65 - TEST APPLICATION FOR LOWER LIMDS IN INSTITUTIONALIZED SENIOR CITIZENE

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INTRODUCTION

Ageing is a natural process that can occur in a health way. Among habits to be acquired, the participation in physical activities has an important role. It has established the most part of ageing negative effects is due to sedentariness, which leads to the disuse of physiological functions (immobility and bad adaptations), and not due to ageing itself, not even to the development of the prevalent chronic diseases of that population (COSTA et al, 2008).

Ageing brings several changes to the subject (neuropsychological, morphological, physiological, biochemical, psychological/psychiatrical, social and cultural); the access to this age group is a dynamic process, and the elderly needs to practice his/her capacity of adaptation to that process and to the environment he/she is living (SCHLINDWEIN-ZANINI, 2010).

In Brazil, senior citizens represent 8,5% of the total population. If the present growing index be maintained, probably until 2025 Brazil is going to have 1/5 of its population in the elderly age group (SAFONS e PEREIRA, 2004).

In literature, it is described muscular mass and strength get their best values from the second and third decades of life, decreasing with ageing (FRONTERA et al, 1991; LAURETANI et al, 2003).

Senior population increases in worldwide. According to IBGE (2001), between 1980 and 2001, for Brazilians (male and female) the average life expectancy passed from 62,7 to 68,9 years, corresponding an increase of 6,2 years. That process is due to economical and social transformations experienced by the developed nations in the last century and, however, just produced significant alterations in 20th century (VERAS, 2002).

Functional losses are related to neuromotor damages well-described as able to seriously jeopardize the senior's quality of life (MATSUDO, 2001). The effects of those losses are visible from 50 years-old, occurring from a tax of 1% a year for the most variables of fitness. Ageing is still accompanied with lower neuromotor performance, due to the decreasing of the number and size of muscle fibers leading to a gradative loss of muscular strength (MATSUDO e BARROS NETO, 2000). Neuropsychological losses can occur in this age group, so applying attention to those factors to be considered in tests regarding to psychology/neuropsychology; and to aspects related to depression, self-esteem, identity, memory deficit, quality of life and the environment where the subject is living (SCHLINDWEIN-ZANINI, 2010).

Meireles (2002) noticed oldness can be understood in two ways: as the apogee of someone's life or as the decadence of someone, according to Platonic and Aristotelian views, respectively. The process of ageing starts from the conception with psychobiological alterations; it is a dynamic and progressive process where there are morphological, functional, psychological and biopsychosocial changes (MEIRELLES, 2000).

Tests application is vital in order to evaluate the efficiency of physical activity programs to senior citizens. Due to their characteristics and specificities, there is the need of knowledge specific tests to make senior citizens' evaluation, in functional and physical matters (MAZO, et al, 2004).

Rikli and Jones (1999) have defended the application of “30-sec Chair Stand” functional tests (sit on and stand up), among others, to identify functional decreasing relating to ageing. These researchers have justified performance values according to age that now are parameters to identify risk age groups in increasing of morbidity and mortality for senior citizens.

LITERATURE REVIEW

Motor evaluation can make possible to diagnose, led and identify alterations in relation to motor performance of a subject in order to get more movement fluency (GALLAHUE & OZMUN, 2001). Evaluation through motor tests allows to verify progressive stages of physical function in order to detect declines on physical parameters and to plan effective strategies of intervention. Moreover, evaluations done in great part of the elderly population have been considered vital in reformulating national law, establishing rules and prediction of active life expectancy (SPIRDUSO, 1995). Muscle strength is the power that a specific muscle uses to make any physical work, in various degrees and for specific limbs (upper limb or lower limb). In elderly, the strength decrease is a phenomenon which can lead to the decline in executing normal activities (as rising from a chair, getting up of a toilet chair, carrying bags, etc) and/or in the intensity of those activities (BRILL et al, 2000).

The applied test (sit on and stand up) was made in order to verify, basically, the strength and resistance of the lower limb (RIKLI and JONES, 1998). The bigger relative strength values of the physically active group are in accordance with the lower percentage of elderly under the cutoff for the 30-sec Chair Stand of the same group, when comparing with the sedentary female senior citizens, so indicating the regular practice of physical activity can contribute to a lower functional and muscle mass decline associated to ageing (HÄKKINEN et al, 2001; LAURETANI et al, 2003).

Weaker musculature of the lower limb can avoid elderly people just use the minimal number of leg muscles needed to maintain balance when the support is moved. When balance is unexpectedly threatened, elderly used to appeal to a strategy which incorporates more and greater muscles (HORAK et al, 1989).

The proportion of subjects who takes part for transversal researches on physical activity and use to work out generally reduces according to ageing (BRAND e KANNEL, 1985; SHEPHARD, 1993). It is necessary to consider carefully the available tests and adults to be evaluated, in order to select the more appropriated test to each situation. Test selection must be guided by the target population, the evaluation purpose and the facility that a test can be conducted (HÄKKINEN et al, 2001, LAURETANI et al, 2003).

There are four basic methods to test a basic function on elderly people: self-evaluation techniques, interviews, observation and functional ability, performance and physical capacity tests (SPIRDUSO, 2005). There are three kinds of performance test: one which incorporates actual motor abilities performed in a diary basis; tasks which simulate diary functional abilities; and tasks designed to prove basic attributes or capacities as basis for diary activities. Performance tests are not so affected by cultural, racial, educational or environmental factors as inventories of self-evaluation or interviews results (SPIRDUSO, 2005).

A small percentage of elderly people who are physically conditioned can be tested using routine physical function tests (SPIRDUSO, 2005).

It is just true in any test situation, when it is determined the physical capacity of an elderly, a very important variable to consider is the anxiety and motivation in relation to the test. Older people have more probability to get excessively and deleteriously anxious due the fact to be tested in their physical capabilities if they believe test results will implicate on their life independence or participation in other enjoyable activities (SPIRDUSO, 2005).

Special matters in testing elderly people have been leading a lot of professionals to choose functional self-evaluation instead of performance aspects. This is not true for those ones who want to evaluate physically independent and conditioned subjects' capacities, but is specially true for doctors and health professionals who need to evaluate subjects physically fragile (SPIRDUSO, 2005).

Reuben et al (1992) have used seven measures of self-evaluation normally administered and three tests of physical performance to compare senior citizens' performance (64 to 94 years-old), whose life conditions were different on independence level: living in a community, living in a sheltered housing and living in retirement housing. After 22 months, data showed most of self-evaluation inventories and all physical performance tests have previewed death and institutionalization. So, that research gave support to the use of both evaluations (self-evaluation and performance), for clinical and research purposes. Index of Physical Incapacity (IPI) was developed by Gerety et al (1993) in order to measure physical limitations and incapacity on fragile senior citizens, living in rented housings.

OBJECTIVE

To evaluate strength and resistance of lower limbs that can interfere on institutionalized senior citizens' quality of life.

METHODOLOGY

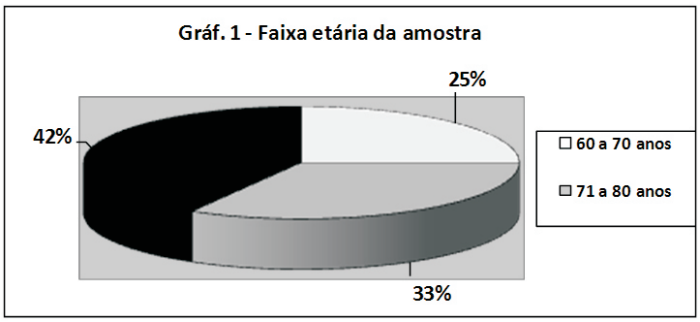
It is a descriptive research, where the target population involves institutionalized senior citizens. Sample was composed by 12 elderly people (men and women), from 60 to 97 years-old, evaluated during one day. Inclusion criteria in the sample were: independence to walk and approval to participate in the research.

It was used the “Scale for evaluating lower limbs strength” according Rikli and Jones (RIKLI, 2007) protocol, registering the complete number of raisings made during 30 seconds with arms crossed on the chest. The equipment used in the evaluation was a chair (43cm height).

Research steps: it was sent the research project to Comitê de Ética em Pesquisas com Seres Humanos (CEP) from Centro Universitário Catarinense (UNIVESC); bibliographical review. Data collection: before the beginning of the collection, the participants received research orientations and assigned the TCLE. Collection was made on September, 1st, 2010, in Asilo Conferência Vicentina, in Lages/SC. For statistical treatment, it was used Microsoft Word 2010 program to design the graphics.

RESULTS AND DISCUSSION

After analysis, all data were transcribed in graphics to better visualization. From 12 participants, 10 were women and 2 were men. In relation to the distribution of the participants by age group, the bigger number were 84 years-old (18%) according to Graphic 1.



Graphic 1 – Sample Age Group 60 to 70 years-old 71 to 80 years-old

In relation to sit-to-stand test, strength of the lower limbs was measured according to Rikli e Jones (RIKLI, 2007) protocol, registering the number of complete risings made in 30 seconds with arms crossed on the chest.

It was observed that most of the research participants showed decreasing of lower limbs strength, although they got to complete the tests. In relation to 97-years-old-woman, she got 25% more with lower limbs strength above the expected for her age (Table 1).

Table 1 – Results of lower limbs strength tests

	AGE (YEARS)										
GENDER	**60**	**61**	**69**	**74**	**75**	**76**	**77**	**84**	**85**	**90**	**97**
FEMALE	14%	8%	10%	13%			15%	21%	7%	9%	25%
MALE					15%	13%		9%			

The study showed results demonstrating senior citizens' health, with signs that have suggested weakness of the lower limbs.

Those results can not be considered absolute ones, but they can help in bringing out test experiences among

professionals who work in prevention problems related to ageing. Moreover, those results can generate hypothesis for future investigations, supply research material for teaching, motivate the professional skills and assist in formulating adequate test parameters and manuals, mainly for institutionalized senior citizens.

Physical strength tests involve a huge psychological component and are related to motivation, which can alter results. This way, it is necessary that the subject and researcher are involved in the research (MAZO et al, 2004).

In this sense, if there is the need of a deeper investigation, the researcher can ask patient to be submitted to psychological and neuropsychological evaluation, inasmuch the performance in physical tests can suffer the interference of psychological and neuropsychological variables.

If the lack of lower limbs strength did not generate future problems, questions on it would be limited to matters which would not care health and well-being. Persistent weaknesses can promote pain, discomfort or incapability. According to Aoyagi and Shephard (1992), as time passes it occurs a significant decrease of lean muscle mass, resulting on loss of muscle strength.

We believe, even with the unavoidable functional misalignments on elderly, there is the possibility to modify, in part, this degenerative process with motor ability evaluation. Through this we can detect which motor areas are being affected by ageing, so helping to improve quality of life. There is the need of verifying senior citizens' functional capacity in order to recognize their physical conditions, mainly strength and resistance.

FINAL CONSIDERATIONS

The early weakness diagnosis in lower limbs is important because has a socioeconomic aspect (less morbid and low cost adequate treatments) as well its relevance on psychological aspects.

This research approached a complex subject with huge social aspect, highlighting the ageing matter, its unfamiliarity and the negligence with senior citizens' sufferings, apparently inoffensive. Due to those facts, this research suggests the routine practice of tests as preventive ways to avoid greater problems in the future. Results can not consider as absolute ones, but they can help on spreading test experiences among professionals who work on prevention, so generating hypothesis for future investigations.

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TEST APPLICATION FOR LOWER LIMDS IN INSTITUTIONALIZED SENIOR CITIZENE

ABSTRACT

Introduction: The aging can be conceptualized as a dynamic and progressive process where there is both morphological changes such as functional, biochemical and psychological loss that determine the adaptability of the individual. Objective: To evaluate the strength and endurance of lower limbs and quality of life for seniors through the test "30-sec Chair Stand test (sitting and rising from a chair in 30 seconds). Methodology: descriptive study, conducted in institutionalized elderly. Inclusion criteria: independence for ambulation and acceptance to participate. Results: 12 elderly people participated (10 women and 2 men), and most have 84 years of age (18% of the sample), who obtained a result of weakness in the legs. Conclusion: we conclude that it is possible to identify future problems in a matter of strength and endurance of lower limbs in institutionalized elderly.

KEYWORDS: Elderly, Institutionalized, Assessment.

APLICATION D' ESSAI POUR LES MEMBRES INFÉRIEURS EN PERSONNES ÂGÉES INSTITUTIONNALISÉES

RÉSUMÉ

INTRODUCTION: L'envieillissement peut-être reconnu comme un processus dynamique et progréssif, où Il y a des modifications soit morphologiques soit fonctionnelles, soit biochimiques et soit psycologiques qui déterminent la perte de la capacité d'adaptation de l'individu. But: Évaluer la force et la résistance des membres inférieurs et la qualité de vie des personnes âgées, à travers du essai “30-sec Chair Stand” (essai s'asseoir et se lever d'une chaise en 30 secondes). Méthodologie: recherche descriptive, realisée en personnes âgées institutionnalisées. Critères d'inclusion: indépendance pour se promener et acceptation à participer de la recherche. Resultés: ils ont participé 12 personnes âgées (10 femmes et 2 hommes), la majorité avec 84 ans (18% du échantillon) qui ont obtenu Le résultat de faiblesse des membres inférieurs. Conclusion: on a conclus qu'il est possible d' identifier les problèmes futurs relationnels à la force et à la résistance des membres inférieurs en personnes âgées.

MOTS-CLÉS: Personne âgée, Institutionnalisé, Évaluation.

APLICACIÓN DE LA PRUEBA PARA MIEMBROS INFERIORES EN PERSONAS MAYORES INTERNADO

RESUMEN

Introducción: El envejecimiento puede ser conceptualizada como un proceso dinámico y progresivo, donde hay cambios tanto morfológicos como bioquímicos funcionales y psicológicos que determinan la pérdida de la capacidad de adaptación del individuo. Objetivo: Evaluar la fuerza y la resistencia de las extremidades inferiores y la calidad de vida de los ancianos a través de la prueba "de 30 segundos Presidente banco de pruebas (sentarse y levantarse de una silla en 30 segundos). Metodología: estudio descriptivo, realizado en ancianos institucionalizados. Criterios de inclusión: la independencia en la marcha, y la participación en la investigación. Resultados: 12 adultos mayores participaron (10 mujeres y 2 hombres), la mayoría con 84 años de edad (el 18% de la muestra), que obtuvo un resultado de la debilidad en las piernas. Conclusión: se concluye que es posible identificar los problemas futuros relacionados con la fuerza y la resistencia de los miembros inferiores en los ancianos institucionalizados.

PALABRAS CLAVE: Ancianos, institucionalizada, la evaluación.

APLICAÇÃO DE TESTE PARA MEMBROS INFERIORES EM IDOSOS INSTITUCIONALIZADOS

RESUMO

Introdução: o envelhecimento pode ser conceituado como um processo dinâmico e progressivo, onde há modificações tanto morfológicas, como funcionais, bioquímicas e psicológicas que determinam a perda da capacidade de adaptação do indivíduo. Objetivo: avaliar a força e resistência dos membros inferiores e a qualidade de vida dos idosos, através do teste “30-sec Chair Stand” (teste sentar e levantar da cadeira em 30 segundos). Metodologia: pesquisa descritiva, realizada em idosos institucionalizados. Critérios de inclusão: independência para deambular e aceitação em participar da pesquisa. Resultados: participaram 12 idosos (10 mulheres e 2 homens), sendo a maioria com 84 anos de idade (18% da amostra), que obtiveram resultado de fraqueza de membros inferiores. Conclusão: conclui-se que é possível identificar problemas futuros relacionados à força e resistência de membros inferiores em idosos institucionalizados.

PALAVRAS-CHAVE: Idoso, Institucionalizado, Avaliação.