Proceedings

II CIAF – II Congresso Internacional de Atividade Física (International Congress of Physical Activity). 28, 29, 30 of September 2023, Castelo Branco, Portugal.

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Cite this article as:
Proceedings of the II Congresso Internacional de Atividade Física (International Congress of Physical Activity); Castelo Branco, Portugal. (2023). *Journal of Human Sport and Exercise, in press*. https://doi.org/10.14198/jhse.2024.191.20

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Effects of a combined training program on pain, stiffness, fatigue and well-being in women with fibromyalgia

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ABSTRACT

Fibromyalgia is a rheumatic disease characterized by chronic widespread muscle pain and its treatment is carried out through pharmacological interventions. Physical exercise and the adoption of a healthy lifestyle influence the reduction of the symptoms of the disease. The main objective of this study was to analyse the effects of a combined training program on health and functional capacity in female individuals diagnosed with Fibromyalgia. It was a quasi-experimental study with a duration of 8 months with a sample of six participants between 43 and 58 years old, who did not practice any type of physical exercise program. The following instruments were used in baseline and post intervention: Fibromyalgia Impact Questionnaire (FIQ), Short Form Health Survey Questionnaire (SF-36v2) and functional physical fitness tests (30-second chair stand, arm curl, sit and reach, 8-ft up-and-go, back scratch and 2-minute step test. Wilcoxon non-parametric test (intra-group comparison) was used, with a significance level of $p < .05$ to compare baseline and post intervention effects. Significant improvements were observed: in 2-minute step test ($p = .21$); physical function; physical performance; physical pain and general health, the mental component, vitality; social function of the SF-36v2 (all, $p < .05$). Moreover, FIQ showed a significant reduction in all scales at the end of the program compared to the baseline ($p < .05$). Combined training program can reduce the impact of fibromyalgia while improving health and aerobic performance.
Keywords: Combined exercise program, Fibromyalgia, Functional capacity, Health.

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II CIAF – II Congresso Internacional de Atividade Física (International Congress of Physical Activity). 28, 29, 30 of September 2023, Castelo Branco, Portugal.
JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202.

doi: 10.14198/jhse.2024.191.20

INTRODUCTION

Fibromyalgia is characterized by painful muscle complaints associated with pain, muscle stiffness, sleep disturbances, anxiety, and depression, decreased functional capacity and cognitive problems (Atan & Karavelioğlu, 2020). The medical prescription for these patients includes pharmacological treatments for sleep disorders and chronic intensive pain. Considering that this population alone is already more sedentary due to its constant immobilization associated with chronic pain, one of the main methods used to improve quality of life is physical exercise (Sousa et al., 2023). Physical exercise promotes several physical and psychological benefits and a recent systematic review showed that combined training was the most effective for this population to reduce the symptoms of the disease with a duration between 60 and 90 min, three times a week with a light to moderate intensity (Sousa et al., 2023).

Therefore, the aim of this study was to analyse the effects of a combined training program on health and functional capacity in female individuals diagnosed with Fibromyalgia.

MATERIAL AND METHODS

Participants

The study included six female participants aged between 43 and 58 years old. The following inclusion criteria were assigned: i) fibromyalgia diagnosed; ii) female between 30 and 60 years old; iii) having no other associated pathologies (e.g., diabetes, cardiovascular diseases, respiratory diseases); iv) no regular participation in supervised physical exercise sessions. A written informed consent of all participants and the approval from the Ethics Committee of the Polytechnic Institute of Santarem, Santarem, Portugal were obtained.

Measures

The Fibromyalgia Impact Questionnaire - Portuguese version (FIQ-P) by Lapa Rosado et al., (2006) and the Short Form Health Survey Questionnaire (SF-36v2) - Portuguese version 2 by Ferreira et al. (2012) were used while the physical fitness tests of Fullerton Functional Physical Fitness were applied (Riklli & Jones, 1999): i) 30-sec chair stand; ii) arm curl; iii) Sit and reach; iv) 8-foot up and go test; v) back scratch; vi) 2-minute step test.

Procedures

The program was carried out twice a week, lasting 60 minutes. The intervention always started with aerobic exercise (20 to 30 minutes), then 1 set of 15-20 repetitions of strength training (consisting of 6 exercises for the major muscle groups) and, finally, stretching exercises for tender points, (10 to 30 seconds), according to the recommendations of the ACSM (2018).

Analysis

Data processing and statistical analysis were performed using SPSS software version 21.0 (Armonk, NY: IBM Corp). Descriptive statistics were used by mean and standard deviation (SD) to characterize the sample. The Wilcoxon test was used for the comparative analysis between each evaluation moment (baseline-Final), with a significance level of $p < .05$.

RESULTS

Table 1 presents the results of the SF-36v2 and FIQ-P.

Table 1. Comparative analysis of the questionnaires.

SF-36v2 Dimensions	Mean	SD	Mean	SD	*p*-value	FIQ-P scale	Mean	SD	Mean	SD	*p*-value
Physical Function	39.167	25.965	87.500	16.650	.027*	Physical Disability	2.140	0.680	0.420	0.200	.042*
Physical Performance	37.500	26.220	73.958	12.130	.027*	Feeling good	7.150	2.710	1.670	0.580	.027*
Physical Pain	27.833	18.777	69.333	11.076	.028*	Absentees from work	4.290	3.500	1.430	0.900	.063*
General Health	43.667	19.562	66.667	18.779	.027*	Work performance	7.830	2.320	2.830	0.750	.027*
Vitality	45.833	12.290	85.417	12.290	.027*	Pain	7.330	2.340	2.830	0.980	.028*
Social Function	45.833	18.819	89.583	9.410	.027*	Fatigue	8.330	1.750	2.670	0.820	.027*
Emotional Performance	61.111	31.914	84.722	13.351	.072	Rest	7.500	2.430	2.830	0.750	.027*
Mental Health	70.000	8.367	85.000	22.583	.014*	Stiffness	7.330	2.660	3.000	1.100	.026*
Physical Component	37.042	20.510	74.360	11.990	.028*	Anxiety	7.170	3.310	2.670	1.210	.046*
Mental Component	55.694	9.959	86.181	9.009	.028*	Depression	7.000	2.830	2.500	1.050	.046*
						TOTAL FIQ	2.140	0.680	0.420	0.200	.028*

*Note. SD: Standard Deviation; *: p < .05.*

Regarding the Physical Fitness Tests only the 2-minute step test improved (p = .21) while no significant changes were observed in the remaining tests.

DISCUSSION

The present study showed improvements in the majority of the variables of both questionnaires which seems to be in line with a previous study that showed a clinical impact of a combined exercise program in the same measures (Sañudo et al., 2011). The Rikli & Jones Test Battery (1999) was used because it is relatively easy and safe to perform and require minimal resources of materials and space. This may explain the non-significant results in most of the tests, although the 2-min step test improved from baseline to the final assessment. Future studies may use different physical tests.

CONCLUSIONS

Combined training can reduce the impact of fibromyalgia while improving health and aerobic performance.

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