Effects of rehabilitative exercise on quality of life in patients with fibromyalgia. Clinical trials review

Efectos del ejercicio de rehabilitación sobre la calidad de vida en pacientes con fibromialgia. Revisión de ensayos clínicos

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ABSTRACT

Introduction: Fibromyalgia is a chronic disease characterized by widespread pain, fatigue and sleep disorders. Although there is no cure, multidisciplinary treatment, including lifestyle changes, cognitive-behavioral therapy and medications, can help control symptoms and improve quality of life.

Methods: a systematic review of clinical studies investigating the effectiveness of exercise in patients with fibromyalgia was conducted during the period from 2017 to 2021. A total of 29 relevant scientific articles that met the established inclusion criteria and filters were identified and evaluated.

Results: studies have shown that various physical activity interventions can have a positive impact on symptoms and quality of life in fibromyalgia patients, although efficacy may vary by modality. Obesity may moderate the benefits of treatment, and it is suggested that staying active may be an effective strategy in the management of fibromyalgia.

Conclusions: the most effective interventions were low-intensity physical exercise programs, such as resistance and coordination training; muscle stretching exercises and resistance training; core strengthening exercises and stretching exercises; and Tai Chi.

Keywords: Fibromyalgia; Exercise Therapy; Muscle Stretching Exercises.

RESUMEN

Introducción: la fibromialgia es una enfermedad crónica caracterizada por dolor generalizado, fatiga y trastornos del sueño. Aunque no existe cura, el tratamiento multidisciplinar, que incluye cambios en el estilo de vida, terapia cognitivo-conductual y medicamentos, puede ayudar a controlar los síntomas y mejorar la calidad de vida.

Métodos: se realizó una revisión sistemática de los estudios clínicos que investigaron la eficacia del ejercicio en pacientes con fibromialgia durante el periodo comprendido entre 2017 y 2021. Se identificaron y evaluaron un total de 29 artículos científicos relevantes que cumplieron con los criterios de inclusión y filtros establecidos.

Resultados: los estudios han demostrado que diversas intervenciones de actividad física pueden tener un impacto positivo en los síntomas y la calidad de vida de los pacientes con fibromialgia, aunque la eficacia puede variar según la modalidad. La obesidad puede moderar los beneficios del tratamiento, y se sugiere que mantenerse activo puede ser una estrategia eficaz en el tratamiento de la fibromialgia.

Conclusiones: las intervenciones más eficaces fueron los programas de ejercicio físico de baja intensidad, como entrenamiento de resistencia y coordinación; ejercicios de estiramiento muscular y entrenamiento de resistencia; ejercicios de fortalecimiento del core y ejercicios de estiramiento; y Tai Chi.
INTRODUCTION

Fibromyalgia is a chronic disease characterized by widespread pain throughout the body, soft tissue tenderness, persistent fatigue and sleep disturbances. Although the exact cause of fibromyalgia is unknown, it is believed that it may be the result of a combination of factors, such as genetic predisposition, chemical imbalances in the brain, and environmental factors or emotional triggers.\(^{(1,2)}\)

One of the hallmarks of fibromyalgia is the presence of tender points in certain areas of the body, known as trigger points, which can cause intense pain when pressure is applied to them. In addition to widespread pain, symptoms of fibromyalgia can include muscle stiffness, difficulty concentrating, memory problems, depression, anxiety and mood disorders.\(^{(3,4)}\)

Fibromyalgia primarily affects middle-aged women, although it can also affect men and people of all ages, including adolescents and children. Symptoms can vary from person to person and can fluctuate in intensity over time. The disease can be debilitating and have a significant impact on patients’ quality of life, limiting their ability to perform daily activities and participate in social activities.\(^{(5)}\)

Diagnosing fibromyalgia can be complicated, as there are no specific laboratory tests or medical imaging to confirm its presence. Instead, physicians rely on symptoms and perform a physical examination to evaluate the presence of tender points in the body. Additional tests may also be performed to rule out other medical conditions that may be causing the symptoms.

Management of fibromyalgia is based on a multidisciplinary approach that combines different treatment strategies. This may include lifestyle changes, such as adopting a healthy diet, incorporating regular physical activity, and practicing relaxation and stress management techniques. In addition, medications, such as painkillers, antidepressants and muscle relaxants, may be prescribed to help control symptoms.\(^{(1,6)}\)

Patient education and cognitive behavioral therapy are also important components of fibromyalgia management. These interventions can help patients understand their disease, learn pain self-regulation techniques, and develop skills to manage stress and improve quality of life.\(^{(6,7)}\)

While there is no cure for fibromyalgia, many people with the disease can find relief and improve their quality of life through the right combination of treatments and management strategies. Continued research on fibromyalgia is critical to improve understanding of the disease and to develop better treatment options in the future.\(^{(8,9,10)}\)

In this context, several randomized controlled clinical trials have been conducted to evaluate the effectiveness of different therapeutic approaches in patients with fibromyalgia. These studies have investigated everything from low-intensity physical exercise programs, muscle stretching and resistance exercises, to cognitive-behavioral interventions and water-based physical therapy, among others.

The results of these studies have yielded promising findings. For example, it has been observed that physical exercise programs, whether in the form of resistance training, core strengthening exercises or physical activity in daily life, can improve physical fitness, reduce pain intensity and improve patients’ quality of life. In addition, it has been shown that certain combined interventions, such as cognitive-behavioral therapy integrated with neuromuscular training, can be beneficial for adolescents with fibromyalgia.

However, factors that may influence treatment outcomes have also been identified. For example, obesity has been associated with less improvement in fibromyalgia symptoms in response to motivational interviewing-based therapy. In addition, it has been observed that different therapeutic approaches may have varying effects on different aspects of the disease, such as physical function, depression and pain perception.

In that sense the question arises: what is the effect of different physical exercise interventions in patients with fibromyalgia?

Fibromyalgia is a chronic and complex disease that affects many people worldwide. Despite numerous studies, there is still a need for continued research to better understand how physical exercise can impact the symptoms and quality of life of fibromyalgia patients.

The present study would provide valuable information on the effectiveness of different physical exercise interventions. By comparing and analyzing the results of these studies, the most effective interventions for reducing pain, improving physical function and quality of life in patients with fibromyalgia could be identified.

METHODS

A systematic review was conducted following the PRISMA workflow.\(^{(11)}\) Scientific articles of clinical studies on the effectiveness of exercise in patients diagnosed with fibromyalgia were included. The study period ranged from 2017 to 2021.

The search was performed in the PubMed database. The search expression was constructed using the
following MeSH terms: ((Fibromyalgia) AND (Exercise Therapy OR Muscle Stretching Exercises)). The following filters were applied: years 2017-2021, full-text available, clinical trial, English and Spanish language. Duplicate articles and those that did not fit the research topic were removed.

A total of 1027 articles were identified with the search expression, and the filters were applied. Twenty-nine articles were evaluated (figure 1).

RESULTS AND DISCUSSION

Several studies demonstrated significant improvements in the conditions of fibromyalgia patients through various physical treatment methods. These treatments included low-intensity exercise, stretching and resistance, core strengthening, Tai Chi, aquatic training, heavy weight exercise, Swiss ball exercise, telerehabilitation with aerobic exercise, physical activity programs, integrated physical training and cognitive-behavioral therapy, aquatic physical training, aerobic exercise, and vibration platform training.\(^{(12,13,14,15,16,17,18,19,20,24,30,31,32,34,36,37,39)}\)

In contrast, Sauch-Valmaña et al.\(^{(21)}\), Merriwether et al.\(^{(22)}\) and Haugmark et al.\(^{(23)}\) found no significant differences in outcomes after physical activity programs and a multidisciplinary rehabilitation program. The Ernberg et al.\(^{(25)}\) study found no significant anti-inflammatory effects on fibromyalgia symptoms or clinical and functional variables after progressive resistance exercise or relaxation therapy.

The Jablochkova et al.\(^{(27)}\) study also showed unchanged results in nerve growth factor levels and high plasma brain-derived neurotrophic factor levels after progressive resistance exercise.

Studies by Kashikar-Zuck et al.\(^{(28)}\), Black et al.\(^{(29)}\), Tran et al.\(^{(33)}\), Fussner et al.\(^{(35)}\), demonstrated significant improvements in pain, physical function, and pain interference in adolescents with fibromyalgia who participated in the FIT Teens program, a program that integrates cognitive-behavioral therapy and neuromuscular training. Park et al.\(^{(26)}\), meanwhile, showed that advertising in local newspapers was the most effective, but also the most expensive recruitment method for an exercise clinical trial.

Kaleth et al.\(^{(38)}\) found that obesity moderated the beneficial effects of motivational interviewing-based treatment in fibromyalgia patients, with obese patients showing less improvement in symptoms compared to non-obese patients.

Jones et al.\(^{(40)}\) found that advice to stay active resulted in functional improvement at 26 weeks in patients with distal arm pain compared with advice to rest.

The results show the diversity of physical activity interventions that can have a positive impact on symptoms and quality of life in patients with fibromyalgia. These findings align with existing literature supporting the role of physical activity and exercise in the management of fibromyalgia.\(^{(40)}\)

Several studies demonstrated the efficacy of interventions such as resistance and coordination exercises,\(^{(12)}\) stretching and endurance,\(^{(13)}\) core strengthening,\(^{(26)}\) Tai Chi,\(^{(15)}\) and aquatic training.\(^{(16)}\)

Although physical activity and exercise have a positive effect on fibromyalgia symptoms in general, the type of activity and modality may vary in terms of efficacy. For example, Wang et al.\(^{(15)}\) found that Tai Chi provided similar or better results than aerobic exercise in improving fibromyalgia symptoms and quality of life.

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<td>Adults with fibromyalgia</td>
<td>Advice to remain active resulted in functional improvement at 26 weeks in patients with distal arm pain compared with advice to rest. Immediate physical therapy showed no additional benefit compared with physical therapy after a waiting time</td>
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</table>
Obesity may moderate the beneficial effects of treatment in fibromyalgia patients, suggesting the need to address obesity as a concurrent condition in the management of fibromyalgia. Finally, the Jones et al. suggests that advice to stay active may be an effective strategy in the management of fibromyalgia. This emphasizes the importance of promoting regular physical activity in this population, although the type and intensity of activity may need to be individualized depending on patient characteristics and preferences.

CONCLUSIONS

- Various types of exercise can improve symptoms and quality of life in people with fibromyalgia.
- Tai Chi and aquatic exercise are effective in relieving fibromyalgia symptoms.
- Multidisciplinary rehabilitation programs have similar results to standard treatment in patients with fibromyalgia.
- Interventions combining cognitive-behavioral therapy with neuromuscular training are beneficial for adolescents with fibromyalgia.
- The most effective interventions were low-intensity physical exercise programs, such as resistance and coordination training; muscle stretching exercises and resistance training; core strengthening exercises and stretching exercises; and Tai Chi.

REFERENCES


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Methodology: Leandro Mendoza Rivas, Ismael Lázaro Armenta Alcocer.
Writing-original draft: Leandro Mendoza Rivas, Ismael Lázaro Armenta Alcocer.
Writing-review and editing: Leandro Mendoza Rivas, Ismael Lázaro Armenta Alcocer.

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