77 - STRENGTH TRAINING AND RESISTANCE TRAINING ON FUNCTIONAL FUNCTIONAL CAPACITY AND QUALITY OF LIFE OF ELDERLY PHYSICALLY INDEPENDENT

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INTRODUCTION

Brazil, like many developing countries, has a rapidly aging population. The current epidemiological profile is guided in a context of social inequality resulting from structural causes, and economic policies in Brazilian society, which despite having some improvement of the indicators on the general conditions of life, can not attribute this exclusively to these conditions (Carvalho et al., 2006, apud BARRETO et al, 2003; WONG; CARVALHO, 2006).

Most of the epidemiological evidence suggests beneficial effects provided by an active lifestyle based on physical activity as a prophylactic measure, assist in minimizing the deleterious effects of aging and thereby contributes to improved quality of life. (MATSUDO, MATSUDO; BARROS NETO, 2000).

The Functional Training aims to improve functional capacity through physical activity, specifically the improvement of neurological aspects that affect the functionality of the human body through exercises that challenge the various components of the nervous system, stimulating adaptation. One aspect of vital importance in this type of training should be thoroughly explored: the use of exercises that stimulate proprioception, in materials that provide an unstable surface with movements performed in multiple planes and axés (CAMPOS; CORAUCCI NETO, 2004).

The strength training brings proven benefits in terms of improving the functional ability of elderly people by improving the physical components directly related to the functionality, especially the strength. In general there is an increase in strength shortly after joining this training protocol. This is attributed to an expected improvement in the coordinative ability. (SIMON, 2004 BALSAMO, SIMON, 2007; MOURA, 2008).

Several studies have shown that appropriate training stimuli in the elderly, regardless of sex, slow the decline in strength and muscle mass normally associated with aging. Thus, it is believed that programs with intensity monitored and appropriate to stimulate physiological adaptations, eg, increase strength and improve balance should be used as a means of preventing falls and injuries (Hakkinen, 1998, apud Carvalho et al , 2004).

The research is important because it is an innovative approach in the area of physical training in order to make a comparison between the benefits gained by older people in relation to improvements in their activities of daily living, provided by Resistance and the Functional Training Strength Training (DANTAS, OLIVEIRA, 2004; DANTAS; VALE, 2004; OLIVEIRA; FURTADO, 2010).

METHODOLOGICAL PROCEDURES

The present study deals with a survey. In this type of study, the object / source is approached in its own environment, and is characterized by observation, recording and analysis of data collected, without intervention and handling by the investigator. Coverage ranges from surveys (surveys) that are more descriptive, more analytical studies to (SEVERINO, 2007).

This study was conducted with elderly subjects classified according to the proposed Spirduso (2005) and physically independent, physically fit (levels III and IV), aged over 60 years. We selected elderly males and females, although with a prevalence of women participating in the assistance program of the Institution for the Elderly Home.

The sample consisted of 30 (thirty) physically independent elderly, male and female, aged 60 years and over, resident in the state of Para, in the town of Bethlehem.

The sample was divided randomly into three groups by drawing lots. The first group held the Strength Training (TF), the second Functional Resistance Training (FFT). The third group - control group (CG) was limited to practice, during the eight weeks regarding the survey, recreational activities such as dance, nature walks, tours and meditation on the institution of the Elderly Home, with a frequency of three times weekly, being that the duration of activity was thirty minutes.

For the research in question was used as a criterion for sampling probabilistically random sample, the second (ET Ciconello al., 1999)

-Inclusion Criteria The criteria for including subjects in research are: fit an age of at least sixty (60) years of age, of both sexes, were classified as physically independent elderly and physically fit (levels III and IV), according with the classification of Spirduso, 1995 and Matsuda, 2000), sign and comply with the Deed of Consent - Informed Consent, declaring himself fit for the practice of physical activities and submit a medical certificate attesting to this statement.

- Exclusion Criteria We used the following exclusion criteria: whether the person presenting the age of 60 (sixty) years of age, have some pathology that could be aggravated with physical activity and whether the subject is outside the rated 3 or 4 (from According Spirduso, 1995; MATSUDO, 2000).

This study met the standards for conducting research with human beings, established by Resolution 196/96 of 10 October 1996, the National Council of Brazil. The study had its research project approved by the Ethics in Research involving human subjects at the University Of the State of Pará, Campos III, Physical Education course (CEP / CEDF). All individuals who agreed to participate signed the Instrument of Consent - IC.

MATERIALS AND METHODS

The study was conducted in stages:

In the first stage a screening was held at the Elderly Home institution to verify how many volunteers are meeting the criteria of inclusion and exclusion criteria previously established, and the selection of research subjects. In the second stage were

assigned randomly to the two groups: Group Strength Training (GTF), Functional Resistance Training Group (GTFR) and Control Group (CG), the experimental group was told the date, location and time of the survey and how it would apply. In the third phase of research, the subjects signed the Informed Consent for participation in applied research and the quality of life questionnaire (SF-36) and history about the health profile (PAR-Q).

The assessment of quality of life - was measured from the application of the SF-36. It consists of two components, the physical component, which has four domains (functional capacity, physical aspects, pain and general health) and mental component that also has four domains (mental, emotional, social functioning and vitality). The data on responses are converted into scores ranging from 0 to 100, with 0 being the worst value and 100 the best value.

The fourth stage was applied to battery of five tests of functional autonomy (GDLAM Protocol) in the following order: Walk 10 meters (C10M) Raise the sitting position (LPS), Rising from his chair and move around the house (LCLC), Rising from the prone position (LPDV) and don and take off his shirt (VTC).

The evaluations of the protocol GDLAM were performed under the same conditions for all three groups of research) in order to avoid any disadvantage among the groups. Before the tests, the researchers explained and demonstrated the procedures.

In the fifth stage of the research were initiated training sessions in the laboratory of resistance exercise (you read) with a total duration of 8 weeks, 3 times weekly frequency and duration of 40 minutes each session, were applied training programs for groups experimental. The sixth step was reapplied battery of tests specified in sub-topic the fourth phase and the SF-36.

In the seventh and final stage, data analysis was performed by means of statistical and validation of results. The data were presented in tables and graphs. Were treated statistically by the SPSS 16.0 statistical package, where we adopted the frequency distribution for qualitative data, descriptive statistics for quantitative data, the Student t test to compare differences before and after training in each group and analysis of variance a criterion for comparison between groups. We adopted $p \leq 0.05$.

RESULTS

In this chapter we are presenting the results of the study and analyze these in order based on statistics and literature for the subject.

Table 1 - Descriptive characteristics and comparative Protocol GDLAM the pretest and posttest in the control group.

Variable	Before	After	t	p
C10M	7.66 ± 0.76	7.76 ± 0.57	-0.46	0.67
LPS	15.60 ± 1.56	16.43 ± 1.92	-2.43	0.07
LPDV	7.13 ± 2.86	7.79 ± 3.26	-3.12	0.04*
LCLC	42.92 ± 6.60	44.63 ± 5.37	-2.29	0.08
VTC	15.31 ± 2.34	14.93 ± 2.92	0.74	0.50
ÍNDICE	34.57 ± 3.96	36.19 ± 3.73	-3.75	0.02*

In table 1, one can observe the characteristics of the control group for the variables of protocol GDLAM, recorded before and after the development period of the study, as we have to compare the two times of testing. There you can see that the total rate GDLAM group suffered a significant worsening after the study period, the same occurring with respect to variable LPDV. For the other variables there was no statistical difference is noted that although the subjects worsened in all variables except the VTC, where there was a slight improvement. Thus, we can say is that the strategy adopted by the Control Group did not favor no gain to the functional capacity of the subjects in the group.

Chart 1 can be seen that 20% of subjects in the control group showed a worsening of their condition checked by the Protocol GDLAM, where it was noted that while previously only four subjects had a Poor condition, after the development period study all subjects reached Poor condition, showing deterioration in the condition observed.

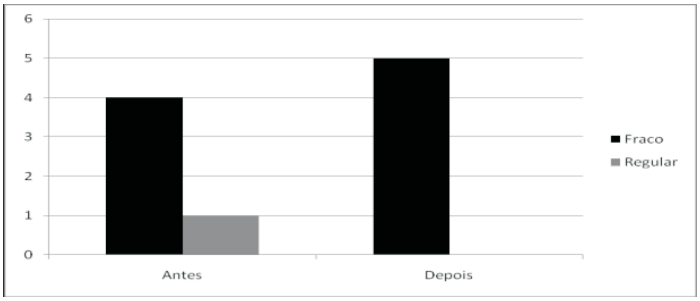

Chart 1 - Classification of subjects in the control group for the index of GDLAM at both times of testing.

Table 2 - Descriptive and comparative Protocol GDLAM the pretest and posttest for Group Variable Strength Training

Variable	Before	After	t	p
C10M	6.17 ± 0.41	5.17 ± 0.75	3.87	0.01*
LPS	12.33 ± 1.63	8.50 ± 1.52	5.86	<0.01*
LPDV	2.83 ± 0.75	2.83 ± 1.17	0.00	1.00
LCLC	33.83 ± 3.06	27.67 ± 1.37	5.90	<0.01*
VTC	14.67 ± 2.42	10.83 ± 1.94	4.84	0.01*
ÍNDICE	26.17 ± 1.47	20.83 ± 1.47	8.68	<0.01*

Table 2 revealed that the group who received training showed statistically significant gains strength in functional capacity, determined using the protocol GDLAM, after training, except for variable LPDV, where there has been no change. Even we can see a significant gain in the index of GDLAM, which shows a significant improvement in the condition of the subjects, showing that the training provided was effective in what it intended.

In Figure 2 we could observe the great evolution in the functional capacity index GDLAM second occurred after the training period the Group received Him Strength training can be seen that before training there were two subjects in Poor condition, while after training no subject showed this level of condition, including looking further four subjects in Very Good condition, which was not observed before training, confirming the effectiveness of training developed by the group.

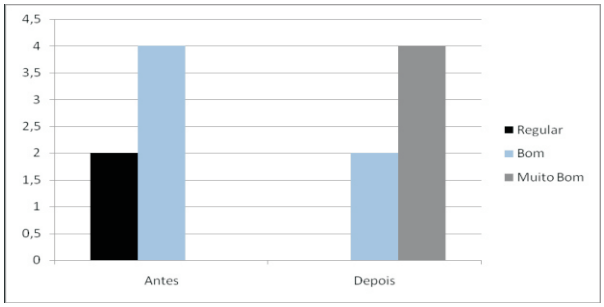

Chart 2 - Classification of the subjects of Group Strength Training for the content of GDLAM at both times of testing.

Table 3 - Descriptive characteristics and comparative Protocol GDLAM the pretest and posttest in the Group of Functional Training. Variable

Variable	Before	After	t	p
C10M	7.40 ± 1.14	6.20 ± 1.30	1.81	0.15
LPS	10.80 ± 5.59	8.40 ± 2.07	1.19	0.30
LPDV	5.80 ± 2.86	2.80 ± 1.30	2.02	0.11
LCLC	41.00 ± 9.14	32.40 ± 6.80	2.41	0.07
VTC	13.40 ± 2.07	10.40 ± 2.79	2.07	0.11
ÍNDICE	30.20 ± 7.46	22.80 ± 4.60	3.06	0.04*

Table 3 was observed by the group that received Functional Training, a statistically significant gain in functional capacity observed by GDLAM index, although this gain is not the case, significantly, for the variables Protocol GDLAM, when analyzed individually. What has happened is that all variables showed some improvement, but these were not significant from a statistical viewpoint. With this, we can say that the methodology adopted for training the group was effective in developing the functional capacity of the subjects, without being for each variable separately.

Chart 3 noted the significant evolution in the functional capacity of the subjects of the group, where you can see through the classification level of the subjects to the protocol GDLAM while before training 50% of the sample showed a weak condition, after training only 16.7% presented this condition, and the conditions Very Good Good and observed an increase of 100% after training, going from a single subject for each of these conditions prior to training for two subjects for condition after training.

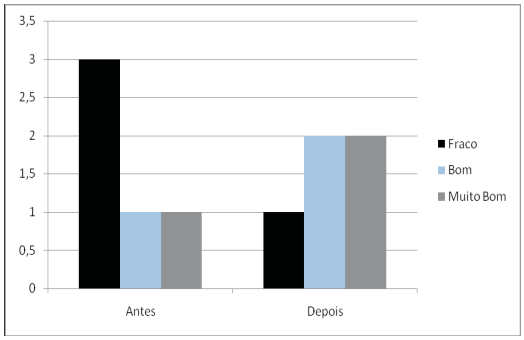

Chart 3 - Classification of the subjects of Group Functional Training for the content of GDLAM at both times of testing

Table 4 - Frequency distribution of responses in the quality of life before and after the three study groups, to question 1: In general, would you say your health is.

Group		Excellent	Very Good	Good	Bad	Very Bad
CONTROL	A	- - -	- - -	2 (40,0%)	3 (60,0%)	- - -
	D	- - -	- - -	2 (40,0%)	3 (60,0%)	- - -
STRENGTH	A	- - -	- - -	3 (50,0%)	3 (50,0%)	- - -
	D	2 (33,3%)	2 (33,3%)	3 (50,0%)	3 (50,0%)	- - -
FUNCTIONAL	A	- - -	- - -	1 (20,0%)	1 (16,7%)	- - -
	D	1 (20,0%)	1 (20,0%)	3 (60,0%)	3 (60,0%)	- - -

In Table 4, which deals with how the subjects of the three study groups examine their health before and after the intervention, we can see that they consider it bad to good in the control group both before and because of the intervention, without any change after intervention. In the Group Strength Training, where there was a condition before the intervention of the Good Bad, there was an improvement of the condition after the intervention, where it was observed that two subjects have evolved in their health, to Very Good condition. As the Group of Functional Training is noted that before training the perception of health was excellent, Good Bad and especially after training ranged from excellent to good mostly. Thus, we can see that in both training groups, the Strength and Functional, there was an evolution in the perception of health status of the subjects while there was no change in parameters between subjects in the control group.

Table 5 - Frequency distribution of responses in the quality of life before and after the three study groups for question 37: My health is excellent.

Group		Definitely true	Most often true	Do not know	Most times false	Effectively false
CONTROL	A		1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
	D		1 (20.0%)		2 (40.0%)	2 (40.0%)
STRENGT	A		3 (50.0%)	1 (16.7%)	2 (33.3%)	
H	D		4 (66.7%)		2 (33.3%)	
FUNCTION	A		2 (40.0%)	1 (20.0%)	2 (40.0%)	
AL	D	2 (40.0%)	2 (40.0%)		1 (20.0%)	

In table 5, questioning the perception that their health is excellent, he noted that the control group it considers false after the intervention. Already training groups showed progress on the issue. The Force went from 50% to 66.7% considering the most part true, while the Functional rose from 20% to 40% considering most of the time.

CONCLUSIONS AND RECOMMENDATIONS

There are no statistically significant differences in terms of functional ability between groups, when it comes to the experimental groups in this study. The resulting analysis of the SF-36 suggests that the experimental groups showed improvement, in general, the aspects analyzed by this instrument. This result shows improvement in quality of life of the sample. It is worth emphasizing the importance of older people participating in a systematic program of physical activities that contribute to qualitative improvements, particularly in psychosocial aspects.

This hypothesis is reinforced by the results obtained in the control group, which showed no improvement in any of the domains assessed. So the practice promotes physical activity, beyond the prevention of certain diseases, rehabilitation of health problems, because it generates improvements in overall fitness, facilitating the maintenance of good levels of independence and autonomy in activities of daily living.

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STRENGTH TRAINING AND RESISTANCE TRAINING ON FUNCTIONAL FUNCTIONAL CAPACITY AND QUALITY OF LIFE OF ELDERLY PHYSICALLY INDEPENDENT

ABSTRACT

The aim of this study was to analyze the effects of eight weeks of training by two protocols, entitled Training Force(TF) and Resistive Functional Training(FFT), in relation to functional capacity and quality of life of elderly physically independent. For the research in question was used as a criterion for sampling the simple random probabilistic manner. The sample consisted of 30 elderly male and female, minimum age of 60 years, divided into three groups: Group Strength Training(GTF=10), group of Functional Training Resistive (GTFR=10) and a control group(GC=10). For the assessment of functional capacity was applied to the Protocol Development Group for Latin American Maturity(GDLAM). To measure the benefits related to quality of life we used the Quality of Life Questionnaire SF-36.The data were treated statistically by the SPSS 16.0, which was adopted frequency distribution for qualitative data, descriptive statistics for quantitative data, the Student t test to compare differences before and after training in each group and analysis variance of a criterion for comparison between groups. The study acknowledged a p≤

0.05 for statistical significance. Overall, the results indicated improvement in functional capacity of the experimental groups(GTFandGTFR). The control group showed deterioration in functional capacity compared to the experimental groups. Qualitative analysis showed that the experimental groups showed improvement in the control group.

KEYWORDS: functional capacity, strength training and functional training resisted

RENFORCEMENT MUSCULAIRE ET ENTRAINEMENT CONTRE RESISTANCE SUR LA CAPACITE FONCTIONNELLE FONCTIONNELLE ET QUALITE DE VIE DES PERSONNES AGEES PHYSIQUEMENT INDEPENDANTS

RÉSUMÉ

L'objectif de cette étude était d'analyser les effets de huit semaines de formation par deux protocoles, intitulé Formation de la Force (TF) et fonctionnelle entraînement contre résistance (FFT), par rapport à la capacité fonctionnelle et qualité de vie des personnes âgées physiquement indépendants. Pour la recherche en question a été utilisée comme un critère d'échantillonnage aléatoire simple probabiliste. L'échantillon se composait de 30 personnes âgées de sexe masculin et féminin, âgées de 60 ans, répartis en trois groupes: Groupe de musculation (ST = 10), la résistance fonctionnelle de formation de groupe (GTFR = 10) et un groupe témoin (GC = 10). Pour l'évaluation de la capacité fonctionnelle a été appliquée au Groupe de protocole de développement pour l'Amérique latine à l'échéance (GDLAM). Pour mesurer les avantages liés à la qualité de la vie, nous avons utilisé le questionnaire Quality of Life SF-36. Les données ont été analysées statistiquement en utilisant SPSS 16.0, où nous avons adopté la distribution de fréquence pour les données qualitatives, les statistiques descriptives pour les données quantitatives, le test t de Student pour comparer les différences avant et après la formation dans chaque groupe et l'analyse de la variance un critère de comparaison entre les groupes. L'étude a admis un $p \leq 0,05$ pour la signification statistique. Dans l'ensemble, les résultats montrent une amélioration de la capacité fonctionnelle des groupes expérimentaux (FTE et GTFR). Le groupe de contrôle ont montré une détérioration de la capacité fonctionnelle par rapport à des groupes expérimentaux. L'analyse qualitative a montré que les groupes expérimentaux ont montré une amélioration dans le groupe témoin.

MOTS-CLÉS: la capacité fonctionnelle, la musculation et la formation fonctionnelle résisté

ENTRENAMIENTO DE LA FUERZA Y RESISTENCIA A LA FORMACIÓN DE LA CAPACIDAD FUNCIONAL Y FUNCIONAL DE LA CALIDAD DE VIDA DE LOS ANCIANOS FÍSICAMENTE INDEPENDIENTE

RESUMEN

El objetivo de este estudio fue analizar los efectos de ocho semanas de entrenamiento por dos protocolos, titulado capacitación de la fuerza (TF) y funcional Entrenamiento de la resistencia (FFT), en relación con la capacidad funcional y calidad de vida de los adultos mayores físicamente independientes. Para la investigación en cuestión se utilizó como criterio de muestreo aleatorio simple probabilísticamente. La muestra consistió de 30 adultos mayores hombres y mujeres, de 60 años, divididos en tres grupos: Grupo de entrenamiento de la fuerza (ST = 10), Resistencia Grupo funcional de formación ("GTFR" = 10) y un grupo control (GC = 10). Para la evaluación de la capacidad funcional se aplicó al Grupo de Protocolo para el Desarrollo de América Latina Vencimiento (GDLAM). Para medir los beneficios relacionados con la calidad de vida se utilizó el Cuestionario de Calidad de Vida SF-36. Los datos fueron analizados estadísticamente utilizando SPSS 16.0, donde se aprobó la distribución de frecuencias para los datos cualitativos, estadísticos descriptivos de los datos cuantitativos, la prueba t de Student para comparar las diferencias antes y después del entrenamiento de cada grupo y el análisis de varianza un criterio de comparación entre los grupos. El estudio admitió el $p \leq 0,05$ para la significación estadística. En general, los resultados indicaron la mejora de la capacidad funcional de los grupos experimentales (GTF y "GTFR"). El grupo control se observó un deterioro en la capacidad funcional en comparación con los grupos experimentales. El análisis cualitativo mostró que el grupo experimental mostró una mejoría en el grupo control.

PALABRAS CLAVE: la capacidad funcional, entrenamiento de fuerza y entrenamiento funcional resistido

TREINAMENTO DE FORÇA E TREINAMENTO FUNCIONAL RESISTIDO SOBRE A CAPACIDADE FUNCIONAL E QUALIDADE DE VIDA DE IDOSOS FISICAMENTE INDEPENDENTES

RESUMO

O objetivo deste estudo foi analisar comparativamente os efeitos de oito semanas de treinamento através de dois protocolos, intitulados de Treinamento de Força(TF) e Treinamento Funcional Resistido(TFR), em relação à capacidade funcional e qualidade de vida de idosos fisicamente independentes. Para a pesquisa em questão, foi utilizado como critério de amostragem a forma probabilista aleatória simples. A amostra foi constituída por 30 idosos do gênero masculino e feminino, com idade mínima de 60 anos, divididos em três grupos: grupo de Treinamento de Força(GTF=10), grupo de Treinamento Funcional Resistido(GTFR=10) e um Grupo Controle(GC=10). Para a avaliação da capacidade funcional foi aplicado o Protocolo do Grupo de Desenvolvimento Latino-Americano para a Maturidade(GDLAM). Para mensurar os benefícios relacionados à qualidade de vida foi utilizado o Questionário de Qualidade de Vida SF-36. Os dados foram tratados estatisticamente através SPSS 16.0, onde foi adotada a distribuição de frequência para os dados qualitativos, a estatística descritiva para os dados quantitativos, o teste t de Student para comparar as diferenças pré e pós treino em cada grupo e análise de variância de um critério para a comparação entre os grupos. O estudo admitiu um $p \leq 0.05$ para a significância estatística. De forma geral, os resultados indicaram melhora na capacidade funcional dos grupos experimentais(GTF e GTFR). O grupo controle apresentou piora na capacidade funcional, quando comparado aos grupos experimentais. A análise qualitativa mostrou que os grupos experimentais obtiveram melhora em relação ao grupo controle.

PALAVRAS-CHAVE: Capacidade funcional, treinamento de força e treinamento funcional resistido