138 - FUNCTIONAL TRAINING: CONTRIBUTING TO IMPROVE THE ELDERY OVERALL QUALITY OF LIFE.

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INTRODUCTION

The aging is a progressive and irreversible process that occurs in all individuals, but in different decay rates leads to a progressive loss of functional abilities of the body, increasing the risk of inactivity. Consequently, it is common to find individuals with the same age who have a marked difference with respect to functional capacity.

These changes in bio psychosocial domains endanger the overall quality of life of the elderly, by limiting their ability to perform, with vigor, their daily activities and put in greater vulnerability to your health (SPIRDUSO, 1995).

According to NAGI (1991), the progression of functional limitation stems from pathological diseases whose indicators are the symptoms and signs, which are checked in attribute to the individual. Having considerably losses from normal psychological, physiological, anatomical structure or function, thereby causing functional limitations to perform various motor activities (walking, climbing stairs, picking up objects) and sensory mechanisms (touch, sight, hearing). Grouping these indicators in the following categories: physical, mental, emotional, sensory and communication.

Functional training has some peculiarities to this population group, with the use of everyday functional properties that were experienced throughout his life, such as running, jumping, rolling, climbing up and down.

Despite these potential benefits, the practice of functional training for seniors is still little studied. The results of several experiments suggest that it may improve balance through training using different sensory stimuli (HU et al. 1994 e WOOLLEY et al. 1997).

Functional capacity in this study is defined by the ability to perform routine activities independently, with an extensive functionality, according to NERI (2005).

For HEIKKINEN (2003), functional capacity is the degree of ease in which an individual thinks, feels, acts or behaves in relation to its environment and energy expenditure, and is associated with the quality of self-maintenance, social role, the intellectual condition, emotional state, social activities and attitudes of the individual to the world and himself.

This physical and functional autonomy to discharge the duties of everyday life, making the individual independent in the social and cultural context, contributes to improving the overall quality of life. Thus, the aim of this study was to evaluate the effects of the practice of functional training in improving the overall quality of life of these individuals.

METHODS AND MATERIALS

The study was performed using the prospective method, controlled, in the period January-November 2013. 27 elderly individuals were recruited between 60 and 72 years, with 12 practitioners of Functional Training classes called patient group (PG), three times a week for a period of 11 months and 15 individuals not engaged in regular physical activity and without monitoring of a physical education professional, attending elderly groups of local communities, this called control group (CG).

Initially, the individuals were asked about their age, physical activity, associated illness and self-reported decrease in the last 12 months. After this step, we carried out the evaluation of (WHOQOL-Bref) which is a questionnaire divided into four domains and overall quality of life. The Domain I - Physical Domain, Domain II - Psychological Domain, Domain III - Social Relations and Area IV – Environment Domain (Fleck MPA, 2000) and the assessment of functional mobility and balance according to BBS (Berg Balance Scale), evaluating the dynamic and static balance of individuals and the risk of falls,(Berg, 1992).

Exclusion Method: With surgical history of lower limbs and spine in the last 12 months, who presented disorders of the vestibular and cerebellar systems that prevented proper balance or interfere in it, do not use any assist device to support body weight (walking stick, crutch or zimmer) or not having cognitive impairment assessed with the MMSE (Mini Mental State Examination), (LORD, 1994) and / or with medical contraindications for physical exercise or neuromotor disability policy, unapproved physical and functional medical assessment.

Materials used: a 42 cm seat, with 62 cm costal and arms support; another chair with and without costal support arm, with 42 cm, a step of 15 cm, a 150 cm tape measure, a lap meter and anretangular object with 5 cm height and 11 cm in length. For evaluation, the individuals were suppose to use a regular footwear.

Sample size: was calculated for a power of 85% and type I error of 5%, admitted a variation of average of 15% between the pre and post-tests, and the sample size calculated in participants.

Physical fitness was measured by the test battery developed according to(RIKLI e JONES, 1999) protocol,being evaluated the strength and endurance of the limbs, flexibility, physical mobility (speed, agility and dynamic balance) and aerobic endurance, respectively, through testing, "get up and down", "bending the forearm", "sit and achieve", "sit, 2.44 m walk and sit back down, "" reach the back "and" walk six minutes"repeated under the same conditions every three months after the classes.

A descriptive analysis was performed by using frequency tables for categorical variables and measures of position and dispersion for continuous variables.

Was used the test of analysis of variance "ANOVA" for comparison between groups, since the data was not normally distributed. All tests used a significance level of 5% ($\rho = 0.05$). Was considered statistically significant matters that obtained ($p < 0.01$).

RESULTS

Of the 27 participants recruited for the study who underwent a battery of tests, (81.49%) repeated the posttest. In (GP), two participants did not complete the three months of lessons functional training, for health reasons: surgery (1) and familial disease (1). In (GC), five participants did not attend to the call for completion of post-test all male.

The groups were comparable regarding age, family income and educational level, as shown in (Table 1).

Table 1 - Comparison between groups of variables

Variable	PatientGroup (n=10)	ControlGroup (n=10)
Age (years)	(±60-72) (Average ± DP)	(±60-70) (Average ± DP)
BMI	1,6 ± 0,82	2,0 ± 1,0
Family Income	2,2 ± 5,5	2,5 ± 6,0
Scholarity (years)	4,5 ± 1,3	4,8 ± 1,5
Gender (%)		
Female	50 %	50%
Male	0,0%	0,0%
Funcionality(Average/DP)		
1st Evaluation	21,42 (±3,5)	
2nd Evaluation	20,75 (±2,2)	
3rd Evaluation	19,92 (±4,7)	
4th Evaluation	18,58 (±3,3)	

There was a similarity in the test results “stand or sit" at baseline in both groups (WG) and (GC). Six months after we observed better performance in the group subjected to functional training as all reviews (tables 2, 3, 4, 5, 6 and 7).

Table 2 - Test Results "get up and down" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	7,8 ±1,5	15,6 ±1,9	7,8
ControlGroup	8,1±2,3	7,0 ± 1,7	-1,1
AverageDifference	**0,3**	**8,6**	

Table 3 - Test Results "flexion forearm" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	12,8±2,5	21,6 ±2,9	9,5
ControlGroup	11,1±2,3	10,0 ± 2,7	-0,8
AverageDifference	**1,7**	**11,6**	

Table 4 - Test Results "sit and reach" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	-4,6 ±6,5	4,6 ± 8,0	9,2
ControlGroup	-4,0±10,3	5,0 ± 9,7	-0,9
AverageDifference	**-8,6**	**-0,4**	

Table 5 -Test Results "sit, walk 2.44 m and sit again" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	7,8 ±1,5	5,6 ±1,0	2,2
ControlGroup	7,1±1,3	7,0 ± 1,7	-0,1
AverageDifference	**0,7**	**1,4**	

Table 6- Test results "reach the back" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	-10 ±10,5	-0,6 ±7,0	9,4
ControlGroup	-7,1±9,3	-8,5 ± 9,7	-1,4
AverageDifference	**2,9**	**-7,9**	

Table 7 -Test Results "walk six minutes" pre and post tests

Group	Pre Test (average ± DP)	Post Test (average ± DP)	AverageDifference (pre-post)
PatientGroup	19,8 ±1,5	26,6 ±1,0	-6,8
ControlGroup	17,0±1,3	17,5 ± 1,7	-0,5
AverageDifference	**2,8**	**9,1**	

DISCUSSION

In our study was observed a significant improvement in all physical fitness tests applied, after training with functional training classes. These results seem to confirm the importance of physical exercise in this study in particular functional training, maintenance and improvement of physical fitness, improved functional and sensory abilities, directly reflecting the overall quality of life (OQL) of older women who took life without regular exercise.

We believe that the methodology employed confers reliability to our results, since the two groups were comparable in their main socioeconomic and biological variables, besides tests were applied using the same technique and the same instructors, both at baseline and three months after.

Several tests to measure physical fitness in elderly adults are now described. We chose the (Rikli and Jones, 1999) test to be more complete, practical, replicable and low operating cost.

In the literature, we did not identify any study similar to our methodology and that evaluated the effects and benefits of functional training on the general quality of life (OQL) for older women. This hindered the comparative analysis of our results.

In the first test applied, "sit-up", basically try check the strength and endurance of the lower body segment (Jones, 1998). Our results are similar to (FRONTERA et al.1990) found that in elderly strength gain up to 227% after training for 12 weeks. (HAGBERet al.1989 and HICKSet al.1991) also observed increases in strength in elderly men and women who were training muscle strength in 12 to 26 weeks.

The test of "forearm flexion" assesses the strength and endurance of the upper body. Our results were consistent with the observations (MCCARTNEYet al. 1993) that, despite the decrease in strength of upper body segment with age, this change can be modified with exercise practices.

The "sit and reach" test accurately measures the flexibility of the lower segment of the body, bending the hips and spine (Jones, 1998). In our study, patients undergoing functional training began to develop this test with higher skill.

The test "reach the back" seeks to assess the overall movement of the shoulder adduction, abduction, internal and external rotation. In our results, this test also showed significant changes after three months of functional training. (HUBLEY-KOZEYet al. 1995) observed significant improvements in motion range of various joints (neck, shoulder, elbow, wrist, hip, knee and ankle) in elderly individuals who participated in a regular exercise program. As the process of musculoskeletal deterioration accelerates to 65 years, a small increase in range of motion arising from work with a physical training can provide significant gains in quality of life of these people (SHEPARD, 1997).

The test "sit, walk 2.44 m and sit back down" assesses mobility, speed and dynamic balance. Our results also showed a positive effect of functional training classes on the performance of participants in this test. (LORD AND CASTELL 1994) reported improvement of balance in older adults after regular physical exercises for 10 weeks. (Topp et al. 1993) observed a trend towards improvement of balance, though without being significant from a statistical standpoint, the elderly undergoing a strength training for 12 weeks. (Hoerger AND HOPKINS, 1992) observed a 12% mobility increase of elderly people at the end of an exercise program of 12 weeks duration.

The test "walk for 6 minutes" measures aerobic endurance, which is an important ability for people to be able to perform everyday tasks such as walking, shopping or recreational activities. This test had been successfully used to assess the physical endurance of patients with various clinical conditions, however, has only recently been validated for use in older healthy adults (Rikli, 1998). We observed in our study a significant increase in aerobic endurance in the group of participants of functional training. According to (MATSUDO, 2000) Physical exercise increases aerobic power between 10-40%, especially at increased arteriovenous oxygen difference, stroke volume, cardiac output, plasma volume and blood.

Although we have performed physical training in a relatively short period of time, we observed significant results in eleven months. According to (Spirduso, 1995) to improve the amount of force occurs relatively quickly, in an average of two months, supported by data (FRONTERA et al.1990).

Some authors contend that the strength gain in the elderly occurs more intensely than in younger people (Spirduso, 1995). This is justified because older people usually start an exercise program on physical conditions more precarious than those youngers, which led to higher gains.

Thus, it is recommended to maintain these programs so that these beneficial results are sustainable. In our study, we recommend to all, including the control group (CG), continuous and regular participation in exercise programs, especially with enrollment in functional training.

The decline of physical fitness with aging is an inexorable fact that begins gradually, around the fifth decade of life. However, several other studies, like ours, point to the benefits of physical exercise programs for seniors, as an important prophylactic measure to preserve the maximum and slow the effects of aging on physical fitness (. MATSUDO, 2000 and ZENKER, 1996). Besides the improvement in physical fitness, physical activity also contributes to reducing rates of morbidity and mortality in the elderly (BRAVO, 1996 and Schwartz, 1995).

CONCLUSION

Was identified in this study that functional training for the improvement and maintenance of overall quality of life (OQL) for elderly through increases in strength, endurance, flexibility and functional autonomy as evidenced by the study. The significant difference between the level of physical activity and overall quality of life (OQL) related to health were also clear. The most active older students performed better in the areas of overall quality of life (OQL) investigated.

However, there is need for a greater number of studies assessing the effects discussed here and elsewhere, the functional training for this particular group.

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FUNCTIONAL TRAINING: CONTRIBUTING TO IMPROVE THE ELDERY OVERALL QUALITY OF LIFE.

ABSTRACT

The functional capacity in this study is defined by the ability to perform routine activities independently, with an extensive functionality, this physical autonomy to perform the functions of daily life, making independent individual in the physical, social and cultural context, contributes to improved quality of general life. Objective: Evaluate the effects of the practice of functional training in improving the overall quality of life of elderly. Method: The study was performed using the prospective method, controlled, in the January-November 2013 period. The study included 27 elderly aged 60 to 72 years, with 12 practitioners of Functional Training classes (patient group) and 15 individuals not engaged in physical activity (Control Group). The sample size was calculated for a power of 85% and type I error of 5%. Was admitted an average variation of 15% between the pre and post-tests, and the sample size computed in 27 participants. To calculate the functionality and overall quality of life, the table of Berg (EEB) was used, which assesses the dynamic and static balance of individuals and the risk of falls, and (WHOQOL-Bref), which is a questionnaire divided into four domains (physical was used psychological, personal relationships and environment.). Conclusion: Was identified in this study that functional training for the improvement and maintenance of overall quality of life of older people through increases in strength, endurance, flexibility and functional autonomy.

KEYWORDS: Functional Training, Quality of life, overall.

FORMATION FONCTIONNELLE : CONTRIBUER A L'AMELIORATION DE LA QUALITE DE VIE DES PERSONNES AGEES GENERAL

RÉSUMÉ

La capaciteb fonctionnelle cette etude est definie par la capacite a effectuer des activites de routine independentimente, avec une fonctionnalite etendue, cette autonomie physique desenpenhar fonctions au jour le jour, faisant individu independant dans le contexte physique, social et culturel, contribue a l' amelioration de la qualite la vie en general . Objectif:Pourévaluer leseffets de la pratiquedel'entraînement fonctionneldans l'amélioration delaqualité de viedes personnes âgées.Méthode:L'Etudede laRéaliséeenÉtéLa Méthodeutilisantprospective, contrôléeepríodoenjanvier-novembre 2013.L'étude a inclus 20 personnes âgées de 60 à 72 ans, avec 10 pratiquants de cours de formation fonctionnels (groupes de patients), et 10 personnes âgées actif non physique (groupe de contrôle). La taille de l'échantillon a étécalculéepour une puissance de 85% et une erreur de type i de 5%. Admis une variation de lamoyenne de 15% entre le pré et post-tests, et lataille de l'échantilloncalculéen 20 participants. Pourcalculerlafonctionnalité et laqualitéglobale de latable de lavie de Berg (EEB), quiévaluel'équilibrestatique et dynamiquedesindividus et le risque de chutes, et (WHOQOL-Bref), qui est unquestionnairediviséenquatredomaines a étéutilisé (physique, psychologique, relationspersonnelles, et de l'environnement). Conclusion:il a étéidentifiédanscetteétude confirme que laformationfonctionnellepourl'amélioration et lemaintien de laqualité de vieglobaledespersonnesâgéesgrâce à l'augmentation de la force, l'endurance, laflexibilité et l'autonomiefonctionnelle.

MOTS-CLÉS: formation fonctionnelle, qualité de vie, les personnes âgées.

ENTRENAMIENTOFUNCIONAL:CONTRIBUIR AMEJORAR LA CALIDAD DEVIDADE LASPERSONAS MAYORESEN GENERAL.

RESUMEN

La capacidad funcionalen este estudiose define porla capacidad de realizarlas actividades de rutinade forma independiente, con una amplia funcionalidad, esta autonomíafísicapara desempeñar lasfunciones de la vidadiaria, haciendo individuoindependiente en elcontexto físico, social y cultural, contribuye a mejorar lacalidad dela vidaen general.Objetivo: Evaluar los efectos de la práctica de entrenamiento funcional en la mejora de la calidad general de vida de los ancianos.Método:El estudiose ha realizado medianteel métodoprospectivo,controladoepríodoen enero-noviembre de 2013. El estudio incluyó a20adultos mayores de 60a 72 años, con10profesionalesde las clasesde entrenamiento funcional(grupo de pacientes), y 10ancianosnofísicamente activo(grupo de control). Eltamaño de la muestrase calculó parauna potencia de 85% y el errorde tipo Ide5%. Admitidouna variación delpromedio de15% entre el pre ypost-test, yel tamaño de muestracalculadoen20participantes.Para el cálculo dela funcionalidad y lacalidad general de latabla de vidadeBerg (EEB), que evalúa elequilibrio estático y dinámicode personas yel riesgo de caídas, y(WHOQOL-Bref), que es un cuestionariodividido encuatro dominios (física, psicológica, relaciones personales, y el medio ambiente). Conclusión:Fue identificadoen este estudioconfirma queel entrenamiento funcionalpara el mejoramiento ymantenimiento de la calidadde vida en generalde las personas mayoresa través deaumentos en la fuerza, la resistencia, la flexibilidad y laautonomía funcional.

PALABRAS CLAVE: entrenamiento funcional, calidad de vida,ancianos.

TREINAMENTO FUNCIONAL: CONTRIBUINDO PARA MELHORIA DA QUALIDADE DE VIDA GERAL DE IDOSOS.

RESUMO

A capacidade funcional neste estudo é definida pela habilidade de realizar atividades rotineiras independentemente, com uma ampla funcionalidade, esta autonomia física para desempenhar as funções do dia a dia, tornando o individuo independente no contexto físico, social e cultural, contribui para melhoria na qualidade de vida geral. Objetivo: Avaliar os efeitos da prática do treinamento funcional na melhoria da qualidade de vida geral dos idosos. Método: O estudo foi realizado através do

método prospectivo, controlado, no período de janeiro a novembro de 2013. Participaram do estudo 20 idosos com idade entre 60 e 72 anos, sendo 10 praticantes das aulas de Treinamento Funcional (Grupo Paciente), e 10 idosos não praticantes de atividade física (Grupo Controle). O tamanho amostral foi calculado para um poder de 85% e um erro tipo I de 5%. Admitiu-se uma variação de média de 15% entre o pré e o pós-testes, sendo o tamanho da amostra calculado em 27 participantes. Para calcular a funcionalidade e a qualidade de vida geral foi utilizada a tabela de Berg (EEB), que avalia o equilíbrio dinâmico e estático dos indivíduos e o risco de quedas, e o (WHOQOL-Bref), que é um questionário dividido em quatro domínios (físico, psicológico, relações pessoais e meio ambiente.) Conclusão: Foi identificado neste estudo que o treinamento funcional corrobora para a melhoria e manutenção da qualidade de vida geral de idosos, através de incrementos na força, na resistência, na flexibilidade e na autonomia funcional.

PALAVRAS-CHAVE: Treinamento funcional, Qualidade de vida, idoso.