26 - THE EFFECT OF DIFFERENT AROBIC PHYSICAL ACTIVITY PROGRAMS IN PATIENTS WITH FIBROMYALGIA

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INTRODUCTION

Physical Activity (PA) is evermore present in the processes of prevention, rehabilitation, and treatment of disorders related to other healthcare areas, becoming one of the essential components in the treatment of several pathologies. Recent studies suggest that aerobic PA based programs (AE) have been utilized as a form of treatment for Fibromyalgia (FM)(1), with the objective of improving the health and physical aptitude (PAP) of the patients, reducing the effects caused by this pathology.

FM is a chronic pathology of unknown etiology that causes generalized pain, sleep disorders, head-aches, memory, concentration and mood disorders, irritable bowel syndrome, and fatigue(1,2). These symptoms have a negative impact in the daily living of these individuals, reducing their quality of life (QoL)(3).

The prevalence of FM in the world population is of approximately 2.1%, that being 2.4% in women and 1.8% in men(4). In Brazil, it is the second most prevalent rheumatologic disease, with a prevalence of 2.5% in the country's population(5).

Several studies state that the treatment for FM should be a multidisciplinary approach, making use of pain and mood altering medication(1,2), non-pharmacological approaches as oriental techniques (yoga, breathing exercises and tai-chi)(6), and PA(7). Recent studies suggest that AE has an important role in the maintenance of functionality(8), having a direct impact in the improvement of QoL(9), becoming an important tool for the patients of FM.

Some authors have shown that FM symptoms can be aggravated due to the muscle recruitment during the performing of the exercises(10), which might put in questioning the effectiveness of the exercise programs, or discourage the patients from participating in these programs. However, recent data suggest that the intensity of pain perception in FM patients decreases after 12-21 weeks of training(11) and that a higher perception of pain is correlated with a lower aerobic conditioning (AC)(12). Some researches point to the necessity of adapting and gradually increasing exercises in accordance to the patient's levels of pain and adaptation(9).

The objective of this study was to identify the effects of different aerobic physical activity programs in patients with fibromyalgia in relation to pain, depression, fatigue, functionality, physical aptitude, quality of life, Fibromyalgia impact and general health status.

METHODOLOGY

The articles were searched in the PubMed database. The key-words used were: Fibromyalgia AND Aerobic Exercise (all fields). The article types selected were: Articles types - Clinical Trial, Controlled Clinical Trial, Randomized Clinical Trial e Meta-Analysis; Text Availability - Full Text Available; Publication Dates - 5 years; Species - Human; Languages - English. The inclusions criteria were: Present results or conclusion specific about the effects of an AE programs on FM patients, in relation to the analyzed aspects. Interventions studies with frequency of at least 2 times per week, following the recommendations by the recommendations by the American College of Sports Medicine (ACSM)(13). The exclusion criteria were: Present results or conclusions not specific about the effects of an AE programs on FM patients, in relation to the analyzed aspects. Studies utilizing secondary sources for the effects of an AE programs on FM patients, in relation to the analyzed aspects.

The articles were selected in 3 steps: Step one – article search; Step two – reading of the articles; and Step three – selection of the articles. Sixty six articles were found. After proof reading, 54 articles were excluded and 12 articles were selected for this review. The selected articles were organized by type of study: 1 Systematic Review (SR) with Meta-Analysis (MA) of Randomized Clinical Trials (RCT), 2 Randomized Clinical Trials (CRT), 1 Follow-up (FU), 3 Controlled Clinical Trials (CCT), 1 Pilot Study (PS), 1 Guideline, 1 Consensus, 1 Review and 1 Systematic Review (SR).

Of the excluded articles, 29 did not enclose, or did not thoroughly enclose the subject, 8 where about combined training (CT), 4 used vibration platforms, 2 were about Resistance Training (RT), 2 about laser therapy, 2 about Tai Chi Chuan, 2 weren't available as full text, 1 about QiGong, 1 about Pilates, 1 about Yoga, 1 about Isometric Training (ITN) and 1 did not follow the ACSM guidelines(13), performing the intervention only once per week.

CONTENT REVIEW

HAUSER W. et al. (2010)(14) performed a ample SR with MA of RCT about the effects of AE on FM patients. Thirty five CCRTs were analyzed, for a total of 2,494 patients. The study evaluated several types of AE from very-low intensity (<50% Maximal Heart-Rate - MHR), low intensity (50-60% MHR), to moderate intensity (60-80% MHR) and according to patient preference, weekly frequency was of 1-3+ days per week, duration from <7 weeks, 7-12 weeks and >12 weeks, with total exercise duration of <1000 minutes, 1000-2000 minutes and >2000 minutes, and placebo control, usual treatment or therapy types. The authors concluded that AE reduced pain ($P<0.001$), fatigue ($P=0.006$), depression ($P=0.002$), QoL related limitations ($P<0.001$) and improved the PAP ($P<0.001$) of patients that performed any kind of AE. The authors also suggest that in the studies with FU, AE reduced depression ($P=0.05$), QoL related limitations ($P=0.01$) and PAP ($P<0.001$), and that the effects were not significant in relation to pain ($P=0.08$) and fatigue ($P=0.17$).

FONTAINE, K.R.; CONN, L.; CLAUW, D.J. (2010)(15), in a RCT, evaluated the effects of an AE program in 84 patients of age 47.7±10.7 years, diagnosed with FM. The experimental group (EG - n=46) performed at least 30 minutes of AE of their choosing, with moderate intensity, for 5-7 days per week, for 12 weeks, and the control group (CG - n=38) received only exercise information. At the end, 73 patients (87%) completed the study. The researchers reported significant results in functionality ($P=.001$) and a decrease in the Fibromyalgia Impact Questionnaire (FIQ) score ($P=.032$)) and pain ($P=.006$) in the EG. There were no significant changes to the 6 Minutes Walk Test (6MWT) ($P=.067$), fatigue, or depression in the EG group by the end of the program.

FONTAINE, K.R.; CONN, L.; CLAUW, D.J.(16) (2011), performed a FU study with the objective of analyzing the effects of a PA(15) program consisting of 6-12 months of intervention (16). Fifty three women, aged 47.2±11.1 years, (73% of individuals who participated in the previous study) diagnosed with FM took part in the program. Significant improvements were found in functionality, but the changes in pain, PAP, fatigue, depression and 6MWT were not significant.

MANNEKORPI, et al. (2010)(17), in a CCRT, compared the effects of two distinct walking programs in 67 women diagnosed with FM. The EG (n=34, IM 48±7.8 years) performed walks of moderate-high intensity, 2 times per week, and the CG (n=33, IM 50±7.6 years) performed low intensity walks, once a week. Both groups performed 20 minute sessions for 15 weeks. The intensity was defined by Borg's 6-20 points scale of perceived exertion, where a score of <12 corresponds to <40% MHR, 12-13 (moderate) corresponds to 40-60% MHR, and 14-16 (high) corresponds to 60-85% of MHR. In the end, 58 patients (87%) completed the study. The EG presented significant improvements in the 6MWT (P=0.009), FIQ Physical (P=0.027) and the Multidimensional Fatigue Inventory (MFI) (P=0.031). However, no significant changes were found in the FIQ Pain (P=0.626) and FIQ Total (P=0.064) scores. In the 6 months FU, 28 patients shown significant improvements in the 6MWT (P=0.009), MFI General Fatigue (P<0.001) and MFI Physical Fatigue (P=0.001), but no changes in the FIQ Pain (P=0.879), FIQ Physical (P=0.542), FIQ Total (P=0.249), MFI Reduced Activity (P=0.743), MFI Reduced Motivation (P=0.084) and MFI Mental Health (P=0.725).

SAÑUDO et al. (2010)(18), in a CCRT investigated the effects of different PA programs in 64 women diagnosed with FM. The participants were randomly allocated in 3 groups: AE (n=22, IM 55.9±1.6), CT (n=21, IM 55.9±1.7) and CG (n=21, IM 56.6±1.9). The AE sessions were performed 2 times per week, with duration of 45-60 minutes, for 24 weeks. Each session included 10 minutes of warm-up, 15-20 minutes of AE, with intensity of 60-65% MHR, 15 minutes of interval training, intensity 75-80% MHR and 5-10 minutes of cool-down (relaxation). The CG continued usual medical and pharmacological treatment during the intervention period, not performing any PA program. In the end, 55 patients (85.9%) completed the study - AE (n=18), CT (n=17) and CG (n=20). Both AE and CT showed improvements after the 24 weeks. The AE group showed significant decrease in the FIQ score (P≤.020), global improvement in the SF-36 score (P<.01), mainly in relation to functionality (P=.002) and a lower score in the Beck Depression Inventory (BDI) (P<.001). No changes were observed in the 6MWT (P=0.88).

KAYO, et al. (2012)(19), in a CCRT, compared the effectiveness of two distinct PA programs. One program was composed of RT and the other of AE (walking). Ninety patients, with ages of 30-55 years, diagnosed with FM. The individuals were randomized in 3 groups: AE (n=30, IM 47.0±5.3), RT (n=30, IM 46.7±6.3) and CG (=30, IM 46.1±6.4). The exercise routine for both groups was performed for approximately 60 minutes, 3 times per week, for 16 weeks. All exercise sessions were supervised by a physiotherapist that wasn't involved in the evaluation process. Each AE session was composed of a 5-10 minutes warm-up, 25-50 minutes of walking and 5 minutes cool-down. The initial AE duration was of 25-30 minutes with an intensity of 50% MHR. The duration and intensity were gradually increased during 4 weeks, until a maximum duration of 50 minutes and an intensity of 60-70% of Heart-rate reserve (HRR)(13). The CG followed the usual treatment, based only in medication. A total of 79 patients completed the 16 weeks of intervention and 68 were evaluated after 28 weeks of FU, AE (n=23), RT (n=22), CG (n=23). After 16 weeks of intervention the AE group showed a significant decrease in the FIQ score (P<0.01) and pain (P<0.01) in the first 8 weeks, however, these variables had no more significant changes after the 8th week. The AE group also presented a significant improvement in the SF-36 score in relation to PAP (P<0.01), general health related to QoL (P<0.05) and functionality (P<0.05). After 28 weeks there were no reported changes in relation to pain, functionality, QoL, FIQ score, SF-36 score, and PAP.

HOOTEN W.M. et al. (2012)(20), in a RCT, compared the effects of AE and RT, associated with an Interdisciplinary Treatment (IT), on 72 individuals diagnosed with FM. The AE were performed by 36 subjects (33 W and 3 M, IM 47.3±10.1) and the RT was performed by 36 individuals (32 W and 4 M, IM 45.8±11.5).The IT included the RT, behavioral cognitive therapy, relaxation treatments, stress maintenance and education to health programs, and other activities. All patients included in the study performed a 15 minutes daily stretching routine, during the 3 weeks of study. The intensity and the duration of the AE did not follow a strict protocol. The subjects were incentivized to gradually increase the intensity and duration until they reached 75% MHR. They performed 10 minutes of AE in the 1st week (until they reached 50 total minutes in that week), 15 minutes per day in the 2nd week (until a maximum of 75 minutes in that week) and 20-30 minutes per day in the 3rd week (until completing a total of 150 minutes). All 64 patients (100%) completed the study. Significant changes in pain (P<.001) were observed after the 3-week intervention in both AE and RT groups.

HARDEN R.N. et al. (2012)(21) performed a pilot study that evaluated the impact of an AE program in the FM symptoms in 26 sedentary subjects (n=26, 20 M e 6 H, IM 46 years). The objective was to make the patients undergo a minimum of 30 minutes of AE of their choice, at 80% MHR intensity, 7 days per week, for 12 weeks. During the initial instruction session, the patients were informed which activities could be performed, the warm-up and the relaxation protocols. The initial intensity of AE was 70-80% MHR. The patients were told to increase the intensity and volume of the AE weekly. The subjects received individual help and were contacted weekly with the purpose of monitoring their progress and identifying eventual barriers to the objective of the study. The authors compared the results of the group that completed the study (9 subjects; 34.6%) with the group that abandoned the study (17 subjects; 65.4%). The group that completed the AE program showed significant improvements in PAP (aerobic fitness) (P=0.01), a decrease in the McGill Pain Questionnaire-Affective score (P=0.08) and MPQ-Total score (P=0.06). No changes were observed in Pain Disability (PD) (P=0.19), MPQ-Sensory score (P=0.15) and Depression Scale (DS) (P=0.12). The group that abandoned the AE program related more pain (P=0.02) and a worse score in the MPQ-Total score (P=0.03), MPQ-Affective score (P=0.0001) and PD (P<0.0001). The changes in depression were almost significant (P=0.06) compared to baseline, but there were no changes observed in the MPQ-Sensory score (P=0.15). The authors did not mention the methods used to calculate MHR.

Some studies have shown that AE based interventions in FM patients can improve QoL(22,24,25), functionality(22,24,25), PAP(22,23,25), pain(22,23,24,25), depression(25) and fatigue(25) and that these benefits can be maintained for a long term in FU studies(23).

RESULTS

The studies that evaluated the effects of an AE program on pain (15,19,20,21), two suggested significant improvements(15,20), one suggested that improvements occur only during the first 8 weeks of intervention(19) and one has shown significant improvements on the MPQ-Affective and MPQ-Total score, but not on the PD and MPQ-Sensory score(21). Regarding fatigue (15,17), one has shown significant improvements (MFI)(17) and one didn't present any changes (15). For depression (15,18,21), one has shown significant improvement(18) and two returned no significant chances(15,21). For the FIQ(15,17,18,19), two have shown significant improvements (15,18), one suggested improvements only during the first 8 weeks (19) and one has shown significant improvements on the FIQ-Physical score, but not on the FIQ-Pain and FIQ-Total scores(17).

On the 6MWT(15,17,18) one study shown significant improvements (17) and two did not return significant improvements (15,18). All studies that evaluated PAP(19,21), functionality(1518,19) and general health (SF-36)(18,19) reported significant improvements.

From the FU studies, one study reported significant improvements in the EG after 6-12 months of intervention only in functionality, not reporting any significant changes on pain, fatigue, depression, PAP and 6MWT(16), one study reported significant improvements after 6 months 6MWT, MFI General Fatigue and MFI Physical Fatigue scores, but not on FIQ Pain, FIQ Physical, FIQ Total, MFI Reduced Activity, MFI Reduced Motivation and MFI Mental Health scores(17) and one study reported no significant changes on pain, functionality, QoL, FIQ score, general health score (SF-36) and PAP(19).

The study of HAUSER W. et al. (2010)(14) showed that AE programs reduce pain, fatigue and depression, QoL related limitations and improve PAP of patients and that the FU studies report significant improvements in depression, QoL related limitations and PAP, but not in pain and fatigue. Other studies suggested that AE based interventions can improve QoL(22,24,25), functionality(22,24,25), PAP(22,23,25), pain(22,23,24,25), depression(25) and fatigue(25), and that these benefits can be maintained for a long term in FU studies(23).

CONCLUSION

The intervention studies analyzed in this review suggest that physical fitness, functionality and general health status have improved, possibly indicating that aerobic exercise programs can produce effective results in these aspects by the end of intervention. However, there was no consensus about the effects of aerobic training on pain, depression, fatigue, quality of life and fibromyalgia impact on intervention and follow-up studies.

Meta-analysis, reviews, systematic reviews and consensus studies indicate different results regarding the effects of aerobic exercise training programs on the evaluated aspects, in relation to intervention and follow-up studies.

These results suggest that aerobic exercise physical programs can be effective in improving some specific symptoms related to Fibromyalgia, but there are still many questions to be clarified regarding the effects of this kind of training on the improvement of symptoms associated with Fibromyalgia.

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THE EFFECT OF DIFFERENT AROBIC PHYSICAL ACTIVITY PROGRAMS IN PATIENTS WITH FIBROMYALGIA

ABSTRACT

Fibromyalgia is a chronic pathology of unknown etiology that causes generalized pain, sleep disorders, head-aches, memory, concentration and mood disorders, irritable bowel syndrome, and fatigue. Recent studies suggest that aerobic physical activity is being used as a form of treatment for fibromyalgia, with the objective of improving health and physical aptitude of patients, however, the effectiveness of these treatment in positively changing the symptoms related to fibromyalgia remain unclear. The goal of this review was to identify the effects of different aerobic physical activity programs in patients with fibromyalgia in relation to pain, depression, fatigue, functionality, physical aptitude, quality of life, Fibromyalgia impact and general health status. The articles were searched in the PubMed database. The key-words used were: Fibromyalgia AND Aerobic Exercise (all fields). The article types selected were: Articles types - Clinical Trial, Controlled clinical Trial, Randomized Clinical Trial e Meta-Analysis; Text Availability - Full Text Available; Publication Dates - 5 years; Species - Human; Languages – English. Sixty six articles were found and after a thorough reading, 12 were selected. The main results that showed statistical significance were physical aptitude, functionality, and general health status. There was no consensus in regards to the other aspects analyzed.

KEY-WORDS: Fibromyalgia. Physical Activity. Aerobic Exercise.

L'EFFET DES DIFFÉRENTS PROGRAMMES D'ENTRAÎNEMENT CHEZ LES PATIENTS ATTEINTS DE FIBROMYALGIE

RÉSUMÉ

La fibromyalgie est une maladie chronique d'étiologie inconnue qui provoque une douleur généralisée, troubles du sommeil, maux de tête, des problèmes de mémoire et de concentration, troubles de l'humeur, le syndrome du côlon irritable et la fatigue. Des études récentes présenter les programmes des exercices physiques basés sur Exercices aérobiques comme une forme de traitement pour la FM., afin d'améliorer la santé et la condition physique des patients, cependant, il ya encore beaucoup de questions concernant les effets de ce type de formation dans l'amélioration des symptômes liés la fibromyalgie. L'objectif de cette étude est d'identifier les effets de différents programmes d'exercices d'aérobie chez les patients souffrant de fibromyalgie pour les aspects: la douleur, la dépression, la fatigue, la fonctionnalité, la condition physique, qualité de vie, la fibromyalgie impact et l'état général de santé. Pour rechercher des articles a été utilisé PubMed. Les mots utilisés sont les suivants: Fibromyalgia AND Aerobic Exercise (All Fields). Les mots clés utilisés étaient les suivants: Articles types - Clinical Trial, Controlled clinical Trial, Randomized Clinical Trial e Meta-Analysis; Text Availability - Full Text Available; Publication Dates - 5 years; Species - Human; Languages - English. Ont été trouvés 66 articles, et après lecture, 12 ont été sélectionnés et 54 exclus. Les principaux résultats, qui montrent un certain niveau d'importance, ont été liés à des aspects de la condition physique, la fonctionnalité et l'État de santé général. Il n'y avait pas de consensus sur d'autres aspects analysés.

MOTS-CLÉS: fibromyalgie. L'activité physique. Exercices d'aérobie.

EL EFECTO DE DIFERENTES PROGRAMAS DE EJERCICIO FÍSICO AERÓBICO EN PACIENTES CON FIBROMIALGIA

RESUMEN

La Fibromialgia es una enfermedad crónica, de etiología desconocida, que causa dolor generalizado, trastornos del sueño, dolor de cabeza, problemas de memoria y concentración, trastornos del estado de ánimo, Síndrome del Intestino Irritable y fatiga. Estudios recientes apresentan programas de Ejercicios Físicos basados en Ejercicios Aeróbicos como una forma de tratamiento para la Fibromialgia, con el fin de mejorar la salud y el bienestar de los pacientes. Sin embargo, todavía hay muchas dudas con respecto a los efectos de este tipo de entrenamiento en la mejora de los síntomas relacionados con la Fibromialgia. El objetivo de esta revisión es determinar los efectos de los diferentes programas de Ejercicios Aeróbicos en pacientes con Fibromialgia en relación a los seguientes aspectos: dolor, depresión, fatiga, funcionalidad, Aptitud Física, Calidad de Vida, Impacto de la Fibromialgia y Estado General de Salud. Para la búsqueda de los artículos se utilizó la base de datos PubMed. Las palabras utilizadas fueron: Fibromyalgia AND aerobic exercise (All Fields). Os descritores utilizados foram: Articles types - clinical trial, controlled clinical trial, randomized clinical trial e meta-analysis; text availability - full text available; Publication dates - 5 years; species - human; languages - English. Se encontraron 66 artículos y, después de la lectura , 12 fueron seleccionados y 54 excluidos. Los principales resultados, que muestran un nivel de significación, se relacionan con aspectos de Aptitud Física, funcionalidad y bienestar general. No tuvo un consenso en cuanto a los otros aspectos analizados.

PALABRAS CLAVE: Fibromialgia. Actividad Física. Ejercicios Aeróbicos.

O EFEITO DE DIFERENTES PROGRAMAS DE EXERCÍCIO FÍSICO AERÓBIO EM PACIENTES COM FIBROMIALGIA

RESUMO

A Fibromialgia é uma patologia crônica, de etiologia desconhecida, que causa dor generalizada, distúrbios do sono, dor de cabeça, problemas de memória e de concentração, distúrbios do humor, síndrome do cólon irritável e fadiga. Estudos recentes apresentam programas de exercícios físicos baseados em exercícios aeróbios como uma forma de tratamento para FM, a fim de aprimorar a saúde e a aptidão física dos pacientes, porém, ainda existem muitas dúvidas em relação aos efeitos desse tipo de treinamento na melhora dos sintomas relacionados à Fibromialgia. O objetivo desta revisão é identificar os efeitos de diferentes programas de exercícios aeróbios em pacientes com Fibromialgia em relação aos aspectos: dor, depressão, fadiga, funcionalidade, aptidão física, qualidade de vida, impacto da Fibromialgia e estado geral de saúde. Para a busca dos artigos foi utilizada a base de dados PubMed. As palavras utilizadas foram: Fibromyalgia AND aerobic exercise (All Fields). Os descritores utilizados foram: Articles types - clinical trial, controlled clinical trial, randomized clinical trial e meta-analysis; text availability - full text available; Publication dates - 5 years; species - human; languages - English. Foram encontrados 66 artigos e, após leitura, selecionados 12 e excluídos 54. Os principais resultados, que apresentam algum nível de significância, foram referentes aos aspectos aptidão física, funcionalidade e estado geral de saúde. Não houve consenso em relação aos outros aspectos analisados.

PALAVRAS-CHAVES: Fibromialgia. Atividade Física. Exercícios Aeróbios.