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APPLICATION OF KINESIOTHERAPY IN SYMPTOM CONTROL OF FIBROMYALGIA: AN INTEGRATIVE REVIEW

APLICAÇÃO DA CINESIOTERAPIA NO CONTROLE DOS SINTOMAS DA FIBROMIALGIA: UMA REVISÃO INTEGRATIVA

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Abstract

Fibromyalgia is defined as a rheumatological disease of unknown cause and is not associated with inflammatory processes, which mainly affect women. Studies show that the treatment of fibromyalgia is focused on kinesiotherapy, which consists of physical exercise programs that provide benefits for fibromyalgia patients. The objective of this research is to identify how the physical therapy practice of kinesiotherapy is used in patients with fibromyalgia to control their symptoms. This is an integrative review based on articles selected from the LILACS, SciELO and PEDro databases. The descriptors applied were "fibromyalgia", "physiotherapy", "physical exercise" and "kinesiotherapy". The descriptor "fibromyalgia" was used as the main descriptor to obtain more thematic proximity, making pairwise combinations with the others using the Boolean connector 'AND'. Four articles were selected that met the study variables. It was noted that stretching, walking and low-impact exercises have been relevant in the treatment of fibromyalgia, as these factors contribute to improving quality of life. Furthermore, it is possible to observe that the application of supervised physical exercises has better adherence when compared to unsupervised ones, especially for those who are in unstable psychosocial situations, as a large part of this public chooses to practice regular physical exercises and carry out them in a group. Therefore, kinesiotherapy is essential in controlling the symptoms of fibromyalgia, as the practice of physical exercises improves muscle strength, flexibility and resistance, in addition to working on cognitive and functional capacity.

Resumo

A fibromialgia é definida como uma doença reumatológica de causa desconhecida e não associada a processos inflamatórios, que acomete principalmente o público feminino. Estudos evidenciam que o tratamento da fibromialgia está direcionado a cinesioterapia, que consiste em programas de exercícios físicos que sucedem benefícios para os pacientes fibromiálgicos. O objetivo dessa pesquisa é identificar como a prática fisioterapêutica da cinesioterapia é utilizada em pacientes com fibromialgia para controlar os seus sintomas. Trata-se de uma revisão integrativa a partir de artigos selecionados pelas bases de dados LILACS, SciELO e PEDro. Os descritores aplicados foram: "fibromialgia", "fisioterapia", "exercício físico" e "cinesioterapia". O descritor "fibromialgia" foi utilizado como principal para se obter mais proximidades temáticas, fazendo combinações em pares com os demais utilizando o conector booleano 'AND'. Foram selecionados 4 artigos que atendem as variáveis do estudo. Percebeu-se que alongamentos, caminhada e exercícios de baixo impacto têm sido relevantes no tratamento da fibromialgia, uma vez que esses fatores contribuem na melhora da qualidade de vida. Ainda, é possível observar que a aplicação de exercícios físicos supervisionados possui uma melhor adesão quando comparado aos não-supervisionados, principalmente para aqueles que se encontram em situações psicossociais instáveis, pois grande parte desse público opta pela prática de exercícios físicos regulares e realizados de forma grupal. Sendo assim, a cinesioterapia é indispensável no controle dos sintomas da fibromialgia, pois a prática de exercícios físicos proporciona a melhora da força muscular, flexibilidade e resistência, além de trabalhar a capacidade cognitiva e funcional.

1. INTRODUCTION

Fibromyalgia is defined as a rheumatological disease of unknown cause and is not associated with inflammatory processes, which mainly affect women. It is characterized by widespread chronic pain and *tender points;* however, some other symptoms, such as daytime fatigue and nonrefreshing sleep, are prevalent and sometimes become the most relevant complaints for the patient. Furthermore, the symptoms presented by patients with fibromyalgia may vary according to some factors, such as changes in sleep patterns and climate changes [1].

In most cases, associated with this pathology, fibromyalgia patients report joint stiffness when getting

up early in the morning, migraines, edema in the feet and hands, intense fatigue and exhaustion, tingling sensations, Raynaud's phenomenon (vasospasm in the extremities with the presence of cyanosis) and cases of anxiety and depression. Therefore, fibromyalgia can be triggered by factors that can consequently aggravate or accelerate the individual's pathological condition, such as physical and psychological trauma, sedentary lifestyle and emotional stress. Furthermore, there are also conditions that can improve symptoms, such as high temperatures, hot baths and moderate physical activities [1].

Due to the pain present, the fibromyalgia patient develops low levels of physical fitness and muscular strength, which contributes to functional disability, as the patient adopts a sedentary lifestyle. We must also consider that this clinical condition interferes with the individual's economic context, as it affects both their professional performance and socialization. Therefore, the totality of all these factors negatively influences the individual's quality of life [2].

The diagnosis is predominantly clinical, as they are not identified in laboratory tests or imaging tests. The *American College* of Rheumatology *of Rheumatology* – ACR) uses some measures to confirm the diagnosis, the first being when the individual experiences chronic widespread pain and the second when there is sensitivity in at least 11 of 18 tension points (*tender points)*. Currently, other means are being considered for the diagnosis of fibromyalgia [2].

According to the ACR, *tender points* are a term used to characterize painful points of intense sensitivity in soft tissues, which are present in specific areas and are most common in the interscapular, cervical, lumbar, shoulder and gluteal regions. They are considered positive when palpated or through digital pressure, totaling 11 to 18 points, in addition to being considered one of the diagnostic criteria for fibromyalgia [3].

Given the need to identify symptoms, in 2010, new criteria were established consisting of two assessment scales: the Generalized Pain Index (GDI), which aims to analyze the pain felt during the last seven days by bilaterally measuring painful body regions, and the Symptom Scale (ES), which aims to evaluate, through a sum score, the intensity of symptoms associated with depression, headache, muscle weakness and other factors. In this context, it is observed that the two assessment scales are important in the diagnostic criteria [4].

Currently, physiotherapy has several methods that can be used to treat fibromyalgia, which seek to reduce pain and muscle tension, promoting improvement in the patient's general condition. Fibromyalgia is a complex disease, and its approach is not simple, but it has positive results. Furthermore, the treatment aims to control the symptoms of fibromyalgia and not to exclude the disease, as there is no specific treatment or total recovery. Overall, physiotherapy is carried out gradually with the aim of improving the patient's quality of life [2].

Among the treatments, there are pharmacological and nonpharmacological treatments in which the nonpharmacological treatment adheres to behaviors that do not use medications [5]. In view of this, some nonpharmacological methods are applied by physiotherapy, in which kinesiotherapy stands out, which applies therapeutic exercises for the prevention and treatment of dysfunctions [1]. Furthermore, kinesiotherapy aims to improve the individual's fitness and physical conditioning by increasing strength and muscle mass [5].

Kinesiotherapy is a physiotherapeutic resource characterized by a set of low-intensity activities, carried out under the guidance of a physiotherapist for the prevention and treatment of diseases, which include muscle stretching and physical and aerobic exercises.

These activities are effective in controlling the symptoms of fibromyalgia, as they provide an improvement in the patient's quality of life and physical and psychosocial conditioning [1].

Furthermore, it is worth noting that within nonpharmacological treatment, it is necessary to clarify to fibromyalgia patients who their symptoms do not come from an imaginary cause; that is, not presenting concrete signs during the respective exams does not mean that it is unreal. In view of this, it is necessary to explain to the patient about their symptoms and thus provide effective treatment and make them aware that these are not psychological symptoms [2].

Given the work exposed, the question arose about an appropriate technique for treating fibromyalgia, and given the assumptions listed, the following question was raised: What effects does the physical therapy practice of kinesiotherapy have on controlling the symptoms of fibromyalgia?

Most studies show that the treatment of fibromyalgia is focused on kinesiotherapy, which consists of physical exercise programs that provide benefits for fibromyalgia patients [6]. Considering that fibromyalgia is a public health problem, a study is essential to enable an adequate diagnosis and efficient treatment to control the symptoms of the disease [7].

Within the problem in question, it is observed that although fibromyalgia does not have a specific treatment, it is possible that interventions can be carried out to reduce the complaints of fibromyalgia patients. Therefore, this research is justified based on the observation that kinesiotherapy is a method that can be suggested to control dissatisfactions present in the patient's daily life. Therefore, the proposal is to reflect on the justifications that kinesiotherapy is an effective method in this context.

Therefore, the objective of the present study is to identify how the physical therapy practice of kinesiotherapy is used in patients with fibromyalgia to control their symptoms.

2. THEORETICAL REFERENCE

2.1 HISTORY AND PATHOPHYSIOLOGY OF FIBROMYALGIA

The first descriptions of fibromyalgia occurred in 1824. Researchers at the time observed the relationship between pain and inflammation of the connective tissue and, just twenty years later, Valleix analyzed that some specific muscle points were sensitive and fibromyalgia patients presented pain. through palpation of these areas. After that, some terms were used to refer to the disease, such as fibrositis, myofibrositis and neurofibrositis, but it was only in 1981 that a group of researchers led by Yunus suggested the term fibromyalgia, which is still widely used today [5].

It is worth mentioning that it was only in 1992 that fibromyalgia was announced as a chronic rheumatological disease characterized by widespread complaints of pain. With regard to the precursor criteria used to diagnose fibromyalgia, these were carried out in the 1970s in the 20th century, in which new studies were developed, which sought to establish parameters to describe fibromyalgia [4].

The pathophysiology of fibromyalgia is referred to in some ways, such as the increased concentration of substance P, a neuromodulator that is present in type C nerve fibers. When these fibers are stimulated by painful stimuli, they release substance P in the posterior region of the spinal cord that ends prolonging the sensation of pain. It can also be evidenced by disturbances in the hormone serotonin, as changes in serotonin levels cause the system to decrease or increase the pain response [5].

Studies consider that changes in the central nervous system (CNS), such as changes in the hypothalamic axis and stimulation of glial cells in the

cerebrospinal fluid, are associated with the symptoms present in fibromyalgia [7]. There are numerous neurological, immunological, genetic and behavioral factors that are being studied scientifically, but the results are still inconclusive and/or discrepant [6], meaning that this disease still has its determinants and causes as mysteries to be unraveled by interdisciplinary scientific work. .

Rheumatological diseases are causing concern, especially in developed countries, due to the gradual increase in sedentary lifestyles and life expectancy. Furthermore, because they are common in the population, they not only affect the quality of life but also lead to a socioeconomic problem that encompasses public health [6]. Therefore, fibromyalgia is considered a critical problem that has a harmful individual and collective impact [12].

2.2 CHARACTERISTICS AND DIAGNOSIS OF FIBROMYALGIA

Fibromyalgia is described by widespread chronic muscle pain, without signs of inflammation in the affected area. In addition, pain can appear together with unrefreshing sleep, fatigue, changes in mood and depression. The etiology of fibromyalgia, as previously stated, is still unknown, but studies relate it to changes in the conduction of nerve impulses and biopsychosocial aspects of pain [5]. As a result of psychological factors, the individual's functional performance is affected, interfering with the performance of activities of daily living – ADL's [2].

Despite being an ancient pathology, fibromyalgia has been neglected in clinical practice for a long time, as its symptoms are similar to other pathologies, making it difficult to make an authentic diagnosis. Some studies carried out in the USA and Europe concluded that approximately 5% of the general population is affected by fibromyalgia. In Brazil, approximately 2.5% of the population is affected, and the age group with the highest incidence is 35 to 50 years old, with a prevalence in females [8].

American College of Rheumatology *of Rheumatology* – ACR) considers some criteria for diagnosing fibromyalgia. When chronic and widespread pain lasts for more than three months and when on physical examination, at least 11 of the 18 tender points *are* sensitive to an applied force of approximately 4/kg/cm [2]. Furthermore, some symptoms, such as muscle stiffness, fatigue, changes in sleep, tension headaches and irritable bowel syndrome, are included in the patient's diagnosis when present [5].

Regarding identification, in addition to the measures established by the American College of Rheumatology (ACR) and the Generalized Pain Index (GDI) and Symptom Scale (ES) scales mentioned above, the diagnosis of fibromyalgia can be made through the patient's clinical history and physical examination and through criteria for exclusion of the pathology, since the symptoms of fibromyalgia are similar to those of other rheumatological diseases [7].

In addition to symptoms similar to those of various pathologies, the diagnosis of fibromyalgia becomes complex because it needs to be carried out through careful assessments, paying attention to the severity and magnitude of the clinical condition presented by the patient. In a large proportion of cases, they are interpreted incorrectly, which prolongs the difficulty of finalizing the diagnosis, which lasts for months and years, in which patients end up frustrated and devoid of hope in achieving correct treatment [9].

Among the symptoms of fibromyalgia, pain is the one that presents a significant demand in the search for interventions; in particular, there is a search for drug therapy or alternatives in which several treatments are found, but a large proportion do not meet the demands that fibromyalgia patients seek. to minimize the

symptoms of the disease, which ends up promoting dissatisfaction and treatment abandonment [9].

2.3 TREATMENT OF FIBROMYALGIA ASSOCIATED WITH KINESIOTHERAPY

Because it is an irremediable disease, fibromyalgia treatment is focused on palliative care, with the purpose of evaluating the symptoms of the disease. In physiotherapy, one of the means used to reduce the symptoms of fibromyalgia is physical exercise, also called kinesiotherapy [5]. However, it is important to consider that the pain condition is persistent in fibromyalgia patients and that the aim of treatment is not to exclude it but rather to control it [6].

Most studies show that the treatment of fibromyalgia is focused on kinesiotherapy, which consists of physical exercise programs that provide benefits for fibromyalgia patients [6]. Considering that fibromyalgia is a public health problem, a study is essential to enable an adequate diagnosis and efficient treatment to control the symptoms of the disease [7].

Kinesiotherapy addresses a set of exercise techniques, namely, low intensity, aerobic exercises - which act as physical and psychological aspects, static muscle stretching, which is considered a safe strategy as it provides a reduction in pain and muscle fatigue, improving physical conditioning, flexibility and quality of sleep and hydrokinesiotherapy that works by performing these exercises in water heated to 30 to 40°. Furthermore, it is observed that each technique covered has its own particularities and benefits.

When starting treatment, the patient must be aware of all the necessary information about the disease and possible treatment options. It is also important that the guidance is provided clearly so that there are no doubts. Furthermore, treatment must be designed together with the patient, always according to the intensity of the pain and considering their biopsychosocial and cultural issues [6].

The physiotherapist is a generalist professional who works at the three levels of health care: promoting, preventing and rehabilitating [10]. Physiotherapy promotes benefits for various pathologies, including fibromyalgia, where it works to improve the quality of life of fibromyalgia patients through techniques that aim to improve physical conditioning and muscle strengthening and encourage the patient to adopt a lifestyle. healthier life. Furthermore, for the treatment to have significant results, the patient must be involved and collaborate with the care [11].

In this context, physiotherapy has relevant attributes in the treatment of pain and in increasing the maintenance of the patient's functional capabilities in their daily lives [12] and can be carried out weekly with a focus on reducing the main symptoms presented by the patient, promoting relaxation, well-being and increased range of motion [6].

Therefore, we observe that the need to have a physiotherapist present in the treatment of fibromyalgia is due to their ability to control symptoms that cause discomfort and compromise the patient's daily life. Furthermore, the professional can also act in an educational manner, with the purpose of promoting functionality so that results can prevail, always encouraging patients to be more independent and practice a healthier lifestyle.

3. MATERIALS AND METHODS

This is an integrative review to obtain a better scientific basis to identify and argue the research results based on the guiding question of how kinesiotherapy is applied to fibromyalgia patients and the effects of this practice on controlling the symptoms of fibromyalgia. illness.

PubMed, SciELO and PEDro databases were used, including articles published in the last 8 years (2015-2023) that address the study variables, written in Portuguese, and free articles. The following were excluded from the research: monographs, dissertations, opinion articles and duplicate studies.

To search for the material, four descriptors were used, namely, "fibromyalgia", "physiotherapy", and "physical exercise", and the word "kinesiotherapy" was also included in the searches, even though it was not found in the Health Science Descriptors (DeCS). , as it is relevant to the study.

Then, data collection occurred through exploratory reading of the articles, with the aim of selecting the important works for carrying out the study. After this, selective and incremental reading of the material considered relevant for the development of the work was carried out.

4. RESULTS AND DISCUSSION

Initially, the descriptor "fibromyalgia" was used as the main descriptor to obtain more thematic proximity, making combinations in pairs with the others using the Boolean connector 'AND', enabling the following combinations: 1. "fibromyalgia and physiotherapy", 2. "fibromyalgia and kinesiotherapy" and 3. "Fibromyalgia and physical exercise", as shown in TABLE 1. Filters were then carried out following the inclusion and exclusion criteria mentioned in the study methodology, and finally, 4 articles were selected that met the variables of the study.

TABLE 1 – Results of the combinations used and selection in the databases.

Combination #1: Fibromyalgia and physical therapy			
Platform	**Number of results**	**Deleted articles**	**Selected articles**
LILACS	**0**	**0**	**0**
SciELO	**26**	**25**	**1**
Pedro	**8**	**8**	**0**
Combination #2: Fibromyalgia and kinesiotherapy			
Platform	**Number of results**	**Deleted articles**	**Selected articles**
LILACS	**5**	**5**	**0**
SciELO	**two**	**1**	**1**
Pedro	**1**	**1**	**0**
Combination #3: Fibromyalgia and physical exercise			
Platform	**Number of results**	**Deleted articles**	**Selected articles**
LILACS	**24**	**23**	**1**
SciELO	**14**	**13**	**1**
Pedro	**1**	**1**	**0**
-	**-**	**-**	**TOTAL: 4 articles**

Source: own elaboration (2023).

To obtain a better exposure of the selected articles, another table was created identifying authors, year of publication, article title, database, objectives and results of each article in TABLE 2.

In this context of review, we seek to understand the effects of kinesiotherapy among the different types of physical activity found that work to control the symptoms of fibromyalgia, starting from a study that shows the effects of kinesiotherapy on the pelvic floor (PF) muscles. on quality of life, sexual function and climacteric symptoms in women with fibromyalgia. In this work, the exercises used involved perineal dissociation, voluntary contraction of the AP muscles, and mobilization [14].

The same study also points out that women with fibromyalgia are hypersensitive to pain, which intensifies symptoms when compared to healthy women, including when the woman undergoes changes in her physical structure, such as during menopause [14].

Although this work focuses on the AP muscles, it is relevant for fibromyalgia patients, as the weakening of this muscle group generates dysfunctions that compromise quality of life.

TABLE 2 – Description of selected articles (numbering, title, authors, year, databases, objective, results).

No.	AUTHOR/YEAR	TITLE	BASES	GOALS	RESULTS
14	Lisboa LL et al., (2015)	Effect of kinesiotherapy on quality of life, sexual function and climacteric symptoms in women with fibromyalgia	SciELO	To evaluate and compare the effect of kinesiotherapy on quality of life, sexual function and climacteric symptoms in climacteric women with and without fibromyalgia.	Kinesiotherapy for the pelvic floor provides significant improvements in quality of life, in the occupation, emotional, health and sexual domains, as well as in climacteric signs and symptoms and sexual function. However, when comparing the improvement of the group diagnosed with fibromyalgia with that of the control group, it is observed that fibromyalgia has a limiting effect on the improvement in the health, occupational and sexual domains of quality of life and sexual function in women in the climacteric phase.
15	Oliveira LH et al., (2017)	Effect of supervised physical exercise on flexibility in patients with fibromyalgia	SciELO	To verify the effect of supervised physical exercise on the flexibility of female patients with fibromyalgia treated in the Extension Project "Interdisciplinary Treatment for patients with fibromyalgia", developed at the State University of Rio de Janeiro.	It was concluded that six months of supervised physical exercise can significantly improve the flexibility of women with fibromyalgia. The applicability of the study is evident, as it sought to verify the effect of supervised physical exercise on a conditional physical valence, with flexibility being a health-related component of physical fitness.
16	Batista AS et al., (2020)	Depression, anxiety and kinesiophobia in women with fibromyalgia who dance or not	SciELO	Evaluate symptoms of depression, anxiety and kinesiophobia in women with fibromyalgia who practice dance	kinesiophobia scores were lower in the DG. Therefore, dancing seems to have a positive influence on symptoms of depression, anxiety and kinesiophobia in women with fibromyalgia.
17	Conte MS et al., (2018)	Fibromyalgia: physical activity, depression and quality of life	LILACS	To evaluate the practice of physical activity, symptoms of depression and quality of life in patients with fibromyalgia.	The present study did not observe an improvement in pain, quality of life and depression among patients who reported greater intensity of physical activity (IPAQ). These data may be related to the inaccuracy of the method used (IPAQ) and a possible distortion of patients when quantifying the time and intensity of the activity performed. However, a correlation was observed between worse quality of life, pain intensity and symptoms of depression. When evaluating the practice of physical exercise, it was possible to note that the low frequency and perhaps the overestimated intensity may have influenced the study result in not demonstrating improvement in pain, quality of life and symptoms of depression in patients with fibromyalgia.

Source: own elaboration (2023).

Fibromyalgia patients, promoting quality of life and well-being for this population. A study carried out a supervised physical exercise program that included aerobic training, stretching and strength training lasting six months. At the end of the study, they concluded that this program was able to improve the symptoms of fibromyalgia, as well as the flexibility of patients [15].

Stretching, walking and low-impact exercises have been relevant in the treatment of fibromyalgia due to the improvement in the range of joint movements, muscle strength and aerobic resistance, since these factors contribute to improving quality of life and allow the individual to carry out their daily activities [15].

Even though dancing is not commonly practiced by physiotherapists, it is a possible treatment for fibromyalgia patients and is considered a form of aerobic exercise that can be performed in a group. Furthermore, dancing promotes improvements in pain, cognitive and functional capacity, motor coordination and physical conditioning [16].

From this perspective, a study states that the use of Zumba-type dance twice a week lasting 1 hour brought positive results in the treatment of fibromyalgia symptoms, as it showed that the practice of dance brought good results in symptoms such as depression, anxiety and kinesiophobia [16]. Furthermore, it is a modality that can encourage the continuity and participation of individuals, as it is an exercise that can be carried out collectively.

On the other hand, research has demonstrated that the practice of physical activity and aerobic physical exercise with moderate and low intensity did not have positive impacts on the patients who underwent the study 17. This conclusion may be related to the limitations present in the study, such as the low overestimated frequency and intensity, the reduced sample of patients and inaccuracy of the study's evaluation method, as only one evaluation method was used.

It is possible to observe that the application of supervised physical exercises has a better adherence of fibromyalgia patients when compared to unsupervised ones, especially for those who are in unstable psychosocial situations, as a large part of this public opts for the practice of regular physical exercises carried out in a group form [17].

5. FINAL CONSIDERATIONS

Based on the above, it is possible to observe that kinesiotherapy plays an indispensable role in controlling the symptoms of fibromyalgia, as the practice of physical exercises provides improvements in muscular strength, flexibility and resistance, also affecting cognitive and functional capacity. Furthermore, it can be concluded that the most appropriate exercise will be the one that keeps the patient satisfied and consistent in treatment, since the objective is to promote quality of life and well-being by reducing the main symptoms.

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