further contributing to inconsistency in certainty and generalizability (20). Consequently, clinicians frequently rely on local practice norms rather than evidence-informed selection of techniques, and the literature offers limited clarity on whether observed benefits reflect true technique superiority, non-specific effects, or context-dependent interactions within multimodal care.

Cost considerations further motivate comparative evaluation but remain insufficiently addressed in the rehabilitation literature. Manual therapy is commonly perceived as clinically efficient and resource-sparing relative to pharmacological escalation or surgery; however, formal cost-effectiveness analyses are uncommon, and economic outcomes such as quality-adjusted life years or incremental cost-effectiveness ratios are rarely incorporated into trial designs (1,2,4). In resource-constrained settings, the practical question is not only whether manual therapy improves pain and function, but whether certain techniques achieve meaningful benefit with fewer sessions, shorter time-to-recovery, or reduced reliance on adjunctive care. The absence of robust economic evaluation, combined with variability in technique selection and dosing, limits the ability of clinicians and policymakers to operationalize value-based conservative pathways for PNEs. This gap is increasingly relevant as the burden of work-related upper-limb disorders persists and outpatient rehabilitation services are expected to deliver measurable functional gains efficiently.

Given the growth of recent evidence and the ongoing need for clinically interpretable, technique-specific guidance, an updated synthesis focused on contemporary studies is warranted. The present narrative review therefore aims to critically evaluate evidence published between 2021 and 2024 on the clinical effectiveness and cost-related considerations of commonly used manual therapy techniques—neural mobilization, Maitland mobilization, the Mulligan concept, myofascial release, and Cyriax friction massage—in the management of peripheral nerve entrapments. The primary outcomes of interest are pain intensity and functional status, with secondary outcomes including nerve conduction parameters, strength (e.g., grip strength), symptom severity indices, treatment duration, and reported cost-related indicators such as session burden, time-to-return-to-work, and healthcare utilization where available (7-10).

MATERIALS AND METHODS

This review was conducted as a narrative review with the aim of synthesizing and critically appraising recent evidence on the clinical effectiveness and cost-related considerations of manual therapy techniques used in the management of peripheral nerve entrapments. A narrative approach was selected because the available literature across different entrapment syndromes, manual therapy modalities, and outcome measures is heterogeneous in design, intervention protocols, and reporting, limiting the feasibility and validity of quantitative pooling. The review scope and methods were defined a priori to enhance transparency and reproducibility, although no formal protocol registration was undertaken.

A structured literature search was performed to identify peer-reviewed studies published between January 2021 and December 2024. Electronic databases searched included PubMed/MEDLINE, Scopus, Google Scholar, and Pedro. These databases were selected to capture clinical trials, systematic reviews, and rehabilitation-focused studies relevant to physiotherapy and manual therapy practice. The search was initially conducted in January 2025 and updated in the same month to ensure inclusion of late-2024 publications. Reference lists of included articles and relevant reviews were hand-searched to identify additional eligible studies not captured through database queries. Grey literature, conference abstracts, and unpublished theses were not systematically searched due to the narrative nature of the review and the focus on peer-reviewed clinical evidence.

Search terms were developed iteratively based on key concepts related to peripheral nerve entrapments and manual therapy. A representative PubMed search strategy was as follows: (“peripheral nerve entrapment” OR “carpal tunnel syndrome” OR “cubital tunnel syndrome” OR “radial tunnel syndrome” OR “piriformis syndrome” OR “sciatic nerve entrapment”) AND (“manual therapy” OR “neural mobilization” OR “neurodynamic techniques” OR “Maitland mobilization” OR “Mulligan mobilization” OR “mobilization with movement” OR “myofascial release” OR “Cyriax” OR “deep transverse friction massage”) AND (“pain” OR “function” OR “nerve conduction” OR “grip strength”). Equivalent adaptations of this strategy were applied across the remaining databases. Searches were limited to human studies published in English.

Studies were considered eligible if they met the following criteria: adult participants (≥ 18 years) with a clinically or electrophysiologically diagnosed peripheral nerve entrapment; evaluation of at least one manual therapy technique of interest (neural mobilization, Maitland mobilization, Mulligan concept, myofascial release, or Cyriax friction massage), either as a standalone intervention or as part of a conservative rehabilitation program; and reporting of at least one relevant clinical outcome, including pain intensity, functional status, strength, nerve conduction parameters, or treatment efficiency indicators (e.g., duration of care, return-to-work). Randomized controlled trials, non-randomized clinical studies, prospective observational studies, and recent systematic reviews were eligible for inclusion. Studies focusing exclusively on surgical interventions, pharmacological management without a manual therapy component, animal or cadaveric models, or acute traumatic nerve injuries were excluded. Foundational biomechanical or mechanistic studies published before 2021 were selectively included when necessary to contextualize neurodynamic principles or explain mechanisms underlying manual therapy effects, but these were not treated as primary outcome evidence.

Study selection was performed in a staged manner. Titles and abstracts retrieved from the searches were screened for relevance, followed by full-text assessment of potentially eligible articles. Given the narrative design, screening and selection were performed by the lead author, with

ambiguous cases discussed among the co-authors to reach consensus. Formal inter-rater reliability statistics were not calculated. Reasons for exclusion at the full-text stage included mismatch with the target population, absence of manual therapy interventions, or lack of relevant outcome reporting.

Data extraction was conducted using a standardized data charting approach developed for this review. Extracted information included study design, sample size and participant characteristics, type and dosage of manual therapy intervention, comparator interventions where applicable, outcome measures, follow-up duration, and principal findings related to clinical effectiveness. Where reported, indirect indicators of cost or clinical efficiency—such as number of treatment sessions, time to symptom improvement, or return-to-work timelines—were also recorded. No attempts were made to contact authors for missing or unclear data; such limitations were noted in the narrative synthesis.

Given the heterogeneity of study designs and outcomes, no formal risk-of-bias tool was applied. Instead, the strength and credibility of evidence were considered descriptively, taking into account study design, sample size, presence of control or comparison groups, and consistency of findings across studies. Randomized controlled trials and systematic reviews were interpreted as providing higher-level evidence relative to observational studies or case series, and this hierarchy informed the qualitative weighting of conclusions. No quantitative synthesis, vote counting, or effect direction plots were performed.

The synthesis followed a structured narrative approach, grouping findings by entrapment condition (e.g., carpal tunnel syndrome, cubital tunnel syndrome, radial tunnel syndrome, piriformis-related sciatic entrapment) and by manual therapy technique. This framework allowed comparison of outcome patterns across conditions and interventions while acknowledging variability in protocols and outcome measures. Cost-related considerations were synthesized descriptively based on reported treatment duration, session frequency, and indirect indicators of resource utilization, recognizing the absence of formal economic evaluations in most studies.

As this work is a review of published literature, ethical approval was not required. The authors declare no conflicts of interest and no external funding for the preparation of this review. All data supporting the findings of this study are derived from publicly available sources cited in the reference list, and no original datasets or analytic code were generated.

RESULTS

Table 1 synthesizes the core characteristics and quantitative outcomes of the key primary studies evaluating manual therapy interventions for peripheral nerve entrapments published between 2021 and 2024. Across the included randomized and quasi-experimental trials, sample sizes ranged from 34 to 60 participants, with carpal tunnel syndrome representing the most frequently studied condition. Neural mobilization demonstrated the most consistent and statistically significant effects, with trials reporting reductions in pain intensity and improvements in grip strength and functional scores that reached conventional significance thresholds ($p < 0.05$) when compared with exercise-based or splint-only interventions. In studies evaluating Mulligan mobilization combined with neurodynamic techniques, improvements in functional outcomes and nerve conduction velocity were also statistically significant ($p < 0.05$), suggesting both symptomatic and physiological benefits. In contrast, Cyriax deep transverse friction massage produced short-term pain relief, but effects were not sustained beyond early follow-up, and its comparative benefit was inferior to movement-based techniques in head-to-head trials. Studies examining myofascial release, primarily in piriformis-related sciatic entrapment, reported significant pain reduction and functional improvement ($p < 0.05$), although the absence of electrophysiological outcomes and relatively small samples limited the strength of inference.

The distribution of evidence within Table 1 highlights notable trends in study design and outcome reporting. Randomized controlled trials accounted for the majority of higher-quality evidence, whereas pilot trials and quasi-experimental studies contributed supportive but less definitive findings. Pain intensity and functional status were universally reported across studies, while objective measures such as nerve conduction velocity were included in a smaller subset of trials, predominantly those investigating carpal tunnel syndrome. Follow-up duration was typically short, ranging from immediate post-intervention assessment to 12 weeks, underscoring a lack of long-term outcome data. From a clinical efficiency perspective, several studies reported meaningful symptom improvement within 6–12 treatment sessions, indirectly suggesting potential reductions in therapy duration, although no formal economic metrics were presented.

Collectively, the tables emphasize that neural mobilization and Mulligan-based interventions show the greatest consistency of benefit across multiple outcomes and conditions, while other manual therapy techniques appear to confer adjunctive or short-term advantages. The numeric patterns observed across studies—particularly the repeated demonstration of statistically significant pain and functional improvements with neurodynamic approaches—support their preferential consideration in conservative management pathways, albeit within the context of methodological limitations and the absence of formal cost-effectiveness evaluation.

Clinical Effectiveness by Manual Therapy Technique

Neural Mobilization

Neural mobilization was the most extensively studied intervention across all peripheral nerve entrapment conditions and demonstrated the most consistent clinical benefits. In CTS, multiple RCTs reported statistically significant improvements in pain and function compared with exercise therapy or splinting alone. Hamzeh *et al.* (2021) demonstrated greater reductions in pain and superior gains in grip strength and functional scores in the neural mobilization group over a 12-week period ($p < 0.05$), alongside improvements in median nerve sensory latency (17). Systematic reviews published within the review period similarly reported favorable effects of neural mobilization on pain intensity and functional outcomes, although heterogeneity in protocols and outcome measures was noted (7).

In CTS, evidence was more limited but suggested potential benefit. A prospective clinical study reported significant improvements in paresthesia severity, grip strength, and ulnar nerve conduction velocity following a structured nerve gliding program over several months ($p < 0.05$) (12). For piriformis-related sciatic entrapment, neural mobilization—particularly sliding techniques—was associated with reductions in pain intensity and improved straight-leg raise performance when combined with stretching or myofascial interventions (13).

Mulligan Concept (Mobilization with Movement)

The Mulligan concept showed favorable outcomes primarily in movement-sensitive upper limb entrapments, particularly CTS and RTS. RCTs reported significant improvements in pain scores, grip strength, and functional outcomes when Mulligan mobilization was added to standard rehabilitation protocols. In CTS, combined Mulligan mobilization and neurodynamic exercises resulted in superior functional improvement compared with splinting alone ($p < 0.05$) (24). In RTS, studies reported meaningful reductions in pressure pain threshold and enhanced forearm function following Mulligan mobilization with movement, although sample sizes were small and follow-up periods short (26).

Maitland Mobilization

Maitland mobilization demonstrated moderate and less consistent effects when applied as a standalone intervention. Trials in CTS and lateral elbow-related neuropathic presentations reported modest pain reduction and improvements in joint mobility; however, these changes were often smaller than those observed with neural mobilization or Mulligan techniques and did not always reach statistical significance when compared directly (18). Maitland mobilization appeared to be more effective as an adjunctive modality, particularly when joint stiffness or positional compression was a contributing factor.

Myofascial Release

Evidence supporting myofascial release (MFR) was largely derived from small RCTs and observational studies, most frequently in piriformis syndrome and thoracic outlet-type presentations. Studies reported significant reductions in pain intensity and improvements in hip or limb function following MFR-based protocols ($p < 0.05$), particularly when combined with stretching or neural mobilization (27). However, direct effects on nerve conduction parameters were rarely measured, and the overall certainty of evidence was limited by study size and design.

Cyriax Deep Transverse Friction Massage

Cyriax friction massage had the weakest evidence base among the reviewed techniques. A small number of trials reported short-term pain relief in CTS or CuTS when Cyriax massage was combined with mobilization or stretching ($p < 0.05$), but benefits were generally transient and not sustained at follow-up beyond 6–8 weeks (22,23). No studies demonstrated superiority of Cyriax massage over neurodynamic or movement-based techniques.

Table 1. Summary of Key Studies Evaluating Manual Therapy Techniques in Peripheral Nerve Entrapments (2021–2024)

| Author (Year) | Condition | Study Design | Sample Size | Intervention | Comparator | Key Outcomes (p-value / effect) | Limitations |
|-------------------------|---------------------|--------------------|-------------|-------------------------|------------------|--|-------------------------------|
| Hamzeh et al. (2021) | CTS | RCT | 60 | Neural mobilization | Exercise therapy | ↓ Pain, ↑ grip strength, ↑ function ($p < 0.05$) | No long-term follow-up |
| Hayat et al. (2022) | CTS | Quasi-experimental | 48 | Mulligan + neurodynamic | Splinting | ↑ function, ↑ NCV ($p < 0.05$) | Non-randomized |
| Akbar et al. (2021) | Lateral elbow pain | RCT | 40 | Cyriax therapy | Mulligan | Short-term pain relief ($p < 0.05$) | Condition not pure entrapment |
| Ahmed et al. (2022) | Piriformis syndrome | RCT | 52 | MFR + stretching | PFS technique | ↓ pain, ↑ function ($p < 0.05$) | No electrophysiology |
| Rezazadeh et al. (2023) | CTS | Pilot RCT | 34 | Dry needling | Standard care | Faster pain reduction ($p < 0.05$) | Short duration, adjunct only |

Cost-Related and Clinical Efficiency Outcomes

No included study conducted a formal cost-effectiveness or cost-utility analysis. However, several trials and case series reported indirect indicators of clinical efficiency. Neural mobilization and Mulligan-based interventions were frequently associated with shorter treatment durations (6–12 sessions) and earlier functional improvement, suggesting potential reductions in therapy-related resource use (17,24). Dry needling, when used adjunctively, demonstrated rapid short-term pain relief within 2–3 sessions in CTS, but the durability of these effects was uncertain (25). No study reported healthcare costs, quality-adjusted life years, or incremental cost-effectiveness ratios.

Overall, Strength and Consistency of Evidence

Across conditions, neural mobilization demonstrated the most consistent benefits for pain reduction and functional improvement, supported by multiple RCTs and recent systematic reviews. Mulligan mobilization showed moderate-to-high effectiveness in selected upper limb entrapments, particularly those with movement-related symptom provocation. Maitland mobilization and myofascial release appeared to offer adjunctive benefits, while Cyriax friction massage showed limited and inconsistent effects. Methodological limitations—including small sample sizes, short follow-up durations, and heterogeneity in intervention protocols—were common across studies and limit definitive conclusions regarding comparative superiority.

DISCUSSION

This narrative review synthesizes recent evidence on manual therapy interventions for peripheral nerve entrapments and indicates that techniques emphasizing neural excursion and movement correction—most notably neural mobilization and the Mulligan concept—demonstrate the most consistent improvements in pain and functional outcomes across conditions. In contrast, Maitland mobilization, myofascial release, and Cyriax friction massage appear to confer more modest or adjunctive benefits, with greater variability in outcomes and a lower overall certainty of evidence. Across all techniques, formal economic evaluations were absent, limiting definitive conclusions regarding cost-effectiveness despite recurrent indications of clinical efficiency and reduced treatment duration.

Interpretation of these findings must be tempered by substantial heterogeneity in study designs, intervention protocols, outcome measures, and follow-up durations. Even among randomized controlled trials, dosing parameters for neural mobilization or Mulligan techniques varied considerably, and comparator interventions ranged from splinting to general exercise therapy, complicating direct comparison. Nevertheless, consistency in effect direction was notable for neural mobilization in carpal tunnel syndrome and, to a lesser extent, cubital tunnel syndrome, aligning with recent systematic reviews that report favorable effects on pain intensity and functional status despite moderate heterogeneity (7,8). The overall risk-of-bias profile of included primary studies was mixed, with common limitations including small sample sizes, short follow-up periods, and limited blinding, which collectively reduce confidence in long-term effect estimates.

When compared with earlier syntheses, the present review extends prior work by focusing on condition-specific outcomes and contemporary evidence. Earlier systematic reviews evaluating neural mobilization across broad neuromusculoskeletal conditions reported pooled benefits but emphasized uncertainty due to protocol variability and outcome inconsistency (8). More recent analyses have reinforced these conclusions while highlighting improved methodological rigor in newer trials (7). The present findings are concordant with this trajectory, suggesting incremental strengthening of evidence for neurodynamic approaches, particularly in median nerve entrapment, while other manual therapy techniques remain supported primarily by smaller or indirect studies. Landmark mechanistic studies demonstrating nerve excursion during sliding techniques provide plausible biological support for these clinical effects, particularly in compressive neuropathies where intraneural edema and mechanosensitive are implicated (9,10,13).

From a clinical perspective, the magnitude of reported effects—typically statistically significant reductions in pain scores and meaningful improvements in functional indices—suggests that neural mobilization and Mulligan mobilization can be reasonably prioritized in early conservative management, especially for mild to moderate entrapments. Although effect sizes were not uniformly reported, consistent p-values below conventional thresholds and parallel improvements in objective measures such as grip strength and nerve conduction velocity in some trials support clinical relevance (17,24). In contrast, the more variable findings for myofascial release and Maitland mobilization indicate that these techniques may be best applied selectively, particularly when joint stiffness or fascial restriction plausibly contributes to neural irritation. Cyriax friction massage, while occasionally associated with short-term symptom relief, lacks sustained benefit and robust comparative support, limiting its role as a primary intervention (22,23).

Subgroup differences observed across conditions likely reflect underlying Patho mechanics. Dynamic entrapments such as radial tunnel syndrome appear particularly responsive to movement-based correction strategies, consistent with the theoretical framework of mobilization with movement (26). In piriformis-related sciatic entrapment, combined approaches incorporating myofascial release and neural gliding may be necessary to address both muscular compression and neural mechanosensitive, which may explain the favorable outcomes reported in multimodal protocols (27). These observations underscore the importance of matching technique selection to anatomical and functional drivers rather than applying a uniform manual therapy strategy.

Several limitations of the evidence base warrant consideration. The predominance of short-term follow-up restricts inference regarding durability of benefit and recurrence prevention, and selective outcome reporting may overemphasize symptomatic improvement while underreporting null findings. The absence of standardized economic outcomes precludes firm conclusions about cost-effectiveness, despite indirect indicators suggesting potential efficiency advantages. Limitations of the present review include restriction to English-language, peer-reviewed publications, omission of grey literature, and reliance on descriptive assessment of study quality rather than formal risk-of-bias tools, all of which may introduce publication and selection bias. As a narrative review, the synthesis is inherently interpretive, and conclusions should be viewed as indicative rather than definitive (28).

Future research should address these gaps through well-powered, condition-specific randomized trials with standardized intervention protocols and longer follow-up periods. Direct head-to-head comparisons between neural mobilization and Mulligan mobilization in defined entrapment syndromes would clarify relative effectiveness, while integration of formal economic evaluations—including treatment costs, productivity outcomes, and quality-adjusted life years—would inform value-based care decisions. Methodologically rigorous studies incorporating electrophysiological outcomes alongside patient-reported measures may further elucidate mechanisms of action and identify responders. Collectively, such efforts would strengthen the evidence base and support more precise, cost-conscious integration of manual therapy into conservative management pathways for peripheral nerve entrapments (29).

CONCLUSION

In conclusion, current evidence suggests that manual therapy constitutes a viable conservative management option for peripheral nerve entrapments, with neural mobilization and the Mulligan concept demonstrating the most consistent improvements in pain and functional outcomes across recent randomized and quasi-experimental studies, particularly in carpal and radial tunnel syndromes. The certainty of evidence for these techniques is moderate, whereas Maitland mobilization, myofascial release, and Cyriax friction massage appear to offer adjunctive or short-term benefits supported by lower-certainty data. Although manual therapy is commonly perceived as clinically efficient, definitive conclusions regarding cost-effectiveness cannot be drawn due to the absence of formal economic evaluations. Clinically, a condition-specific, multimodal approach that prioritizes neurodynamic and movement-based techniques may be reasonable in early-stage entrapment neuropathies, while recognizing the limitations of the current evidence base. Future research should focus on adequately powered comparative trials with standardized protocols, longer follow-up, and integrated health-economic outcomes to better inform evidence-based and value-oriented rehabilitation practice.

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