166 - FUNCTIONAL TRAINING APPLIED TO PERIODIZATION

SAMUEL GONÇALVES PINTO;
REGINALDO LÚCIO LOPES DA VEIGA;
LUCIANO JOSÉ DA SILVA
Faculdade Presidente Antônio Carlos de Ponte Nova
Ponte Nova-Minas Gerais-Brasil
samuel.pto@gmail.com

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1. INTRODUCTION

The population increase of practitioners of functional training is a phenomenon universal.1,2 previous years data show that the population will increasingly including functional training as quality of life. Associated with this demographic shift, there is an increase in morbidades2. Each individual has the capacity morphological, functional, biochemical and psychological changes that result in the reduction of functional reserves of organs and systems. These changes, associated with chronic diseases, use of medications and inactivity are factors that increase disability in the individual. Loss of mobility, decreased muscle strength, increased reaction time and balance deficit are important factors in the degree of dependence and the occurrence of institucionalização3. These changes also affect the ability and increase the risk of quedas3.

The nervous system is also involved in this process, as a result accompanied by a decrease in nerve conduction velocity, interfering with the reception of sensory information and thus slowing down the motor response required to postural3,4 control. In turn, all these factors associated with institutionalization, cognitive impairment or depression, inadequate footwear, use of various medications, dangers in the home and lack of regular physical activity increase the risk of disability in individuals3.

In this context, we propose specific interventions to minimize these conditions and its consequences, which may include immobility, pain, addiction, disability and even cause death by direct or indiretos5 factors. Thus, emphasis is given to exercises with gear changes, varying amplitudes, direction changes and different environments in order to train específicas4,5 skills.

Thus, the functional training is to minimize the inability funcional5-7. However, its results are still poorly investigated. There are indications that, in addition to functional improvement, interventions can help to reduce emotional and social problems attributed to incapacidade5,7.

The objective of this study was to investigate the effect of a program two months of functional exercises in a group of individuals practicing the functional training, assessing the impact on instrumental activities of daily living (IADL) and unipodálico balance. The study hypothesis was that after functional training, the participants had improved balance and performance of the AIVD.

2-METHODOLOGICAL ASSUMPTIONS

This is a quasi-experimental study, conducted at the Academy Measure One of New Bridge, where they were recruited student volunteers, over 21 years.

All ethical procedures involving human research were adopted and the volunteers signed the consent form and clear. Participants were seven students from the academy, without distinction of race and / or class. Students were excluded with cognitive impairment, assessed by the mini-state examination mental8 with neurological diseases, pain conditions, fractures occurred less than a year that used aid accessory to the march, labyrinthitis boards and non-compensated visual changes. Students were recruited by telephone and invited to participate. Initially, a questionnaire designed specifically for this study to ensure the inclusion criteria was applied.

It was considered framework painful reporting pain in the previous two weeks, in joints of the lower limbs and / or spine, which could interfere in assessments and exercises. Those who were eligible to participate underwent an initial assessment to check the performance in IADL and unipodálico balance.

For this evaluation we used the Lawton9 Index and the balancing test in one leg. The scale of Lawton is used for functional assessment of performance in instrumental activities of daily living (IADL), such as ability to prepare a meal, make household cleaning, take medication, climbing stairs, walking, manage finances, shopping and using public transportation.

Marra et al.10 have reported on the basis of Lawton and Broody9, that inter-rater reliability was 0.91 and reproducibility coefficient of 0.96. The questionnaire was applied as an interview by only one examiner previously trained in appropriate and reserved environment. The responses were recorded and the total score was calculated as the orientation of the authors.

The final score ranges from 0 to 30 points and that the higher the score, the greater independence of the individual. The static equilibrium was assessed by asking the volunteers to stay in one leg stance as long as he could, standing with hands on hips and eyes open. If the participant could complete 30 seconds in posture, the test was repeated with eyes closed, after an interval of two minutes of rest. The residence time in the position was noted in seconds being considered for analysis as long, from three attempts. The test was performed with both lower extremities.

After the evaluation, all the volunteers began the intervention, which consisted of functional exercises related to tasks performed in the daily lives of the participants, such as lifting and sit, balance, walking and coordination. These exercises were carried out under the direct supervision of researchers and in small groups. The sessions of 50 minutes were made three times per week for eight weeks, a total of 24 sessions.

The volunteers were instructed to have no more than two consecutive fouls, not to be excluded. Each exercise was adequate according to the physical capacity of the volunteer. During the session it was done monitoring of blood pressure and heart rate of all participants. The sessions were initiated by a heating phase, a 10-minute walk in the plan. Then went to the functional training that consisted in running exercises in plantar flexion, dorsiflexion, remain in alternating one leg stance, lateral gait, gait with increased hip flexion and tandem gait. These activities had progression with the use of objects in their hands, like small cones. It was used even in training circuits in which the participants were around cones and hula hoops, walk on mats, up and down steps of different sizes and heights; and also exercises of the upper limbs with balls and bats, range activities, rotation exercises and trunk extension in small amplitudes, sitting and standing chair. The cooling phase consisted of stretching the major muscle groups of the lower limbs.

After the program, the volunteers were subjected to the tests already described. The measurements obtained were

compared using SPSS (v.13.0). The data normality analysis was done by the Shapiro-Wilk test. As the data were not normally distributed, we used the non-parametric Wilcoxon test for comparison of pre and post-intervention. The significance level was alpha = 0.05.

3. DISCUSSION AND ANALYSIS OF DATA

The study began with 7alunos volunteers. Seven volunteers completed the program, with a mean age 21 ± 8.1 years, ranging from 21 to 35 years. Most of them identified themselves as white, having attended at least three years of school (57.1%).

The clinical characteristics, had no history of hospitalization in the last year; no reported present diabetes, neurological and / or rheumatic diseases or cancer, but three reported being hypertension (42.9%). Some gave joint pain sporadic mainly in the region of the spine and knees, but had no complaints at the time of initial evaluation. All reported using on a regular basis, less than three medications per day. Quatrovoluntários (57.1%) reported a fall over the last six months at home without musculoskeletal injuries as a result.

Comparing the results before and after the exercise program, there was no statistically significant difference in unipodálico support permanence, measured in seconds, in both lower limbs (p> 0.105), although this time was higher after the program. As for the ability to perform IADL, measured by indexLawton, there was significant difference between before and after (p = 0.042).

4-FINAL

This study aimed to verify the effect of a functional exercise program, lasting two months, a group of academy students, the AIVD and unipodálico balance. The results show an improvement in the ability to perform IADL after the program, as well as a tendency to improved unipodálico static equilibrium by increasing permanence in support, although it was not significant.

It is believed that a functional training program, although not specifically prioritize gain balance, muscle strength or flexibility, generates modifications in all of these variables, with consequent impact on mobility, decreasing the dependence funcional11-13. This condition was observed in this study, as in Brown et al.14 study that by using a protocol flexibility exercises, balance, coordination and muscle strength for three months, also noted an improvement in physical capacity and static balance and Dynamic students. These results support the hypothesis that low intensity exercises are able to improve physical function of the elderly, making them more independent.

Similarly, Pedrinelli et al.15 suggested that despite the muscle-building be indicated and present evidence of improvement in muscle strength and power, functional exercises should be performed aiming at improving balance and independence of the student. Province et al.16, in a systematic review, found that, among the various interventions such as muscle strength, flexibility training and resistance exercises, intervention that included balance training was the only one able to significantly reduce falls. This observation suggests that balance deficits could have a more direct relationship with falls than with the strength, flexibility or resistência16 deficit.

The trend observed in this study, an improvement of one leg stance, although not significant, suggests that performed program had a beneficial effect on improving balance, contributing to prevent falls. However, this was not the aim of this research, this may be only a speculative statement. Authors pointed out that the effectiveness of interventions on balance training, preventing falls in the elderly, suggested that this would occur due to a cascata1,5,12,15,16 effect. Also, the improvement in the balance after intervention could lead to a decrease in the incidence of falls, reducing morbidity and declining AIVD, physical activity and sociais1,7,17. It is suggested, therefore, that studies should be conducted to ascertain the impact of functional exercise program in reducing falls, which was not investigated in this study.

Mobility, in view of the functional capacity and quality of life of academy student, is a prerequisite for maintaining independence and is a key part of the instrumental activities of daily living, such as shopping, to the bank, visit friends, go the movies, wash and cozinhar17.

Moreover, despite the failure to process is characterized by decreased quality and quantity of information needed for effective postural control, these deficits seem to have little effect on the achievement of the daily needs of most people - but can put them at risk of equilíbrio11,19 changes.

This study presented a limitation to the significant loss of volunteers who started treatment, remaining at the end of less than half of those who started analysis. However, to assess the effect of an intervention is necessary to determine criteria for its continuity is maintained. Delete, analysis, those who had more than two consecutive fouls seemed to be an appropriate decision to ensure these principles and criteria to evaluate the result of the effect of the intervention. Thus, it can not be ruled out the possibility of type II error when analyzing the results and limitations on the external validity of the study.

The results showed that the proposed program of functional exercises has generated significant improvement in performance in IADL, as assessed by Lawton index, and a trend towards improvement of static balance in elderly community sample.

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FUNCTIONAL TRAINING APPLIED TO PERIODIZATION

ABSTRACT

Functional training programs can assist in reducing disability, falls, emotional and social problems for practitioners of Functional Training. The aim of the study was to verify the methods of a functional exercise program practitioners in the functional training, assessing the impact on instrumental activities of daily living (IADL) and unipodálico balance. This quasi-experimental study attended seven community of practitioners (21 ± 8.1 years), without distinction of race and / or social status, excluding those with cognitive disorders, diseases Sharpened or neurological, painful condition of the spine or joints, labyrinthitis, non-compensated visual disturbances, previous fracture last year and use of support for the march. All responded to the questionnaire and Lawton underwent one leg stance test before and after the program, administered three times a week. The program consisted in running exercises in flexion plant, dorsiflexion, keeping in alternating one leg stance, gait Side with increased tandem gait and hip flexion. The results indicate improvement (p = 0.042) at the functional level (Lawton index) after the program and a trend towards improvement in unipodálico balance, although non-significant (p> 0.105). The proposed exercise program produced for improved performance AIVD and a trend towards improvement of static balance, suggesting that relevant to improve the autonomy of the elderly.

KEYWORDS: Activities of daily living; Postural balance; functional training

FORMATION FONCTIONNELLE APPLIQUÉE JUSQU'ICI AUX PÉRIODISATION

RÉSUMÉ

Des programmes de formation fonctionnels peuvent aider à réduire le handicap, les chutes, les problèmes émotionnels et sociaux pour les praticiens de la formation fonctionnelle. Le but de l'étude était de vérifier les méthodes d'un programme d'exercices fonctionnels pour les praticiens de la formation fonctionnelle, l'évaluation de l'impact sur les activités instrumentales de la vie quotidienne (AIJD) et unipodálico équilibre. Cette étude quasi-expérimentale a participé sept communauté de praticiens (21 ± 8,1 ans), sans distinction de race et / ou le statut social, l'exclusion de ceux ayant des déficiences cognitives, aiguisé ou de maladies neurologiques, condition douloureuse de la colonne vertébrale ou des articulations, labyrinthite , non compensée troubles visuels, l'année dernière de fracture antérieure et l'utilisation de l'appui pour le mois de mars. Tout le questionnaire Lawton et a subi test de soutien unipodálico avant et après le programme, administré trois fois par semaine. Le programme consistait en l'exécution des exercices de flexion plantaire, dorsiflexion, en gardant à l'alternance d'une position des jambes, de la démarche latérale avec une flexion accrue de la hanche et de la marche en tandem. Les résultats indiquent une amélioration (p = 0,042) au niveau fonctionnel (indice Lawton) après le programme et une tendance à l'amélioration dans unipodálico équilibre, bien que non significative (p> 0,105). Le programme d'exercice proposé produite pour améliorer les performances de l'AIVD et une tendance à l'amélioration de l'équilibre statique, suggérant pertinentes pour améliorer l'autonomie des personnes âgées.

MOTS-CLÉS: Activités de la vie quotidienne; L'équilibre postural; Formation fonctionnelle.

ENTRENAMIENTO FUNCIONAL APLICADA A PERIODIZACIÓN

RESUMEN

Programas de capacitación funcionales pueden ayudar en la reducción de la discapacidad, caídas, problemas emocionales y sociales para los practicantes de entrenamiento funcional. El objetivo del estudio fue verificar los métodos de un programa de ejercicios funcionales para los practicantes de entrenamiento funcional, la evaluación del impacto en las actividades instrumentales de la vida diaria (AIVD) y unipodálico equilibrio. Este estudio cuasi-experimental participó de siete comunidad de profesionales (21 ± 8,1 años), sin distinción de raza y / o condición social, con exclusión de las personas con deterioro cognitivo, afilado o enfermedades neurológicas, condición dolorosa de la columna vertebral o las articulaciones, la laberintitis , no compensada alteraciones visuales, fractura previa el año pasado y el uso de apoyo a la marcha. Todo el cuestionario Lawton y se sometió a prueba el apoyo unipodálico antes y después del programa, administrado tres veces por semana. El programa consistió en la gestión de los ejercicios de flexión plantar, la dorsiflexión, manteniendo en la alternancia de un postura de la pierna, la marcha lateral con una mayor flexión de la cadera y la marcha en tándem. Los resultados indican una mejora (p = 0,042) en el nivel funcional (índice de Lawton) después del programa y una tendencia a la mejora en unipodálico equilibrio, aunque no significativa (p> 0,105). El programa de ejercicios propuestos producido para mejorar el rendimiento del AIVD y una tendencia hacia la mejora del equilibrio estático, lo que sugiere relevante para mejorar la autonomía de las personas mayores.

PALABRAS CLAVE: Actividades de la vida diaria; Equilibrio postural;

PERIODIZAÇÃO APLICADA AO TREINAMENTO FUNCIONAL: UM ESTUDO DE CASO

RESUMO

Programas de treino funcional podem colaborar na redução de incapacidades, quedas, problemas emocionais e sociais em praticantes do Treinamento Funcional. O objetivo do estudo foi verificar os métodos de um programa de exercícios funcionais em praticantes do treinamento funcional, avaliando o impacto nas atividades instrumentais de vida diária (AIVD) e no equilíbrio unipodálico. Deste estudo quasi-experimental participaram sete praticantes da comunidade (21±8,1 anos), sem distinção de raça e/ ou condição social, excluindo-se aqueles com alterações cognitivas, doenças Agudizadas ou neurológicas, quadro álgico na coluna ou articulações, labirintite, distúrbios visuais não-compensados, fratura prévia no último ano e utilização de apoio para a marcha. Todos responderam ao questionário de Lawton e se submeteram ao teste de apoio unipodálico antes e depois do programa, administrado três vezes por semana. O programa consistia em exercícios de marcha em flexão plantar, dorsiflexão, permanência em alternância de apoio unipodálico, marcha lateral com flexão de quadril aumentada e marcha tandem. Os resultados indicam melhora (p=0,042) no nível funcional (índice de Lawton) após o programa e uma tendência à melhora no equilíbrio unipodálico, embora não-significante (p>0,105). O programa de exercícios proposto produziu pois melhora no desempenho das AIVD e uma tendência à melhora do equilíbrio estático, sugerindo ser relevante para aprimorar a autonomia das idosas.

PALAVRAS-CHAVE: Atividades cotidianas; Equilíbrio postural; treinamento Funcional.