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FASCIAL MOBILIZATION TECHNIQUES AS A COMPLEMENTARY STRATEGY IN PHYSIOTHERAPY TO INCREASE MOBILITY AND DECREASE LOW BACK PAIN

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The integration of fascial techniques into kinesiotherapy for patients with low back pain has proven more effective than standard rehabilitation protocols. This study aimed to evaluate the effects of combining these techniques on mobility and pain relief in 24 participants, divided into two groups: an experimental group receiving both physiotherapy and fascial mobilizations, and a control group undergoing standard physiotherapy. Assessments included the Visual Analog Scale (VAS) for pain, the Schober test for mobility, and the Roland & Morris questionnaires. Results showed significant improvements in the experimental group for both pain reduction and increased lumbar mobility. These findings suggest that adding fascial mobilizations to physiotherapy enhances treatment outcomes, offering faster pain relief and potential for reducing recurrences. This approach may improve patients' long-term quality of life. However, further large-scale studies are needed to confirm these results and guide the development of structured physiotherapeutic programs integrating fascial techniques.

Keywords: *physiotherapy, facial mobilizations, lumbar pain, rehabilitation process, motor capacity, physiotherapeutic strategy, recovery program.*

TEHNICI DE MOBILIZARE FASCIALĂ CA STRATEGIE COMPLEMENTARĂ ÎN FIZIOTERAPIE PENTRU CREȘTEREA MOBILITĂȚII ȘI SCĂDEREA DURERILOR LOMBARE

Organizația Mondială a Sănătății (OMS) a lansat primele linii directoare pentru gestionarea durerii cronice de spate în îngrijirea primară, indicând intervenții recomandate și nerecomandate. Durerea lombară este principala cauză a dizabilității la nivel global, afectând în 2020 aproximativ 619 milioane de persoane, o creștere de 60% față de 1990. Se estimează că numărul va ajunge la 843 milioane până în 2050, cu cele mai mari creșteri în Africa și Asia. Scopul studiului este de a evalua eficiența manipulării fasciei în combinație cu intervențiile kinetoterapeutice pentru gestionarea durerii cronice de spate. Ipoteza sugerează că această combinație este mai eficientă decât tratamentele convenționale, reducând durerea și disfuncțiile mecanice. Rezultatele arată o scădere semnificativă a durerii în grupul experimental (de la $7,5 \pm 0,9$ la $3,0 \pm 1,1$, $P < 0,01$) și îmbunătățirea mobilității, comparativ cu o reducere modestă în grupul de control.

Cuvinte-cheie: *kinetoterapie, mobilizări fasciale, durere lombară, proces de reabilitare, capacitate motorie, strategie kinetoterapeutică, program de recuperare.*

Introduction

Chronic pain is a complex condition characterized by the persistence of symptoms for over three months, frequently associated with significant physical and psychosocial dysfunctions. It affects a considerable portion of the global population, significantly impacting individuals' quality of life and functional capacity. Chronic pain also poses challenges for healthcare professionals due to the difficulty in identifying and addressing its underlying causes. Among chronic pain conditions, low back pain (LBP) stands out as a prevalent and debilitating disorder, affecting the majority of individuals at some point in their lives. In 2020, LBP was responsible for 8.1% of the global years lived with disability, highlighting its widespread impact and burden on healthcare systems [11].

Although clinical guidelines for managing LBP exist, they are often tailored to high-income settings, limiting their applicability globally. For individuals with chronic LBP, participation in family, social, and professional activities is severely impacted, with substantial implications for mental health and economic stability [2, p.1332]. To address these challenges, physiotherapy has established itself as a promising ap-

proach, offering non-invasive, evidence-based interventions that aim to restore functionality and reduce pain. Among these, fascial manipulations have gained increasing recognition for their ability to address biomechanical dysfunctions associated with chronic pain and myofascial disorders.

Fascial manipulations focus on restoring the integrity and mobility of the fascia vital connective tissue that plays a key role in mechanical force transmission and structural support. Dysfunction in the fascia, including densifications and restrictions, contributes to movement limitations, sensitization, and the perpetuation of chronic pain. Myofascial pain, a common contributor to LBP, is characterized by fascial dysfunctions and the presence of trigger points, which further exacerbate discomfort and impair mobility [8, p. 58].

Fascial Manipulation (FM), a specialized technique targeting the densification of fascial tissues, aims to restore physiological tension and improve the sliding of fascial layers [3, p. 11-12]. Through interventions such as fascial decompression, specific stretching, and myofascial release, fascial therapy addresses underlying dysfunctions, alleviates local inflammation, and prevents connective tissue fibrosis. Research suggests that FM can correct biomechanical imbalances, reducing chronic pain and improving functional outcomes in patients with LBP and other chronic pain conditions [6, p. 3107].

Moreover, combining FM with exercise therapy enhances flexibility, reduces pain, and improves overall mobility [5, p. 117]. This integrative approach leverages the benefits of therapeutic exercises and targeted fascial techniques, optimizing recovery and promoting long-term improvements in physical health.

The integration of fascial manipulations within physiotherapy protocols represents a significant advancement in the management of chronic pain and LBP. By addressing the underlying biomechanical dysfunctions and restoring fascial integrity, these interventions provide a holistic solution to pain management. Expanding access to such evidence-based approaches necessitates the adaptation of care standards, training of medical staff, and the strengthening of healthcare systems to ensure universal coverage and accessibility [4, p. 321]. This integrated approach not only enhances clinical outcomes but also reduces the socio-economic burden associated with chronic pain and LBP. Future research should continue to explore the long-term benefits of combining FM with other physiotherapeutic modalities, paving the way for innovative, patient-centered care solutions.

Research materials and methods

The aim of the study is to investigate the effectiveness of fascia manipulation in combination with kinesiotherapy interventions in managing chronic back pain. The study aims to evaluate the impact of these techniques on pain reduction, musculoskeletal function improvement, and mobility restoration.

The objective of this study is to assess the effects of fascia manipulation combined with kinesiotherapy interventions on chronic back pain by reducing muscle tension, alleviating mechanical dysfunctions, comparing the efficacy of the combined treatment with conventional treatments, identifying functional and clinical changes, and exploring the neurophysiological mechanisms involved in chronic pain syndrome.

The study's hypothesis is that fascia manipulation, combined with physiotherapeutic interventions, is more effective than conventional treatments in reducing chronic back pain and alleviating mechanical dysfunctions, while also producing neurophysiological changes that help reduce muscle tension and central sensitization, positively impacting musculoskeletal function.

This study involved the selection of eight participants, who were subsequently divided into two groups: the control group and the experimental group. The participants, aged between 30 and 50 years and of both sexes, were diagnosed with chronic low back pain persisting for over three months. All participants were enrolled in a structured rehabilitation program at the CRM KineticA center.

The intervention was carried out over a defined timeframe, spanning from April 1 to November 30, 2023, with each participant attending between 10 and 15 rehabilitation sessions. Comprehensive assessments were conducted at two distinct time points – baseline (initial evaluation) and post-intervention (final evaluation) – to ensure a thorough analysis of therapeutic outcomes.

A multidimensional approach was adopted for the evaluation process, incorporating both subjective and objective measures:

- **Pain Intensity** - quantified using the Visual Analogue Scale (VAS), a reliable tool for assessing pain levels.
- **Range of Motion (ROM)** - flexion and extension amplitudes were measured to evaluate functional mobility.
- **Quality of Life and Functional Mobility** - assessed using standardized questionnaires and observation protocols tailored to the study objectives.
- **Lumbar Mobility** - evaluated through the Schober Test, a validated method for assessing lumbar flexibility and movement capacity.

Participants in the experimental group underwent a combination of therapeutic exercises and fascial therapy, with interventions guided by the Fascial Distortion Model (FDM). This model focuses on identifying and addressing specific distortions within the fascial system, aiming to restore normal tissue mechanics and alleviate pain. In contrast, the control group received standard physiotherapy sessions, emphasizing conventional approaches without targeted fascial interventions.

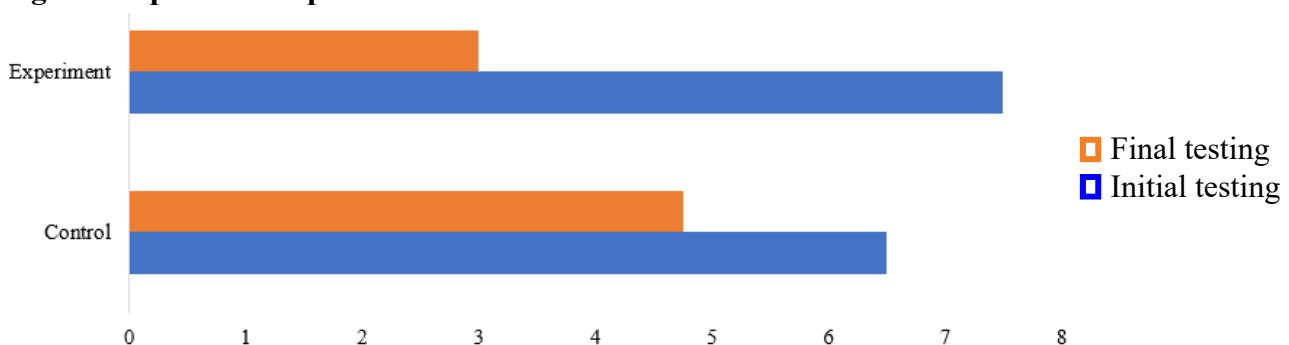
To ensure individualized care, the therapeutic program for each participant was carefully tailored, taking into account their unique clinical presentations and personal goals. The overarching objective was to facilitate the participants' reintegration into daily life, including both professional and social activities, by improving physical functionality and reducing pain.

This research provides a structured framework for comparing the efficacy of combined therapeutic exercises and fascial therapy against standard physiotherapy in managing chronic low back pain. The findings have the potential to contribute to evidence-based clinical practices, offering insights into optimizing rehabilitation protocols for patients with chronic pain conditions.

Analysis and interpretation of results

The control group showed a decrease in pain, with an initial mean value of 6.5 ± 1.1 and a final value of 4.75 ± 1.3 . (Tab.1). This change was statistically significant ($t = 1.29$, $P < 0.05$), suggesting a reduction in pain intensity, but with a relatively modest impact compared to the experimental group. Thus, the results of the control group demonstrate an improvement, but also the limitations of the applied intervention, highlighting the need for more effective methods. In contrast, the experimental group had an initial average pain score of 7.5 ± 0.9 , which significantly decreased to 3.0 ± 1.1 following the intervention. (Fig.1). Compared to the control, the effect was much more pronounced, with a t-student of 3.16 and $P < 0.01$, indicating a superior efficiency of the intervention. This substantial difference suggests that therapeutic exercises, combined with fascial therapy, have generated significantly better results than standard interventions.

Fig. 1. Graphical interpretation of the results of the VAS Scale.

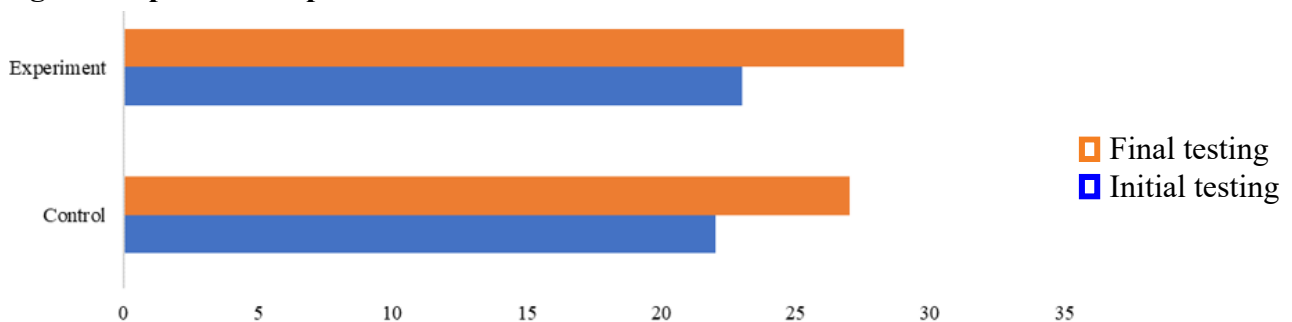


This indicates that the integrated method produced a synergistic impact, leading to a notable decrease in discomfort. The comparison between the two groups distinctly demonstrates that the therapeutic exercises linked to fascial treatment, utilizing the FDM paradigm, significantly affected the experimental group. This efficacy is due not only to the fascial manipulation techniques but also to the adaptation of these exercises to address the individual requirements of each patient. The control group saw a slight reduction in pain, whereas the experimental group underwent a significant alleviation, indicating a more thorough and efficacious treatment approach.

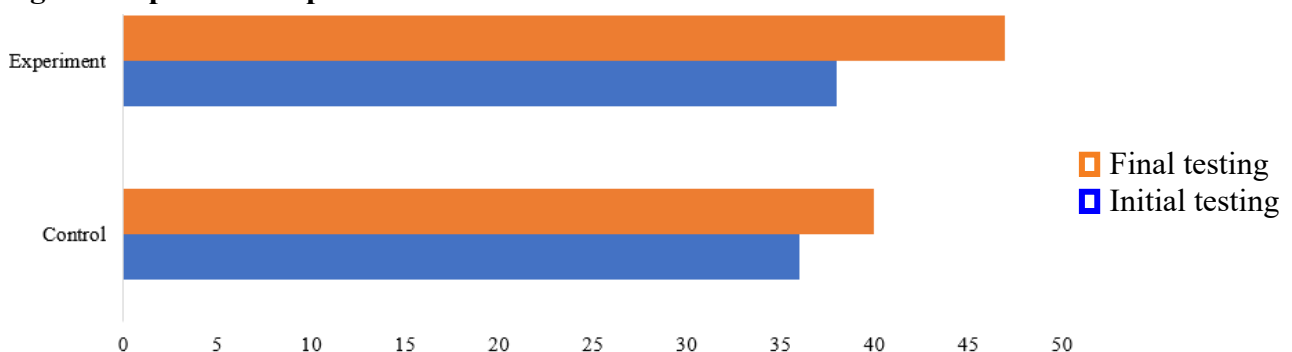
Table 1. Comparative initial and final evaluation data.

No	Group (n=8)	Initial testing	Final testing	t-student	P
VAS Scale					
	Control	6,5±1,1	4,75±1,3	1,29	P<0,05
	Experiment	7,5±0,9	3,0±1,1	3,16	P<0,01
Extension					
	Control	22±1,5	27±1,1	2,84	P<0,05
	Experiment	23±1,2	29±1,3	3,40	P<0,01
Flexion					
	Control	36±1,4	40±1,3	2,1	P<0,05
	Experiment	38±1,3	47±1,6	4,36	P<0,01

The results obtained from the study highlight significant differences between the control and experimental groups regarding joint mobility in both extension and flexion. In the experimental group, which benefited from therapeutic exercises combined with fascial therapy using the FDM (Fascial Distortion Model), a significant improvement in range of motion was observed. In extension, the experimental group recorded an increase from 23 ± 1.2 to 29 ± 1.3 , with a mean difference of 3.40 and a P-value < 0.01 , indicating strong statistical significance (see Table, Fig. 2).

Fig. 2. Graphical interpretation of the results of the extension movement.

In contrast, the control group showed a more modest improvement, with an average difference of 2.84 (from 22 ± 1.5 to 27 ± 1.1) and a P-value < 0.05 . This comparison suggests that the intervention applied in the experimental group was significantly more effective in improving extension mobility. Regarding flexion, the experimental group recorded an increase from 38 ± 1.3 to 47 ± 1.6 , with an average difference of 4.36 and a P-value < 0.01 , again demonstrating the effectiveness of the method used. The control group experienced an increase of only 2.1 (from 36 ± 1.4 to 40 ± 1.3), with a P-value < 0.05 (see Table 1, Fig. 3).

Fig. 3. Graphical interpretation of flexion results.

Conclusions

The aim of this study was to evaluate the effectiveness of therapeutic exercises combined with fascial therapy using the FDM (Fascial Distortion Model) in reducing pain and improving joint mobility. The results confirm the hypothesis that this integrated approach is superior to standard interventions.

The experimental group showed a significant reduction in pain (from 7.5 ± 0.9 to 3.0 ± 1.1 , $P < 0.01$) and notable improvements in mobility, in contrast to the control group, which experienced a modest reduction in pain (from 6.5 ± 1.1 to 4.75 ± 1.3 , $P < 0.05$). These results suggest that therapeutic exercises, combined with fascial therapy, generated a synergistic effect, facilitating faster and more efficient recovery.

Thus, we conclude that implementing the FDM method in therapeutic exercises can represent a valuable intervention in patient rehabilitation, contributing to pain reduction and improved joint functionality.

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