56 - PHYSICAL FITNESS INDICATORS FOR ELDER WOMEN OF THE SENIOR PROJECT FOR ACTIVE LIFE OF USJT UNIVERSIDADE SÃO JUDAS TADEU

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INTRODUCTION

The damaging effects of aging on the physical and functional fitness levels of elders are well known. The increase of the chronological age is followed by a reduction of several physical capacities, such as muscle strength, aerobic power, flexibility, balance, agility and reaction time (ACSM, 1999: Spirduse, 1995). Additionally, there are important changes of anthropometrical variables such as the height and bone mass reduction, as well as the increase of the body fat percentage (Matsudo, 2001). Such decline may increase the occurrence of diseases in old age, with possible impact on the elders' features (Alves et al., 2004; Matsudo et al, 2000; Mendonça et al, 2004; Spirduso, 1995; Trancoso & Farinatti, 2002). Keller & Fleury (2000) emphasize that the physical activity may provide positive results for such losses, representing an important component in the process of preventing diseases in elders.

In this sense, the regular practice of physical activity exercises strong impact in the prevention and treatment of several diseases arising from the aging process (ACSM, 1999; Guiselini, 2004; Mendonça et al, 2004). The regularity of the practice of physical exercises has provenly been a "protection factor" against degenerative procedures and metabolic disturbances of the body, such as atherosclerosis, precocious aging, obesity, arterial hypertension (Leite, 2000).

In addition to physiological benefits such as the disease prevention, Nahas (2003) emphasizes that the regular physical activity may originate psychological and social benefits. Okuma (1998) reveals that the participation in physical activity programs means a new discovery path for elders, representing changes which stand beyond the physical fitness, functional capacity and filling of idle time. The inclusion of elders in exercise programs may be a favorable environment for fundamental changes at personal level, with reflex in the way they are and how they relate to the world.

From this point of view, for the purpose of contributing with elder adults to live a well succeeded aging, University São Judas Tadeu implemented a Physical Education Program for Elders, the "Senior Project for Active Life" (Miranda and Velardi, 2002). The project develops its activities since 2002 and during its three years existence had 90 participant elders, being over 90% women. The referred project grounds its intervention actions under the light of the theory of well succeeded aging and the aim is to promote health, with emphasis in health education. The prime object is the development of independence and empowerment of elders, through the teaching and practice of physical activities.

The classes are held twice a week, and last ninety minutes, for a ten months period and develop activities to stimulate the aerobic power, muscle strength, flexibility and neuro-motor exercises. For the assignment of the exercises to be suitable to the fitness level of the participants, these are submitted to a physical and functional evaluation when entering the program. However, we do not know whether the physical fitness level of these elders conforms to the regulations submitted by the literature.

Thus, the object of this study was to trace a physical fitness profile of women over 60 years of age, which entered the "Senior Project For Active Life Of USJT Universidade São Judas Tadeu" during the period 2002 to 2004.

METHOD

Study characterization

According to Thomas & Nelson (2002), this study involving physical fitness variables is characterized as a descriptive research of transversal cut-off.

Sample

This study was held with 81 elder women (68,3 5,1 years) who entered the "Senior Project For Active Life of USJT Universidade São Judas Tadeu" during the period 2002 to 2004. All subjects were volunteers and were conscious of the objectives and purposes of the study, specified in Participation Consent Letters before the holding of the initial tests.

Instrument and Study Variables

To develop this study the individuals/elders were submitted to the following physical fitness tests proposed by Matsudo (2004): Aerobic Power (AP) 800 meters Test; Superior Member Strength (SMS) Elbow Flexion; Strength Inferior Member (SIM) Chair Sitting and Standing exercise; Flexibility (Flex) sitting and reaching; Agility (AGIL) Shuttle Run; Balance (BAL) Static Balance with visual control.

Statistical Analysis

The data were analyzed through description statistics (average and standard deviation).

RESULTS

The results of the tests performed with the elders entering the "Senior Project For Active Life Of USJT Universidade São Judas Tadeu" during the period 2002 to 2004, are shown in Schedule 1 below:

Schedule 1 – Distribution of results in the analyzed variables (x ± s)

AGE	60-64	65-69	70-74	75-79	GENERAL
AP (s)	550,4 ±71 (n=18)	578,9±79,5 (n=15)	588,2±48,3 (n=17)	559,8±50,5 (n=8)	574,7±74 (n=58)
SMS (reps)	20,6±4,7 (n=20)	16,7±6,1 (n=21)	19,1±7,2 (n=16)	17,9±7,8 (n=8)	18,8±6,3 (n=65)
SIM (reps)	13,6±2,6 (n=19)	11,7±3,8 (n=18)	11,8±3,0 (n=12)	11,9±3,6 (n=8)	12,6±2,9 (n=57)
FLEX (cm)	28,2±8,0 (n=19)	24,9±7,3 (n=21)	19,7±10,7 (n=17)	22,6±9,4 (n=10)	24,7±8,9 (n=67)
AGIL (s)	19,7±2,9 (n=17)	19,9±2,5 (n=18)	19,3±6,8 (n=17)	19,3±6,4 (n=9)	20,5±4,5 (n=61)
BAL (s)	23,1±8,2 (n=18)	16,0±10,2 (n=22)	17,1±10,1 (n=17)	16,9±9,4 (n=10)	18±10 (n=67)

reps: repetitions

The results were divided into five groups, being four according to the elders' age (60-64, 65-69, 70-74 and 75-79 years of age) and one general. The groups were divided this way due to a standardization found in the literature, facilitating the comparison with other studies.

Due to physical impossibility or absence on the test day, it was not possible to evaluate the 81 women on the six tests proposed, a fact which resulted in different totals of assessed individuals in each test.

One of the limitations of this study is that the results were presented through averages, which do not take into consideration discrepant values, this way, the major differences between the results do not appear, but solely the averages.

DISCUSSION

The physical fitness reduction with aging is a mandatory occurrence, which starts gradually in the elder and may related to the occurrence of certain diseases and to a low functional capacity, in addition to the possibility of being indirectly related to other factors (Alves et Al., 2004). Additionally, the aging process is an heterogeneous phenomena and physical reductions of different magnitudes may be observed. Thus, to know the fitness levels of elders becomes a crucial factor for the development of physical activity programs for such population. In this sense, with the purposing of defining the fitness values obtained by the present study, it is mandatory now to compare it with similar studies.

In relation to AP of the analyzed participants, this result indicates that these elders show a lower aerobic power than those evaluated by Zago and Gobbi (2003), since the average value presented by such scholars was 500 seconds. In a different statement, the women analyzed by Zago and Gobbi (2003) were able to complete the test path in a lower period of time than the one found by this study, and we can infer they had a higher aerobic power. However, the crucial difference between this work and that submitted by Zago and Gobbi (2003) resides in the characteristics of the population studied, since the quoted scholars evaluated elder women which were physically active for at least six months, whilst for the present study the participants were sedentary.

This difference may also be explained by the participants not being familiar with the proposed test. In a study evaluating the performance of adults in three walking consecutive tests, with 30 minutes intervals, it was possible to observe the increased performance in the three tentatives (Wu, Sanderson and Bittner, 2003). This was attributed to the apprenticeship effect caused by the successive tentatives, a strategy which was not present in this study, since it was not part of the proposal of the Senior Project.

Regarding the muscle strength tests, for SMS the results presented show that the group has a higher performance for this variable, as compared to the values proposed by Matsudo (2004). This is clarified as we analyze that the amount found in the present work for the age bracket 60 to 64 years (20,6 4,7 reps) is superior to that shown by Matsudo (2004) with an average of 164,6 repetitions for the same age bracket. These results are close to those found by Marzilli et al (2004) which were able to show a performance of 192,9 repetitions in a group of fifteen elder women. Regarding SIM, the superior fitness condition was repeated as compared to the study of Marzilli et al (2004), which observed a performance of 11,24,7 repetitions, and the elders of the Senior Project achieved average values above 11 repetitions. On the other hand, the highest value (13,62,6; 60-64 years of age) obtained in the present research, is located a little below those proposed by Matsudo (2004) with 14,5±4 repetitions for the same age bracket, which also shows a higher performance.

On the performance of the flexibility test (FLEX), we can observe that the group shows flexibility levels below the expectations for the age. This is clear when we see the result where only the group from 60 to 64 years of age comes close to the value presented by Matsudo (2004), which covers elders from 60 to 69 years of age (28,1±8,4cm), and as of the second classification level (65-69 years of age) , the elders of this work sow lower flexibility levels. The same relation is repeated when we compare with another group of elders which obtained a 26,5±7,5 cm level, presented by Matsudo et al (2003).

The result of the agility test of the first two age brackets (60-64; 65-69) is located a little above in relation the Matsudo's proposal (2004) of 18,9±3,1s for women between 60 and 69 years of age, that is, the elders of the work now submitted needed more time to complete the agility test proposed, a fact which shows a lightly inferior fitness as compared to the proposed regulatory values. Regarding the results of the balance test (BAL), the group obtained an average general rate of 18±10s, which is lower than the value submitted by Rooks et al (1997) of 19,7±17,6s for elders with average age of 72,7±4,6 years. For elders between 60-69 years of age, Matsudo et al (2003) show values of 19,5±10,5s, a fact which reinforces the degree of fitness slightly inferior to that of the elders described herein.

As of such analysis, we can see that the group has an aerobic fitness compatible for a sedentary group, since it is located a little below the results shown by Zago and Gobbi (2003) for physically active elders. This also happens for the strength rates which were very close or even higher than the proposed regulatory values, as in the case of SMS. However, for the variables FLEX, BAL and AGIL, the group has slightly lower fitness as compared to the studies submitted.

FINAL CONSIDERATIONS

According to the existing literature, the regular physical activity and a good level of physical fitness may be a relevant factor in the process of preventing diseases for elder persons. This way, in compatibility with the proposed object, this study with the elder women of the Senior Project For Active Life of USJT Universidade São Judas Tadeu, has drawn the physical fitness and functional capacity profile.

We observed that in relation to the variables aerobic power, flexibility, agility and balance the group shows inferior fitness elves as compared to the literature. Only for the muscle strength tests, the group analyzed herein has proven to be more qualified. From such findings, we conclude that the elders of this study do not fully fit the regulations submitted for these tests, showing, in the majority of cases, results which are inferior to the average values of the compared studies.

However, such estimated levels below the other studies may be justified by the fact that in the other studies the elders were already part of programs for some time and in this case we have determined the initial profile. In addition, it is important to emphasize that the Senior Project does not have, as its main object, the purpose of improving the physical capacity, since its core characteristic is to develop independence and empowerment of elders, through the teaching and practice of physical activities.

Nevertheless, the results presented herein will serve as parameters for future studies, and may thus favor comparisons inside and outside the project.

REFERENCES

ACSM - American College of Sports Medicine. **Programa de Condicionamento Físico da ACSM**. São Paulo: Manole, 1999.

ALVES, R. V. MOTA, J. COSTA, M. C. ALVES, J. G. B. Aptidão física relacionada à saúde de idosos: influência da hidroginástica. **Revista Brasileira de Medicina do Esporte**. V. 10, n. 1. 2004.

GUISELINI, M. **Aptidão física, saúde e bem-estar: fundamentos teóricos e exercícios práticos**. São Paulo: Phorte, 2004.

KELLER, C. FLEURY, J. **Health promotion for the elderly.** London: Sage Publications, 2000.

LEITE, P. F. **Aptidão Física Esporte e Saúde**. 3º edição. São Paulo: Robe, 2000.

MARZILLI, T.S., SCHULER, P.B., WILLHOIT, K.F., STEPP, M.F. E Effes of a community-based and strength and

flexibility program on performance based measures of physical fitness in older African-American adults. **Californian Journal of Health Promotion**. 2004. 2(3).92-98.
MATSUDO, S. M., MATSUDO, V. K. R., NETO, T. L. B. Efeitos benéficos da atividade física na aptidão física e saúde mental durante o processo de envelhecimento. **Revista Brasileira de Atividade Física e Saúde.** V. 5 (2): 60-76, 2000.
MATSUDO, S. M., Atividade Física e Envelhecimento: aspectos epidemiológicos. **Revista Brasileira de Atividade Física e Saúde**. V. 7 (1): 2-13, 2001.
MATSUDO, S. M. **Avaliação do Idoso: física & funcional**. 2º edição. Londrina: Midiograf, 2004.
MATSUDO, S. M., MATSUDO, V. K. R., NETO, T. L. B., ARAUJO, T.L. Evolução do perfil neuromotor e capacidade funcional de mulheres fisicamente ativas de acordo com a idade cronológica. **Revista Brasileira de Medicina do Esporte.** 2003; 9(6): 365-76.
MENDONÇA, T. T., ITO, R. E, BARTHOLOMEU, T., TINUCCI, T., FORJAZ, C. L. M. Risco cardiovascular, aptidão física e pratica de atividade física de idosos de um parque de São Paulo. **Revista Brasileira de Ciência e Movimento**. 2004; 12(3): 57-62.
MIRANDA, M.L.J.; VELARDI, M. A proposta de Educação Física do Projeto Sênior da U.S.J.T.: Contribuição para uma velhice bem sucedida. In: V Seminário Internacional sobre Atividades Físicas para a Terceira Idade, p. 79-86, 2002. São Paulo. **Anais**.
NAHAS, M. V. **Atividade física, saúde e qualidade de vida: conceitos e sugestões para um estilo de vida ativo**. 3º edição. Londrina: Midiograf, 2003.
OKUMA, S. S. **O idoso e a atividade física: fundamentos e pesquisa**. Campinas: Papirus, 1998.
ROOKS, D.S., KIEL, D.P., PARSONS, C., HAYES, W.H. Self-Paced Resistance training and walking exercise in community-dwelling older adults: effects on neuromotor performance. **Journal of Gerontology**. 1997. 52(3).161-168.
SPIRDUSO, W. W. Physical dimensions of aging. Champaign: **Human Kinetics**, 1995.
THOMAS, J. R. NELSON, J. K. **Métodos de pesquisa em atividade física**. 3º edição. Porto Alegre: Artmed, 2002.
TRANCOSO, E. S. F. FARINATTI, P. T. V. Efeitos de 12 semanas de treinamento com pesos sobre a força muscular de mulheres com mais de 60 anos de idade. **Revista paulista de Educação Física**. V. 16, 220 229, 2002.
WU, G., SANDERSON, B., BITTNER, V. The 6-minute walk test: how important is the learning effect? **American Heart Journal**. 146(1):129-133. 2003.
ZAGO, A.S.; GOBBI, S. Valores normativos de aptidão funcional de mulheres de 60 a 70 anos. **Revista Brasileira de Ciência e Movimento**; v.11, n.2, p.77-86, jun. 2003.

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PHYSICAL FITNESS INDICATORS FOR ELDER WOMEN OF THE SENIOR PROJECT FOR ACTIVE LIFE OF USJT UNIVERSIDADE SÃO JUDAS TADEU.

ABSTRACT

With the aging process, people gradually loose the physical fitness levels and functional capacity. The regular physical activity may be an important element to try to maintain or reduce such losses, and, additionally, may assist in the prevention of certain diseases which are more liable of arising at old age. Thus, the object of this study was to trace a physical fitness profile of women over 81 years of age, which entered the "Senior Project For Active Life of USJT Universidade São Judas Tadeu" during the period 2002 to 2004. The elders participated of a physical fitness and functional capacity series of tests proposed by Matsudo 2004. The data were analyzed through descriptive statistics (average and standard deviation). The analysis of the results showed that, for the aerobic power, flexibility, agility and balance the group shows inferior fitness levels as compared to the literature. Only for the muscle strength tests, the group analyzed herein has proven to be more qualified. From such findings, we conclude that the elders of this study do not fully fit the regulations submitted for these tests, and show how important is the initial evaluation for the prescription of physical activity for conform to the aptitude level of the participants.

Key-words: Physical fitness, elders, aging.

INDICES D'APTITUDE PHYSIQUE CHEZ LES FEMMES ÂGÉES DU PROJET SENIOR POUR UNE VIE ACTIVE DE LA USJT UNIVERSIDADE SÃO JUDAS TADEU.

RÉSUMÉ

En vieillissant, l'être humain perd lentement ses aptitudes physiques et sa capacité fonctionnelle. L'activité physique régulière peut être un élément important du maintient de ces aptitudes ou de la diminution de ces pertes. Elle peut également participer à la prévention de certaines maladies plus courantes à cette période de la vie. L'objectif de cette étude était d'estimer le niveau d'aptitude physique de quatre-vingt une femmes, âgées de plus de soixante ans, inscrites au Projet Senior pour une Vie Active de la USJT (Universidade São Judas Tadeu) durant la période 2002-2004. Ces personnes âgées ont participé à plusieurs tests d'aptitude physique et de capacité fonctionnelle proposés par Matsudo 2004. Les données ont été analysées par statistique descriptive (moyenne et écart étalon). L'analyse des résultats a montré qu'en ce qui concerne la capacité aérobique, la souplesse, l'agilité et l'équilibre, les niveaux du groupe sont inférieurs à ceux répertoriés par la littérature. C'est seulement lors des tests de force musculaire que le groupe analysé s'est montré plus compétent. Face à ces résultats, on peut conclure que ces femmes âgées ne s'adaptent pas totalement aux normes présentées par les tests. Ils démontrent l'importance d'une évaluation préalable pour que le déroulement des activités physiques soit compatible avec le niveau d'aptitude physique des participantes.

Mots-clés : aptitude physique, personnes âgées, vieillissement.

INDICADORES DE APTITUD FÍSICA DE MUJERES ANCIANAS DEL PROYECTO SENIOR PARA LA VIDA ACTIVA DE USJT - UNIVERSIDADE SÃO JUDAS TADEU

RESUMEN

Con el proceso de envejecimiento, las personas gradualmente reducen los niveles de aptitud física y capacidad funcional. La actividad física regular puede ser un elemento importante para intentar mantener o reducir dichas pérdidas, y, adicionalmente, puede ayudar en la prevención de ciertas enfermedades que tienen mayor probabilidad de ocurrir en la vejez. Así, el objeto de este estudio era rastrear un perfil de la aptitud física de mujeres encima de 81 años de edad que hicieron parte

del "Proyecto Senior para la Vida Activa de USJT - Universidade São Judas Tadeu" durante el período 2002 a 2004. Los ancianos participaron de una serie de pruebas de aptitud física y capacidad funcional propuesta por Matsudo 2004. Los datos se analizaron a través de las estadísticas descriptivas (el promedio y desviación estándar). El análisis de los resultados mostró que, para el poder aeróbico, flexibilidad, agilidad y equilibrio el grupo muestra nivel de aptitud inferior cuando comparado a la literatura. Sólo para la prueba de fuerza muscular, el grupo aquí analizado ha demostrado ser más calificado. De dichos resultados, concluimos que los ancianos de este estudio no se encajan totalmente en las regulaciones sometidas para estas pruebas, y esto muestra cómo es importante la evaluación inicial para la prescripción de actividad física conforme al nivel de aptitud de los participantes.

Palabras clave: Aptitud física, ancianos, envejecimiento.

INDICADORES DE APTIDÃO FÍSICA DE MULHERES IDOSAS DO PROJETO SÊNIOR PARA A VIDA ATIVA DA USJT UNIVERSIDADE SÃO JUDAS TADEU.

RESUMO

Com o processo de envelhecimento, as pessoas perdem gradativamente os níveis de aptidão física e capacidade funcional. A atividade física regular pode ser um elemento importante para tentar manter ou amenizar estas perdas e, além disso, pode auxiliar na prevenção de certas doenças que estão mais propícias a surgirem na velhice. Assim sendo, este estudo teve como objetivo traçar o perfil da aptidão física de 81 mulheres com mais de 60 anos de idade, que ingressaram no Projeto Sênior para a Vida Ativa da USJT Universidade São Judas Tadeu, no período de 2002 a 2004. As idosas participaram de uma bateria de testes de aptidão física e capacidade funcional proposta por Matsudo 2004. Os dados foram analisados através da estatística descritiva (média e desvio padrão). A análise dos resultados demonstrou que para potência aeróbia, flexibilidade, agilidade e equilíbrio o grupo apresenta com níveis de aptidão inferiores ao reportado pela literatura. Apenas para os testes de força muscular, o grupo aqui analisado, mostrou-se mais apto. Mediante essas constatações, conclui-se que as idosas deste estudo não se enquadram totalmente nas normatizações apresentadas para estes testes, e mostra o quão importante é a avaliação inicial para que a prescrição de atividade física seja condizente com nível de aptidão dos participantes.

Palavras-chave: aptidão física, idosos, envelhecimento.