

# Analysis of the Effect of Manual Therapy on Pain, Functionality, and Quality of Life: An Integrative Review

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**Abstract:** Manual therapy is one of the tools in physical therapy that involves the application of hands-on techniques to the patient's body with the aim of promoting the return of normal function to their systems. To analyze the effect of manual therapy on pain, functionality, and quality of life. This is an integrative literature review. To do this, a search was conducted in national and international scientific databases, including Portuguese and English language databases such as Pubmed, PEDro, Scielo, and Google Scholar, during the data collection period from January to June 2022. Initially, 151 potentially eligible studies were identified to participate in the review, and 5 articles were included in the final sample for full-text reading and data extraction. According to the results obtained in this integrative literature review, manual therapy has proven efficacy in addressing pain, functionality, and quality of life.

**Keywords:** Physical therapy; Manual therapy; Pain; Functionality; Quality of life.

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## 1. Introduction

Manual therapy is one of the tools in physical therapy that involves the application of hands-on techniques to the patient's body with the aim of promoting the return of normal function to their systems. All individuals can benefit from the techniques that Manual Therapy offers. The physiotherapist will assess the patient to gather the necessary information to identify and correct possible dysfunctions, providing a reduction in muscular and joint pain, decreased tension, intra-articular lubrication, improved visceral and neural function, among other benefits [1].

It is of utmost importance that the professional has a basic knowledge of kinesiology, biomechanics, and palpatory anatomy to develop the following techniques: mobilization, joint mobilization, and traction, osteopathic, chiropractic, and massage techniques [2]. Among the various techniques of manual therapy, the Mulligan technique stands out. This technique was developed by physiotherapist Brian Mulligan in 1954 in New Zealand, with the collaboration of international experts in manual therapy such as Maitland, Cyriax, Elvey, and Mackenzie [3]. The technique involves the application of accessory movements in the vertebral column. When these accessory movements are associated with free active movements, they are called SNAGs (Sustained Natural Apophyseal Glides). When they are only accessory movements, they are called NAGs (Natural Apophyseal Glides). It is expected that immediately after the application of the technique, function will be increased, and pain will decrease. Both SNAGs and NAGs are applied only to the spine [4].

Pain can originate from various reasons. When considering how we live in today's world, this lifestyle is associated with mechanical and behavioral stress. Inadequate

postures due to long hours of work in an inappropriate environment and excessive physical efforts that lead to excessive muscle contraction can cause a lot of pain. This mechanism of defense that the body presents is called muscle spasm, which occurs as sustained involuntary contraction of muscle fibers caused by disorders in the muscle chains. It can be reversed, and treatment with manual therapies and regular physical activities are important to reduce and prevent muscle pain [5].

This article aimed to analyze the effect of manual therapy on pain, functionality, and quality of life.

## 2. Methodology

The following research is an integrative literature review, a research method that allows the incorporation of evidence into clinical practice. This method aims to gather and synthesize research results on a specific topic in a systematic and organized manner, contributing to a deeper understanding of the investigated subject. The inclusion criteria were as follows: (a) studies describing manual therapy; (b) articles published in Portuguese and English; (c) the role of physiotherapy in the field of manual therapy; (d) articles discussing pain, functionality, and quality of life. Exclusion criteria included: (a) studies that did not address the specific topic; (b) articles that were outdated in the databases.

The procedure was divided into the following phases. First, the guiding question was formulated: "How can we demonstrate the effectiveness of manual therapy in pain, functionality, and quality of life?" Second, terms found in the Health Sciences Descriptors (DeCS) were defined in Portuguese: "fisioterapia" (physiotherapy), "terapia manual" (manual therapy), "dor" (pain), "qualidade de vida" (quality of life). In English: "physiotherapy," "manual therapy," "pain," "quality of life," according to the Medical Subject Headings (MeSH).

After defining the descriptors, searches for articles were conducted using combinations of these descriptors in Portuguese and English in the Pubmed, PEDro, Scielo, and Google Scholar databases during the data collection period from January to June 2022.

## 3. Results

Initially, 151 potentially eligible studies were identified for inclusion in the review. After reading the article titles, 50 were excluded according to the criteria mentioned earlier. Subsequently, abstracts of 101 articles were reviewed, with 55 being excluded; 24 studies did not precisely address the topic, and 31 articles were outdated. Thus, 46 articles remained for full-text reading, resulting in the exclusion of 41 of them. Finally, 5 articles were selected for full-text reading, and data were extracted, as shown in the table below, for the discussion of the results of this study.

**Table 1:** Characteristics of the studies included in the integrative review.

Reference	Objective	Methods	Results
[6]	The main goal is to observe the effectiveness of treatment using Maitland manipulative techniques and analyze the results obtained through Manual Therapy and kinesiotherapy.	This study is a descriptive and retrospective bibliographic research that sought articles in the databases: PubMed, Scielo, and Google Scholar to conduct a literature review on manual therapy and kinesiotherapy in the treatment of lower back pain.	A total of 234 participants aged between 18 and 65 years with acute lower back pain, chronic lower back pain, and/or nonspecific lower back pain were selected. The results with kinesiotherapy demonstrate that the techniques employed based on these concepts are favorable for pain treatment. In all the articles, research participants reported a significant improvement in pain

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- intensity, with some reporting complete absence of pain at the end of the intervention.
- [7] To examine the effect of the Mulligan Mobilization Technique (MMT) on pain, range of motion (ROM), functional level, kinesiophobia, depression, and quality of life (QOL) in elderly individuals with neck pain (NP).
- Intervention: Forty-two consenting elderly individuals were divided into two groups using a paired randomization method. All participants were divided into the Traditional Physiotherapy (TP) group and the Traditional Physiotherapy with Mulligan Mobilization (TPMM) group. The treatment program was scheduled for 10 sessions. Participants were assessed for pain, Range of Motion (ROM), functional level, kinesiophobia, depression, and QOL both before and after treatment. Control: Participants were informed and educated about effective ways to perform their daily life activities.
- Pain, ROM, functional level, kinesiophobia, depression, and QOL improved in both groups after treatment. When comparing the effects of these two treatment programs, it was observed that the TPMM group showed better outcomes in terms of ROM, kinesiophobia, depression, and QOL.
- [4] This research had as its focal point the presence of both chronic and acute muscular pain and explored the interplay in treatment using manual therapy and electrotherapy. It examined how the physiological alterations brought about by each technique have distinct impacts on pain and the body, thereby highlighting their applicability, effects, and outcomes, ultimately reducing harm.
- This is an integrative review study of scientific literature, conducted by analyzing data applied to restore physical and functional activities. It involves a comparative analysis of techniques used in the relief of muscular pain through the application of manual therapy and electrotherapy, relying on existing evidence.
- The results were presented through references where the factors related to muscular pain, whether chronic or acute, contribute to an individual's disability. Physiotherapy utilizes the following techniques, which have shown their effectiveness in restoring musculoskeletal autonomy by activating sensory systems, inducing relaxation, reducing pain, and improving Range of Motion (ROM). Tables were used to portray data relevant to the topic discussed, thereby contributing to the evolution and enrichment of the content and research at hand.
- [2] To identify the indications and applications of mobilizing the nervous system as a diagnostic and therapeutic resource.
- It has been used as a method of assessment and treatment for various pathologies affecting the nervous system and the structures it innervates. This technique is relatively unknown and, as a result, underutilized in patient treatment. It should be further studied to refine and es-
- Physiotherapists have been developing the technique and are continually striving for improved outcomes in both patient evaluation and treatment. However, the number of articles and publications on the subject is still relatively limited in the researched

[8]	Revising the neuro-physiological mechanisms of applying manual therapy techniques.	The study is based on a review of specialized literature on the subject, which includes books and articles published in both national and international indexed journals.	databases. This is despite the evidence showing the effectiveness of the technique in both the evaluation and treatment of various pathologies affecting nerve roots. The main effects of applying these techniques are: hypoalgesia, inhibition of muscle spasm through the influence on motor neuron excitability, improved motor control, and implications for the autonomic nervous system. The benefits seem to be more closely associated with the hypoalgesic effect, both through peripheral and central mechanisms.
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#### 4. Discussion

Manual therapy has been widely used as a primary or adjunctive treatment alongside other well-established and proven modalities within physiotherapy. This approach aims to relieve the patient's painful condition by promoting the reorganization of soft tissues, preventing fibrosis, or breaking down existing fibrosis, and improving tissue circulation. All of these contribute to better mobility, flexibility, functionality, and overall quality of life for the patient. Several studies have shown favorable results in the use of manual therapy for pain treatment and relief, leading to a cascading improvement in mobility, function, and ultimately, a better quality of life and health [9].

In a study by Briaganó et al. [10], the group underwent 30 sessions of manual therapy, including myofascial techniques such as global pumping, thoracic, lumbar, and sacral maneuvers, diaphragmatic and lumbar stretching, analytical stretching of the psoas, hamstrings, paravertebral muscles, and global postural stretching of the anterior and posterior muscle chains. They also engaged in kinesiotherapy, which involved exercises for lumbo-pelvic mobility using Swiss balls, Isostretching-based self-growth exercises, and strengthening of abdominal and trunk extensor muscles. On the other hand, the group selected by João et al. [11] underwent a manual therapy protocol only once. Both authors reevaluated their respective groups at the end of the interventions and concluded that manual therapy has a significant influence on improving pain and mobility, even when applied only once.

Several neurophysiological mechanisms are involved in the effects of manual therapy techniques. The main effects of applying these techniques include hypoalgesia (pain reduction), inhibition of muscle spasms by influencing motor neuron excitability, improved motor control, and repercussions on the autonomic nervous system. The benefits appear to be more closely associated with the hypoalgesic effect, both through peripheral and central mechanisms [8].

#### 5. Conclusion

It can be concluded that physiotherapy, with its wide range of interventions, has proven efficacy in addressing pain and functionality. Consequently, a patient without pain complaints has greater confidence in performing their activities of daily living, resulting in an improved quality of life. Based on the results obtained in this integrative literature review, we can reaffirm the benefits of manual therapy on the quality of life of patients. However, further studies describing the application of these techniques in detail

are still needed to assist professionals in the field, ultimately leading to better execution of manual therapy interventions.

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