44 - STUDY OF THE FORCE OF THE INFERIOR MEMBERS AFTER A TWELVE WEEKS TRAINING

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INTRODUCTION

The aging is defined in different ways in agreement is directed the focus of the attention to ambient, genetic, biological, psychological, social the factors cultural, among others. We will see in the conception of different authors what it is the aging.

For Bodachne (1998, p.13), the aging "is a dynamic, gradual, inevitable process, where morphologic modifications occur, physiological and psychological of chains of the time". It is a universal process, being able to mention itself to a physiological phenomenon of behavior social, or still chronological (PARTAZANI, 1996).

For Vieira (1996, p.52), "it is a phenomenon of the life process that as well as infancy, the adolescence and the maturity, is marked by specific bio-psycho-social changes, associates to the ticket of the time". It is not only a moment in the life of an individual, as in Fraiman says to them (1995, p.19) "but an extremely complex process and little known, with implications in such a way for who it lives deeply it as for the society that supports or attends it.

The age is one of the two great variables that regulate the social behavior and the relations between individual and groups in all the societies. To another variable, the sex, is inherent the person, as well as its time of life.

In accordance with Bodachne (1998), in the end of century XX the population profile of Brazil if approached to the developed countries. The decline of the indices of fertility of the woman leads to a lesser ingression of young in populations that start to live longer periods, due to an improvement in the control of illnesses, the preventive cares and the nutrition.

Until years 50, it predominated in the country the characteristic of high index of natality, which correspond to the aged ones of today, and had the biggest index of the mortality taxes. From the decade of 50 was transferred to observe it the opposite accurately. Between 1940 and 1960 the population tries an increase in its rhythm of annual growth. Of 2,34% to the year in the decade of 40, its growth passes to 3,05% in the following decade. This transition occurs thanks to a decline of the mortality, translated for a profit of 10 years in the life expectancy and tax of total fecundities if it kept constant (BODACHNE, 1998).

The author says that from the decade of 60 the annual rhythm of the population growth starts to decelerate. But it is between 1980 and 1991, that this with clearness is really perceived what caused this fall was the reduction of the fecundities taxes while of mortality continued declining.

Brazil was characterized as possessing of a population of young and presented up to 1970 practically constant structure of young minors of 15 years, adults between 15 and 64 years and of aged of 65 years and more. From then on, the fecundities was reducing and the group of young starts to represent, from 1980, proportionally well less computes it generality of the population, opening in this, space to more increase the relative weight of the group of 15 the 64 years and of the aged ones of 65 or (BODACHNE, 1998).

The increase of the longevity brings important consequences as the increase of the number of people pensioners, added to the presence of illnesses of chronic character. The growth of the aged population directly affects the reason of the dependence, still when if it leads in account that almost 1/5 of the number of aged participates of the economic activity of the country. For Clark and Anker (1989), the taxes of participation of aged in the work force decline with the development, offering to the people oldest retirements more decent than they allow them to enjoy of a calm oldness.

When it is thought about the future, one expected to have fond of the end of the century with 8.658.000 aged, that is, one in each 20 Brazilians will have 65 years or more. This number will grow for 16.224.000 in 2020, when one in each 13 Brazilians will belong to the aged population (HAYFLICK, 1997).

The aging is not a passage accident and comes of a program of growth and maturation of some dimensions. It varies of individual for same individual happening with people of all the places of the world. Many of these differences genetically are determined, but also they are influenced by the life style, for the environment and it feeding of each one. Therefore the aging has that to be understood as a whole, in such a way, biological, psychologically and social (HAYFLICK, 1997).

A study made for Rudinger and Thomae, in 1990, in Germany, contributed very to understand on the adjustment and the satisfaction in the oldness. The main conclusions point that:

-The biological health is one of the most important predictors of the welfare in the oldness, being that the perceived health and the way as the people deal with its problems of health are more productive of what its objective conditions of health.

-The satisfaction with the family and the interaction between social statuses, 0 variable of personality, interactions inside of the family, played activities outside of the family intervenes with this adjustment.

-The psychological and economic situation is important in subjective well-being, that it determines as the people deal with the quality of habitation, the neighborhood, economic independence and the referring expectations to the financial stability.

-The perception of the quality of daily life is measured by the capacity to initiate and to keep contacts, which depend on motivations and cognitive factors.

-The evaluation that the aged one makes of its current situation is plus an important mediator of the life satisfaction, that depends on the important events in its life, of the amount of chances and social contacts, of as it deals with the death, of the perspective of future, the valuation of the past and the use of the current possibilities.

Okuma in Deps (1993) mentions some aspects to it that bring personal satisfaction in this phase, as the importance of one meaning for the existence. To have it is to arm itself to deal with losses and pains. In view of that in our society the main sources of meaning are: work, social status and enterprises, many of the aged ones that they think the meaning of its existences only in these sources, when losing start them to live an unsatisfactory oldness. It claims that emotional well-being also results of the social interaction and the force of the social bond. These are not mentioned to the familiar relations, but to the relations of friendship, that are based on consensus of value and affection, whereas of relatives frequently it is based on interests and obligations. Therefore if it suggests that the aged one keeps activities is of the familiar environment, has relations with individuals of the same age and same time. In this type of life the aged one has that to be heard, the relationships have of if basing on quality and not in amount.

In the activities in group the aged one can find satisfaction personal. The group if becomes an environment, in a reducing set of stress it, making with that the aged one ahead keeps a positive concept of the reduction of energy and the difficulties that the age brings.

For Silveira Junior (2001, P. 154) the loss of muscle mass that occurs with the aging, called of senile sarcopenie, followed

of the reduction of muscle power, mainly in great muscles groups, not only affects the quality of life of the aged one, but also it increases the cardiovascular risk of the same ones to carry through the activities of the daily life, therefore weak and atrophied muscles need, exactly to carry through activities day to day, high cardiac frequency and increase of the systolic arterial pressure, what it causes the rise of the consumption of oxygen for the heart, with bigger risks of squeamish, arrhythmias and sudden death.

Above of 65 years of age the loss of the force it can vary of 24 to 45%. The reduction of the muscular mass constitutes an uneven factor of the loss of related force the age and that it reflects in the reduction of the induced total protein for the inactivity, aging or for both (SILVEIRA JÚNIOR, 2001).

The same author says that the power is an important factor for the functional capacities. The weakness of the muscles can advance until the elderly cannot carry through common activities of the daily life, such as domestic tasks, to arise they of a chair, to sweep the soil or to play the garbage it are. The reduction of the functional capacity can result in internment in asylums. And important to keep the power because it is vital for the health, functional capacity and the independent life.

Beyond the loss of muscles power, the ability of the muscle to exert power quickly (power movement) seems to diminish with the age. This ability is vital and can serve as protective mechanisms of falls. The falls in the aged ones are one of the causes most important of injuries, can lead to the death and represent a great problem of public health. The muscular power and its trainability in aged have not been reason of many studies, but it can more be than the muscle power for functional capacities of the individual, therefore many activities as it walks, to go up stairs and to bring up objects they demand a fast development of power and certain degree of power to be carried (SILVEIRA JÚNIOR, 2001).

In a study of Bassy and Cols in 1992 with aged men, with average of age of 88,5 years and women with average of age of 86,5 years the power of the extensors of the leg significantly was correlated with the speed movement when they stand up of the chair, speed and power to go up stairs and when they walked with speed. The correlation between power and capacity functions had been bigger in the women of what in the men. For the two sexes, however, the data indicate that the power is important for the performance of the daily activities, and, if the power diminishes, also diminishes the capacity for the accomplishment of these activities.

In the Table 1 its presents the references values with the data of the aged population of Curitiba, South Brazil (Aged Program in Movement, 2003).

Table 1: Force of legs

AGE	60 - 64			65 - 69			70 - 74		
	I	B	O	I	B	O	I	B	O
WOMAN	< 10	11-16	17 <	<9	10-15	16<	<8	9-14	15<
MAN	I	B	O	I	B	O	I	B	O
	<12	13-20	21<	<10	11-17	18<	<9	10-16	17<

Legend: I = Insufficient; B = Good; = Excellent.

For Fleck and Kraemer, (1999 P. 208) the basic principles of the planning of one program of Power Training are the same, do not import which the age of the participants. Had to the variations in the functional capacity of many older individuals, optimum program is individualized to take care of to the necessities and the conditions of health of each person.

The same author in says them that the programs of used Power Training in the majority of the studies have been of a basic planning and have obtained resulted positive. Thus, in the initial phases, a planning of advanced program can not be necessary. Moreover, many older adults of middle-age and can demand a period of initial training to enter in form before they can train in a level necessary to provoke adaptations in the muscle, later, in a training program.

The evaluation of the progress of the training must include the test of power, the determination of the composition of the body, test of the functional capacities (to walk, to stand up of a chair), and the measure of the changes in the size of the muscle, the nutritional evaluation and the medical accompaniment of preexisting conditions (KRAEMER and FLECK, 1999).

In this context the main of this study was to verify the improvement of the force of inferior members after 12 weeks of a physical exercises program.

MATERIALS AND METHODS

This study if it characterizes in an almost-experimental research (THOMAS and NELSON, 2001).

The sample of this study was constituted by 13 individuals of both the sexes, with average age of 65,69 and shunting line standard of 4,42 years, participants a specific program for the third age. The characteristics of the sample are presented in table 2.

Table 2: Characterization of the Sample

VARIABLE	MEANS	SD
Age	65,69	4,42
High	1,58	0,07
Mass	68,34	10,18

The Test was used to seat and to stand up (MATSUDO, 2000), for verification the power of the inferior members. This test consists of the evaluated individual must carry through the movement to seat and to stand up of a chair with 40 cm of height, the movements must be complete to be entered are verified the amount of movements that the individual obtains to carry through during the time of 30 seconds.

To measurer the power before and after the training was used the Test to seat and to stand up. For the accomplishment of the test the aged one must:

To seat and to raise of the chair without leaning in escalader;

Crossed arms of the evaluated one on the chest;

Supported feet, legs lightly moved away;

Not to carry through the inclination of the trunk for front;

The collection of data was carried through in day 15th.June.2006 (daily pay-test). The post-test was carried through in 15th.December.2006.

The individuals had carried training three times per week. Where a time per week they carried power training exercises (in the other days the activities were varied). The exercises used for inferior members had been: extensor chair, flexor chair, aductor chair, abductor chair, leg press 45º. The individuals walking too three times per week. During first the 8 weeks the pupils had carried through 2 sets of 12 repetitions in each device. In the others 6 weeks they carried through 2 sets of 8 repetitions with load increase. I opted to not making maximum load test therefore, for already knowing the pupils and for already having carried through training for muscular resistance, the weight increase was gradual.

For analysis of the data it was used a descriptive statistics (average and standar deviant) and a test “t” to verify the significant difference between the begin and post-test through program SPSS 13.0.

RESULTS AND QUARREL

It is observed in the results that the average of the begin "To seat and to stand up Test" is of 8,53 and the after-test average is of 11,38. According to references values constructed with base of the data of the aged population of Curitiba - Aged Program in Movement (2003). This sample in the begin-test is presented in insufficient levels, no longer after-test increases for good levels. As table 3.

Table 3: Averages and sd of the values of the begin and post test.

TEST	MEANS	SD
Begin-test (n=13)	8,53	1,98
Post-test (n=13)	11,38	1,80

When carried through the comparison of the begin and post-test, a significant difference between the measures is observed, p=0,000. This result sample that had significant improvement between the begin (X=8,53) and the post-test (X=11,38). Values presented in table 4.

Table 4: Values of comparison between begin and post-test.

	t	GL	Sig.	Diference
Begin-teste	15,518	12	0,000	8,53846
Post-teste	22,747	12	0,000	11,38462

CONCLUSIONS

In accordance with SILVEIRA JÚNIOR (2001 P. 159) the low level of mass and muscle weakness has great relation with the deficiency of mobility in aged and fragile people, and this relation is independent of the effect of chronic illnesses, dementia, depression, the other characteristics of the oldness. The system skeletal muscle, in aging process, holds back its capacity to answer to trainings of gradual resistance, and, more important of everything, the correction of the disuse is followed by a significant improvement in the levels of functional mobility and the activity in general way.

In accordance with the data gotten during the research prove that after 12 weeks of training and all the activities carried in the lessons, the searched individuals had gotten significant improvement of the power levels in accordance with the Test to seat and to stand up.

New studies in this population with other physical capacities and tests are suggested to evaluate these variables.

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STUDY OF THE STRENGHT OF THE INFERIOR MEMBRES AFTER A TWELWE WEEKS TRAINING IN ELDERS

ABSTRACT

Introduction: With the population increase of people with age superior to 60 years, the researchers have turned their attentions to questions of the functional capacity and physical dependency. Objective: The present study aimed at verifying the strength of the inferior members in elder people up to 60 years, after 12 weeks of practices of physical activities realized in classes. Methodology: The sample was built upon 13 individuals of both sex, with middle age of 65,69 (s.d.= 4,42) years, participants of a specific program to people of third age. To measure the strength it was used the Sitting and Getting Up Test made by (Matsudo, 2000). The participants, went to the classes three times per week, doing the muscle exercises (one time per week) including extensor chair, flexor chair, aductor, abductor and leg press 45º. During the first 8 weeks the participants realized 2 series of 12 repetitions in each machine and in the other weeks 2 series of 8 repetitions but with increase in the charge. In the other days it was varied the activities with the addition of hikes three times per week. To the analysis of the data was used a descriptive statistics (average and standard deviation) and a "t" test to verify the significant difference between the pre and after-test of the variable. Results: It was observed in the results that the average of the "Sitting and Getting Up" pre-test is of 8,53 and of the after-test is 11,38. The sample in the pre-test cannot be considerate, because its levels are insufficient, but,in the after-test it increases to good leves (Rauchbach,2003). It had a significant difference between the pre and after-test, p=0,000. Conclusions: It may be concluded that after 12 weeks of training and of the realized activities in classes, the individuals had a significant improvement of the strength levels of the inferior members. KEY WORDS: Strenght, training, elders

ÉTUDE DE LA FORCE DES MEMBRES INFÉRIEURS APRÈS UM ENTRAÎENEMENT DE DOUZE SEMAINES POUR LES ÂGÉES

RESUMÉ

Introduction: Avec l'argumentation de la population âgé de plus de 60 ans, l'attention des chercheurs s'est tournée vers les problèmes de capacité fonctionnelle et d e la dependance physique. Objectif: L'objectif de cet étude a été vérifier la force des membres inferieurs en personnes âgées de plus de 60 ans, après 12 semaines de la pratique d'activités physiques dans des cours. Methodologie: L'echantillon a été constitué de 13 individus des deux sexes, avec une âge moyenne de 65,69 ans (d.p.=4,42), participant d'un programme dirigé a cette population. Pour mesurer la force, il a été utilisé le test « assis-debut » de Sandra Matsudo (2000). Les élèves ont eû trois fois des cours par semaine. Une fois dans la semaine ils ont pratiqué des exercices de musculation, incluant la chaise extensive, la chaise flexible, aductor, abductor et leg press 45º. Au cours des huit premières semaines, les élèves ont fait 2 séries avec 8 répétitions sur chaque appareil, et puis, dans les quatre autres semaines, ils ont executé 2 series de 8 répétitions avec argumentation de la charge. Dans les deux autres jours dans la semaine, en outre des marches, les activités pratiqués étaient variées. Pour l`analyse de données, il a été employé la statistique descriptive (moyenne et écart type) et un test "t" pour vérifier la différence entre l'avant et l' après le test de la variable. Resultats: A partir des résultats, nous observons que la moyenne avant le test « assis-debout » était de 8,93 et après de 11,38. L'échantillon avant le test montre des niveaux insuffisants, cependant les resultats après-test montrent des niveaux jugés bons, selon le Programme Troisiéme âge en Movement, de Rosemary Rauchbach (2003),. Il ya a eû une différence très notable entre l'avant et l'après le test, p=0,000. Conclusion: Nous pouvons conclure qu`après 12 semaines d' entraînement et de toutes les activités realisées en cours, les individus ont obtenu une amélioration notable en ce qui concerne les niveaux de force de leurs membres inferieurs.

MOTS-CLE: Force, entraînement , âgées

ESTUDIO DE LA FUERZA DE LOS MIEMBROS INFERIORES DESPUÉS DEL ENTREÑAMIENTO DE DOCE SEMANAS EN IDOSOS

RESUMEN

Introducción: Con el aumento de la población con edad superior a 60 años, las atenciones de los investigadores están volcadas para las cuestiones de la capacidad funcional y de la dependencia física. Objectivo: O presente estudio fue vereficar la fuerza de los miembros inferiores en mayores sobre los 60 años, después de 12 semanas de la práctica de las actividades físicas en las clases realizadas. Metodología: La muestra fue constituida por 13 individuos de ambos sexos, con edad media de 65,69 (d.p.=4,42) años, participantes de un programa especifico para la tercera edad. Para mensurar la fuerza fue utilizado el "Teste de Sentarse y Levantarse" Matsudo, (2000). Los participantes realizaron clases tres veces por la semana. Ejercicios de musculación (una vez por semana), incluyendo silla extensora, silla flexora, aductor, abductor y leg press 45º. Durante las primeras ocho semanas, los participantes realizaron dos series de doce repeticiones en cada aparato, en los restantes dos series ocho repeticiones con el aumento de la carga. En los otros días, las actividades eran variadas, además de caminadas tres veces por la semana. Para el análisis de los dados fue empleado una estadística descriptiva (media y desvío estándar) y un teste "t" para vereficar la deferencia significativa entre el pré y pós-teste de la variable. Resultados: Se observa en los resultados que la media de pré-teste se presenta en nivel insuficiente, ya en lo pos-teste aumentan para los niveles buenos, Rauchbach, (2003). Hubo diferencia significativa entre el pré y pós-teste, p=0,000. Conclusión: Se concluye que, después de 12 semanas de entreñamiento y de todas las actividades realizadas en las clases, los individuos obtuvieron mejora significativa de los niveles de la fuerza de los miembros inferiores.

PALABRAS CLAVES: Fuerza, entrenamiento, anciano.

ESTUDO DA FORÇA DOS MEMBROS INFERIORES APÓS UM TREINAMENTO DE DOZE SEMANAS EM IDOSOS

RESUMO

Introdução: Com o aumento da população com idade superior a 60 anos, as atenções dos pesquisadores têm se voltado para as questões da capacidade funcional e dependência física. Objetivo: O presente estudo foi verificar a força de membros inferiores, em idosos acima de 60 anos, após 12 semanas de prática das atividades físicas nas aulas realizadas. Metodologia: A amostra foi constituída de 13 indivíduos de ambos os sexos, com idade média de 65,69 (d.p.=4,42) anos, participantes um programa específico para a terceira idade. Para mensurar a força foi utilizado o "Teste de Sentar e Levantar", (Matsudo, 2000). Os participantes realizaram aulas três vezes por semana. Exercícios de musculação (uma vez por semana) incluindo cadeira extensora, cadeira flexora, adutor, abdutor, leg press 45º. Durante as primeiras 8 semanas os participantes realizaram 2 séries de 12 repetições em cada aparelho e nas restantes 2 séries de 8 repetições com aumento de carga. Nos outros dias, as atividades eram variadas, além de caminhadas três vezes por semana. Para análise dos dados, foi empregada uma estatística descritiva (média e desvio padrão) e um teste "t" para verificar a diferença significativa entre o pré e pós-teste da variável. Resultados: Observa-se nos resultados que a média do pré-teste de "Sentar e Levantar" é de 8,53 e a do pós-teste é de 11,38. A amostra no pré-teste apresenta-se em níveis insuficientes, já no pós-teste aumentam para níveis bons (Rauchbach, 2003). Houve diferença significativa entre o pré e pós-teste, p=0,000. Conclusões: Conclui-se que, após 12 semanas de treinamento e de todas as atividades realizadas nas aulas, os indivíduos obtiveram melhora significativa dos níveis de força de membros inferiores.

PALAVRAS CHAVE: Força, treinamento e idoso.