123 - ELDERLY, SEDENTARY AND HEALTHY WOMEN'S PERFORMANCE IN TIMED UP AND GO TEST: WORRY ABOUT AGILITY

NATHÁLIA DE OLIVEIRA GONÇALVES, FABÍOLA BERTU,
DANIELA MAGALHÃES, IARA CASTRO, SÍLVIA R. S. ARAÚJO
ESCOLA DE EDUCAÇÃO FÍSICA, FISIOTERAPIA E TERAPIA OCUPACIONAL
UFMG. BELO HORIZONTE, MG BRASIL.
Nath_og@hotmail.com

INTRODUCTION: Every human being passes throw the aging process and each year the world´s population´s life expectative grows (REBELATTO et al., 2006; SOUZA, 2004). This process is part of the human development and is multifactorial, therefore is changeable with each person but in all cases leads to the progressive loss of the functional capacities of the organism (KELLINEN, 2005; TAVARES, 2004) and greats physiologic changes that are negatives to the motor performance, to the functional capacities and to the quality of life of this group, and limiting the functional capacity, that is the capacity to do, with vigor, daily activities, besides raises health´s vulnerability and limit the mobility (ALVES et al., 2004; BROAMAN et al., 2006; FERREIRA & GOBBI, 2003; MOTA & GOBBI, 2003; TRIBESS & VIRTUOSO JUNIOR, 2005). Also, the aging process is also marked, as exposed by Santos et al. (2002) as a decrease of the motor capacities, strength, flexibility, velocity and the vO2 máx. Levels, and these levels are directly bound to the functional capacity (FERREIRA & GOBBI, 2003).

In all these capacities, the agility permits, besides stops or begin a movement, to change rapidly her the direction or the body position, moving the gravity center (FREITAS, 2001; GREGUOL, 2001; MARINS & GIANNICHI, 1998; PITANGA, 2005; ZICO, 2004). It´s dependent of a lot of factors like, age, as old as the person is less positive is the agility (GROSSER, in FREITAS, 2001; MATSUDO et al., 2000), and it´s also dependent of the motor coordination and strength (GREGUOL, 2001). According to others studies (FERREIRA & GOBBI, 2003; SOARES, 2004) power directly affects agility and high levels of agility are related to the reduction of injury risks, as the mobility is easier (FERREIRA & GOBBI, 2003; PERRACINI et al., 2008; SOUZA, 2006), and consequently a higher level of functional capacity. Despite of the importance of this capacity few knowledge is known about agility in elderly women.

So is very important do tests that make possible the control of these capacities' levels to check the influence of a training. And because of these needs that the present research was made, with the aim to appraise the performance of elderly, health and sedentary women in an agility test and consequently appraise this capacity in a functional work, predicting the mobility and balance, important for independency and reduction of injury risks.

Therefore tests were created to measure this capacity. However, because of the direction changes and particular actions that are needed in certain sports the majority of the test are specific to the sports (GREGUOL, 2001) and few are capable to measure the agility in elderly and the Time up and go test appears (TUG). In this changed version of the Get up and go test, the elderly must do an action that require agility get up of a chair, contour a cone, get back to the chair and sit as fast as he can and as said by the authors (PERRACINI et al., 2008; STEFFEN et at., 2002) can predict the mobility, balance e risks of falls, agreeing with others studies (FERREIRA & GOBBI, 2003; GREGUOL, 2001).

Because it is a very simple test and because of the great results of trust and validity showed (PERRACINI et al., 2008; STEFFEN et al., 2002) this test is being widely used to these points, specially to this population, which is interesting evaluate the agility in a functional work, important for independency and reduction of injury risks (FERREIRA & GOBBI, 2003; PERRACINI et al., 2008; SILVA et al., 2008). That is why, this test will be the way to reach the proposed aim which is settle health and sedentary elderly women´s agility level and consequently settle the mobility using the TUG.

METHODOLOGY: 34 elderly women, with 66,1±5,2 years old, healthy and sedentary, voluntarily participated of the study. Every women signed a “termo de consentimento livre e esclarecido” agreeing in participate of the study, and they were asked to wear a suitable clothe to do the test. And they were also warned that could use any supply used daily to help, but not human support. But any of the women used.

The TUG was made in the gymnasium of EEFFTO in UFMG, a chronometer, an arm chair, metric tape e scot tape were needed.

The test begins (PERRACINI et al., 2008) with the woman sit correctly in an arm chair, her back should be in the back of the chair, which can not move during the test.

In the appraiser´s sign the woman gets up, walks until the cone positioned 3 meters of the chair, contours the cone, gets back to the chair and sits again. The women were asked to do the test as fast as they could without running, only walking and the time was register by the appraiser.

RESULTS: The descriptive analysis showed that the least time was 5”88 and the highest was 13”87. 23 elderly women showed a time below 10 seconds, 11 between 10,01 and 20 seconds, none of them did the above 14 seconds, and only 3 did it above 12 seconds.

Table 1. Healthy, sedentary elderly women´s performance in TUG

Women with performance until 10 s	Women with performance between 10,01 s a 20 s	Women with performance above 20,01 s
23	11	0

Table 2. Healthy, sedentary and elderly women´s performance, in %, in TUG

Women with performance until 10 s	Women with performance between 10,01 s a 20 s	Women with performance above 20,01 s
67,6	32,4	0

DISCUSSION: As showed before and supported by other studies (BISCHOFF et al., 2003; PAULA et al., 2007; PERRACINI et al., 2008; STEFFEN et al., 2002) this test has trustable e validity results to the analysis of agility, balance and functional mobility. Paula et al. (2007) say that to healthy elderly women there are no significant differences in the performance in TUG in open and closed areas. This would be important because other studies (PAULA et al., 2007; SOUSA, 2006) say that the fear to walk in outdoors places could reduce the performance in the test.

In other studies (PERRACINI et al., 2008; SILVA et al., 2008) the person that makes the test below 10 seconds has normal performance for healthy people. The ones that performed between 10,01 and 20 seconds are classifieds as fragile elderly or a disable adult, these tend to be independent to the most daily activities, they can get up and walk alone, moving without any help. And the ones with the performance above 20,01 seconds are classifieds as dependents and with functional disturbs, they can´t get out alone e need help to walk.

In this way, 67,6% of the sample can be classified as normal and 32,4% as fragile elderly women with good mobility. They tend to be independent in the majority of the daily activities. This division was also used by Guimarães et al. (2004), and support the results in this research as only 5% of the sample did the TUG above 20 seconds. And this little difference can be explained by the diversity of the sample.

The results of this research are supported by Bischoff et al. (2003). Two groups of elderly women did the TUG, one group of with women living in retiring houses and hospitals and the other with women living in houses of the community, as in the present study, and in the second group none had the time above 20 seconds.

Considering Steffen et al. (2002) that research the performance of healthy elderly women and with no functional problems is possible to say that the group of this study had higher time comparing the descriptive analysis. The study found a average of 8±2 seconds to the performance for the elderly women between 60 and 69 years and 9±2 seconds for elderly women between 70 and 79 years old. However, the samples of the study are smaller and the difference can be explained by the fact that the women were active during the present investigation. What can be an evidence to affirm that people physical active have higher levels of agility an consequently a higher functional capacity. Although there is no way to prove in this moment and further researches are needed.

Bischoff et al. (2003) say that the limit to the classification as healthy elderly women should be 12 seconds or less and the present research confirmed this finds, as 91,2% of the sample had the result as expected.

Perracini et al. (2008) say that results above 14 seconds indicate a high fall risks. Even none women of this research had the result above 14 seconds, what means that even the age start the loss of limbs strength, coordination and special agility, reducing the mobility and raising fall risks (FERREIRA & GOBBI, 2003; MATSUDO et al., 2000; PERRACINI et al., 2008; SILVA et al., 2008; SOARES, 2004; SOUSA, 2004), was not significant enough to consider a high fall risk.

Analyzing the results is possible to see that 32,4% of the women do not have a performance of a normal adult. Remembering that because having change directions, star and stop a movement e do it in the least time, the TUG is an agility test, and this result support the affirmations (GROSSER, in FREITAS, 2001; MATSUDO et al., 2000) that agility is a physical capacity that decrease um the aging process. This conclusion about the decline of physical capacities and functional capacity is also found in Steffen et al. (2002).

Being TUG trustable to predict functional capacity and mobility of a person and considering that to realize it the agility is needed, because the test has change directions, star and stop a movement e do it in the least time, is possible confirm the relationship between functional capacity and mobility described by others studies (FERREIRA & GOBBI, 2003; PERRACINI et al., 2008; SOUSA, 2006).

However few are the studies that relates these tests with agility e more studies need to be done to settle the profile of this population including with bigger samples. After all, knowing the levels of this capacities, is possible to control them e check the influence of a training. And if the agility is related to a person´s functional capacity and mobility, the training and the support of this capacity will help the person to be independent and raise the quality of life.

CONCLUSION: It is possible to affirm that to the sample of this study the performance in TUG, which is test dependent in the person´s agility and consequently the agility level and functional capacity has the majority of women, 67,6%, classified as normal and 32,4%, as fragile elderly women with good mobility. It is also possible that the group has an agile performance that starts to decline comparing to normal adults, but still can not be considered as a group with high fall risks. There were no indication of "fallers" elderly women and 91,2% of the sample had the expected result.

However few are the studies that relates agilities tests with functional capacity and more studies need to be done to find this population profile. This results permits to know not only the characteristics of this group, but also leads the professionals. This results support them to make suitable trainings to this group to maintain good levels of these capacities to this group live with good health and quality of life and be capable of independently live in the community and do their daily activities.

KEYS WORDS: AGILITY, ELDERLY WOMEN, FUNCTIONAL CAPACITY, TIMED UP AND GO

REFERENCES:

ALVES, R.V.; MOTA, J.; COSTA, M.C.; ALVES, J. G. B. Aptidão física relacionada à saúde de idosos: influência da hidroginástica. *Rev Bras Medicina do Esporte.* Vol. 10, Nº 1 Jan/Fev, 2004.

BISCHOFF, H. A.; STAHELIN, H. B.; MONSCH, A. U.; IVERSEN, M. D.; WEYH, A.; DECHEND, M.; AKOS, R.; CONZELMANN, M.; DICK, W.; THEILER, R. Identifying a cut-off point for normal mobility: a comparison of the timed 'up and go' test in community-dwelling and institutionalized elderly women. *Age and Ageing*. 2003; 32: 315320.

BROMAN, G.;QUINTANA, M.; LINDBERG, T.; JANSSON, E.; KAIJSER, L. High intensity deep water training can improve aerobic power in elderly women. *Eur J Appl Physiol* (2006) 98:117-123.

FERREIRA, L.; GOBBI, S. Agilidade geral e agilidade de membros superiores em mulheres de terceira idade treinadas e não treinadas. *Revista Brasileira de Cineantropometria & Desempenho Humano*. 2003; 5(1): 46 53.

FREITAS., E.J. *Análise da velocidade e agilidade de jogadores da categoria mirim (sub-13) após um treinamento de técnica de corrida.* Monografia. Graduação em Educação Física pela UFMG. Belo Horizonte; 2001.

GREGOUL, M. *Análise das variáveis antropométricas, potência de membros superiores e agilidade em jogadores de basquetebol em cadeiras de rodas.* Dissertação. Escola de Educação Física e Esporte da Universidade de São Paulo. São Paulo, 2001.

GUIMARÃES, L. H. C. T.; GALDINO, D. C. A.; MARTINS, F. L. M.; VITORINO, D. F. M.; PEREIRA, K. L.; CARVALHO, E. M. Comparação da propensão de quedas entre idosos que praticam atividade física e idosos sedentários. *Rev. Neurociências*, vol. 12, n. 2, abr/jun, 2004.

KALLINEN, M. Cardiovascular benefits and potential hazards of physical exercise in elderly people. *Journal of Sports*

Science and Medicine 4, Suppl. 7, 1-51. 2005.
MARINS, J. C. B.; GIANNICHI, R. S. *Avaliação e prescrição de atividade física: guia prático*. 3 ed. São Paulo: Shape, 2003.
MATSUDO, S. M.; MATSUDO, V. K. R.s; BARROS NETO, T. Impacto do envelhecimento nas variáveis antropométricas, neuromotoras e metabólicas da aptidão física. *Revista Brasileira de Ciência e Movimento*, Brasília, v. 8, n. 4, p. 21-32, set. 2000.
MOTA,G.R.; GOBBI, S. Efeitos do envelhecimento e do treinamento físico sobre a capacidade de reserva em homens destreinados. *Rev Bras de Fisiologia do Exercício*, Rio de Janeiro, vol. 2, n. 1, fev/maio, 2003.
PAULA, F. L.; ALVES JUNIOR; PRATA, H. Teste timed "up and go": uma comparação entre valores obtidos em ambiente fechado e aberto. *Fisioterapia em Movimento*, Curitiba, v. 20, n. 4, p. 143-148, out./dez. 2007.
PERRACINI, M. R.; GAZZOLA, J.; OKUMA, L. Levantar-se e Caminhar Cronometrado. Disponível em: <http://www.pequi.incubadora.fapesp.br/portal/testes/Timed_UpndGo.pdf>, acessado em: 11.setembro.2008.
PITANGA, F.J.G. *Testes, medidas e avaliação em educação física e esportes*. 4 ed. São Paulo: Phorte, 2005.
REBELATTO, J. R.; CALVO, J. I.; OREJUELA, J. R.; PORTILLO, J. C. Influência de um programa de atividade física de longa duração sobre a força muscular manual e a flexibilidade corporal de mulheres idosas. *Rev. bras. fisioter*. Vol. 10, No. 1 (2006), 127-132.
SILVA, A; ALMEIDA, G. J. M.; CASSILHAS, R. C.; COHEN, M.; PECCIN, M. S.; TUFIK, S.; MELLO, M. T. Equilíbrio, coordenação e agilidade de idosos submetidos à prática de exercícios físicos resistidos. *Rev Bras Med Esporte*, v.14 n.2 Niterói mar./abr. 2008
SOARES, Y. M. *Os efeitos de uma época desportiva nos valores de força explosiva, velocidade de deslocamento, agilidade e composição corporal:* um estudo em jovens basquetebolistas do escalão cadetes. Dissertação. Mestrado em Ciência do Desporto. Porto: Faculdade de Ciências do Desporto e Educação Física, 2004.
SOUSA, C. R. M. *A prática de atividade física por idosos e seus aspectos fisiológicos, psicológicos e sociais.* 2004. Monografia (Graduação em Educação Física) Escola de Educação Física, Fisioterapia e Terapia Ocupacional, Universidade Federal de Minas Gerais, Belo Horizonte, 2004.
SOUSA, P. N. *Efeitos do treinamento de força na estabilidade postural de mulheres idosas*. Dissertação (Mestrado). Escola de Educação Física e Esporte da Universidade de São Paulo, São Paulo, 2006
STEFFEN, T. M.; HACKER, T. A.; MOLLINGER, L. Age- and gender-related test performance in community-dwelling elderly people: Six-minute walk test, Berg balance scale, Timed up & go test, and Gait speeds. *Physical Therapy*. Vol 82. N 2. Fev/2002.
TAVARES, L.H.M. *Atividade física na terceira idade: perspectiva de melhoria na qualidade de vida.* 2004. Monografia (Graduação em Educação Física) Escola de Educação Física, Fisioterapia e Terapia Ocupacional, Universidade Federal de Minas Gerais, Belo Horizonte, 2004.
TRIBESS, S; VIRTUOSO JUNIOR, J. S. Prescrição de exercícios físicos para idosos. *Rev. Saúde Com*. 2005; 1 (2): 163 172.
ZICO, C.C. *Correlação entre velocidade e agilidade no futsal*. Monografia. Graduação em Educação Física pela UFMG. Belo Horizonte; 2004.

Rua José Gonçalves Pimenta, 230. Heliópolis. 99096508.
nath_og@hotmail.com.

ELDERLY, SEDENTARY AND HEALTHY WOMEN'S PERFORMANCE IN TIMED UP AND GO TEST: WORRY ABOUT AGILITY

ABSTRACT:

Every human being passes throw the aging process and this is variable each one, but in all cases leads to the progressive loss of the functional capacities of the organism and physiologic changes that are limiting the functional capacity and mobility. Also, there is a decrease of the motor capacities, including the agility. High levels of this capacity are related to the reduction of injury risks, and a bigger functional capacity. But few knowledge is known about agility in elderly women and these needs that the present research was made, with the aim to appraise the performance of elderly, health and sedentary women in an agility test, the timed up and go test and consequently appraise this capacity in a functional work, predicting the mobility and balance. METHODOLOGY: 34 elderly women, with with 66,1±5,2 years old, healthy and sedentary, voluntarily participated of the study and they made the test, the timed up and go test means, get up of a chair, contour a cone, get back and sit as fast as he can, without run. RESULTS: The descriptive analysis showed that 23 elderly women showed a time below 10 seconds, 11 between 10,01 and 20 seconds, none of them did the above 14 seconds, and only 3 did it above 12 seconds. So, to 67,6% is possible classify like normal and 32,4%, like fragile elderly women or with deficiency, with good mobility. It's possible to say that performance's group is agile, but stars decrease compared to normal adult. However few are the studies that relates agilities tests and more studies need to be done to find this population profile, to leads the professionals

PERFORMANCE DES PERSONNES AGEES EN BONNE SANTE ET SEDENTAIRES TIMED UP AND GO IN TEST : UNE PREOCCUPATION AVEC AGILITÉ

RÉSUMÉ :

Tout être humain par le biais de l'inexorable processus de vieillissement, ce qui est variable selon l'individu, mais dans tous les cas conduit à la perte progressive des capacités fonctionnelles du corps et les changements physiologiques qui limitent la capacité fonctionnelle et la mobilité. De plus, il ya diminution de la motricité, notamment la agilité. La vitesse à des niveaux appropriés liées à la réduction des risques de blessures et d'une plus grande capacité fonctionnelle. Mais on sait peu de choses sur l'agilité dans les anciens et les cette nécessité se pose la recherche, qui vise à évaluer le rendement des personnes âgées en bonne santé et sédentaires dans une épreuve d'agilité, *Timed up and go test* (TUG), et donc évaluer prévoir que la prime de mobilité et équilibre sur la probabilité de chutes. METODOLOGIE:34 plus âgés (66,1±5,2 ans), sains et sédentaires, volontaires ont été et exécuté les TUG, qui se composait d'un télésiège pour remonter d'un cône, la frontière, elle, revenir et construire de nouveau dans les plus brefs délais, sans courir. RÉSULTATS: La description statistique a montré que 23 volontaires avaient des résultats au-dessous de 10 secondes, 11, entre 10,01 et 20 secondes, et seulement 3 de l'essai effectué plus de 12 secondes. Ainsi, 67,6% des personnes âgées ont été classés comme normale et avec une bonne mobilité et 32,4%, en tant que personnes âgées fragiles et sujettes à des chutes. Il n'y avait pas d'indications de caidoras âgées et 91,2% obtenus résultat attendu pour

personnes âgées en bonne santé. Ces données fournissent des subventions pour la formulation d'une formation appropriée afin de maintenir des niveaux adéquats d'agilité pour les plus âgés et ils peuvent vivre en bonne santé, bonne qualité de vie par l'exercice de leurs activités quotidiennes.

RENDIMIENTO DEL ANCIANOS SANOS Y SEDENTARIOS TIMEP UP AND GO: LA PREOCUPACIÓN CON LA AGILIDAD

Todo ser humano a través del inexorable proceso de envejecimiento y esto es variable de acuerdo a la persona, pero en todos los casos conduce a la pérdida progresiva de capacidades funcionales del cuerpo y cambios fisiológicos que limitan la capacidad funcional y la movilidad. Además, hay disminución de habilidades motoras, entre ellas la agilidad. La agilidad a los niveles apropiados en relación con la reducción del riesgo de lesiones y una mayor capacidad funcional. Entonces, el objetivo del estudio fue evaluar el desempeño de ancianos sanos y sedentarios en una prueba de agilidad, timed up and go (TUG), y, por consiguiente, predecir la probabilidad de caídas por la movilidad y el equilibrio evaluados en TUG. 34 mayores (66,1±5,2 años), sanos y sedentarios, participaron voluntariamente y se lleva a cabo el remolcador, que consistió en levantar de la silla, a pie hasta un cono, alrededor de un cono, volver y y sentarse en la silla de nuevo en el menor tiempo. Análisis estadístico descriptivo: 23 voluntarios tenían resultados por debajo de 10 segundos, 11 mujeres de edad avanzada, entre las 10.01 y 20 segundos, y sólo el 3 realizó la prueba de más de 12 segundos. Entonces, 67,6% fueron clasificados como normales y con buena movilidad y 32,4%, como frágiles y propensos a caídas. Se puede decir que, el grupo demostró que el rendimiento ágil comenzó a disminuir en relación a la de los adultos normales y aún no se considera grupo de alto riesgo de caídas. No hubo indicaciones de los mayores caidoras y 91,2% obtenido resultado previsto para ancianos sanos. Esto proporciona subsidios para la formulación de una ajustada intervención a fin de mantener niveles adecuados de agilidad de modo que ancianos puedan vivir con bueno salud, con la calidad de la vida llevando con sus actividades diarias.

DESEMPENHO DE IDOSAS SAUDÁVEIS E SEDENTÁRIAS NO *TIMED UP AND GO TEST*: UMA PREOCUPAÇÃO COM A AGILIDADE

RESUMO:

Todo ser humano passa pelo inexorável processo de envelhecimento e este é variável de acordo com o sujeito mas em todos os casos conduz a perda progressiva das aptidões funcionais do organismo e alterações fisiológicas que limitam a capacidade funcional e mobilidade. Além disso, há decréscimo das capacidades motoras, dentre elas a agilidade. Altos níveis desta estão relacionados à diminuição do risco de lesões e à maior capacidade funcional. Mas pouco se conhece sobre a agilidade em idosas e desta necessidade surgiu a pesquisa, que objetiva avaliar o desempenho de idosas saudáveis e sedentárias em um teste de agilidade, o timed up and go test, e conseqüentemente avaliar esta capacidade em tarefa funcional, predizendo a mobilidade e o equilíbrio. METODOLOGIA: 34 idosas, com idade média de 66,1 ± 5,2 anos, saudáveis e sedentárias, participaram voluntariamente e realizaram o timed up and go test, que consistia em levantar de uma cadeira andar até um cone, contorná-lo, retornar e assentar novamente no menor tempo possível, sem correr. RESULTADOS: A análise estatística descritiva mostrou que 23 voluntárias apresentaram resultados abaixo de 10 segundos, 11, entre 10,01 e 20 segundos, sendo que nenhuma fez acima de 14 segundos, e apenas 3 realizaram o teste acima de 12 segundos. Sendo assim, 67,6% da amostra pode ser classificada como normal e 32,4%, como idosas frágeis ou com deficiência, com boa mobilidade. Pode-se afirmar que o grupo tem um desempenho ágil que começou a declinar em relação à de adulto normal. Entretanto poucos são os estudos que relacionam estes testes com a agilidade e mais pesquisas precisam ser feitas no sentido de traçar o perfil desta população, a fim de orientar a prática dos profissionais.