104 - TRAMPOLINE ACROBATIC FOR PEOPLE OVER FIFTY YEARS OF AGE, AND THEIR INFLUENCE FOR THE BALANCE

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INTRODUCTION

Aging is a process that generates consequences such as loss of adaptability and reduction of features related physiological changes, irreversible and continuous (Spirduso, 2005).

Balance is extremely important for the elderly to avoid falls, as these can accelerate the degenerative process that occurs in aging. Body balance is also suffering from the changes of aging (PEDRO & Amorim, 2008). According Ruwer (2005) and Mounton & Espino (1999), the manifestations of disorders related to balance, generate negative impacts on the elderly, reducing their ability to perform their ADL's. The Acrobatic Trampoline requires a good balance by its practitioners, allowing different motor experiences. Performing any type of physical activity throughout life contributed to the maintenance of a healthy life with a better quality of life (Ribeiro, 2009). In addition, their regular practice helps maintain bone mass, thus reducing the loss exacerbated due to the aging process (Okuma, 1998) and psychological well-being (NERI, 1993). The Acrobatic Trampoline allows motor experiences, generating spatial and positional sensations, notions of time, and coordination capacity of rhythm and movement as well as stimulates the speed of action and reaction (MERIDA & MASSAGARDI, 2002). As well, causes an activation of the circulation, improves aerobic and anaerobic systems and strengthens the locomotor system and support (Riehl, 1977), develops motor skills through repetitive movements or varied (Furtado, Simon, Lemos, 2004), strengthens the muscles and bones, and reduce by 80% the level of stress, providing a safe and effective exercises for the elderly and those with certain physical challenges (Lemos a, et al, 2007). Thus, the main focus of this research was to determine whether the practice of Acrobatic Trampoline influenced the control of posture and balance in elderly subjects over 50 years.

Materials and Methods

We evaluated 10 elderly were divided into 2 groups, 6 able to practice in the TA and 4 in the control group. Data collection was performed through anamnesis and elbow flexion test (Rikli, R & JONES, J, 1999), rising from a chair in 30 seconds (Matsuda, M SM, 2010), sit and reach - Bank of Wells (Matsuda, M SM, 2010), agility Stanziola, L. & PRADO, J. F, (quoted by Spirduso, 2005) and balance (Spirduso, 2005). Data are presented on measurements ± standard deviation, which was compared and inter-group, the training periods: Pre, 30 days, 60 days and 110 days. Data were considered significant with $p \leq 0.05$ by "t" of Student. The elderly women signed a consent form allowing the use of data collected. The tests in all periods were designed to verify that the practice of TA influence on improvement of balance in the elderly. Training with TA was carried out over a period of 3 months, with two weekly classes lasting an hour and a half, always on the same days and times.

Elbow flexion (Rikli & Jones, 1999). Was used for this test; timer; backed chair (without arms), weight of hand (Halter) of the estimated 2 kg sat in the chair with your back straight on the back, feet flat on the floor and command the same evaluator performed in 30 seconds as many elbow flexion. Resulting in the total number of full flexion movements made correctly within the estimated time. **Test your chair in 30 seconds** (Matsudo, 2010). For this test we used: stopwatch; backed chair (without arms) with a height of approximately 43 cm. The individual sitting in the middle of the chair, with arms crossed against the chest, and with your back straight and feet flat on the floor, the sign of the individual evaluator should rise up and getting completely then returns the starting position. The same must perform properly the largest number of movements at the time of 30 seconds. **Sit and reach - Bank of Wells** (Matsudo, 2010). We used the Bank of Wells (adapted) for carrying out this test where the participant sits on the floor with legs straight and feet flat on the wooden bench and removed following the line of the hips and arms on one another. At the sign of the individual assessor is instructed to flex the trunk and move slowly forward, sliding his hands along the tape until it reaches the most distal point, without bending the knees. Three attempts are made, considering the calculation of the maximum value obtained. **Agility** (Stanziola & Prado, 2005) (cited by Spirduso, 2005) is adapted from a test "Shuttle run. We used masking tape for this test, tape measure, stopwatch, two foam blocks of 5 x 5 cm wide and 10 cm in length. Two lines were drawn on the floor with masking tape, which from one point to another at a distance of 9 meters and was 14 cm, measured from their outer edges where the two are placed foam blocks 10 cm from the outside line on flat ground and atritos.O evaluated without the evaluator's command runs as fast up the blocks and get a block at a time and brings up the point of departure, without interruption of the race. Two attempts are made at intervals of 2 minutes, resulting in the shortest route. **Balance** (Spirduso, 2005) this test is to evaluate the static control. Material, stopwatch; space with fixed point for viewing. The individual must remain standing with hands on hips, looking at a fixed point, which should bend one leg at an angle of 90 degrees and stay on the support of the other leg in a time of 30 seconds. Three trials are performed and calculated the average percentage. The test of dynamic equilibrium can be determined with the agility test.

Results

Table 1. Elbow Flexion Test - Right (Rikli & Jones, 1999)

	Pre	30 days	60 days	110 days
Able (Group A)	17,17 ± 3,49	20,83 ± 3,87 ?	24,0 ± 4,05 ?, ?	27,67 ± 4,27 ?, ?, ¦
Delta (?)		0,21	0,40	0,61
Unfit (Group B)	17,75 ± 1,89	12,0 ± 1,41 *	12,75 ± 2,22 *	15,25 ± 3,10 ?, *
Delta (?)		-0,11	-0,04	0,11

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

There was significantly improved in group A in the pre vs. 30 days p = 0.00 vs 60 days p = 0.00 and vs. 110 days p =

0.00. Group B only got better within 30 days vs. 110 days p = 0.01. When you compare groups A and B, there was significant difference between 30 days p = 0.00, p = 0.00 60 days and 110 days p = 0.00.

Table 2. Test of Elbow Flexion - Left (Rikli & Jones, 1999)

	Pre	30 days	60 days	110 days
Able (Group A)	16,33 ± 3,72	19,33 ± 2,73 ?	22, 0 ± 2,90 ?, ?	25,33 ± 2,94 ?, ?, ¦
Delta (?)		0,18	0,35	0,55
Unfit (Group B)	14,0 ± 0,82	12,50 ± 0,58 *	13,50 ± 1,29 *	15,50 ± 0,58 *
Delta (?)		-0,13	-0,07	0,11

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

The group A had significant improvement where pre vs 30 days p = 0.04 vs 60 days p = 0.01 and vs. 110 days p = 0.00. When comparing the two groups noted significant improvement in Group A where we find the period of 30 days p = 0.00, p = 0.00 60 days and 110 days p = 0.00.

Table 3. Flexibility Test - Bank of Wells (Matsudo, 2010)

	Pre	30 days	60 days	110 days
Able (Group A)	19,64 ± 3,32	17,93 ± 3,71 ?	16,38 ± 3,70 ?, ?	15,24 ± 3,18 ?, ?, ¦
Delta (?)		-0,09	-0,17	-0,22
Unfit (Group B)	23,65 ± 3,46	21,20 ± 1,85	20,96 ± 3,34	20,56 ± 3,39 ¦ , *
Delta (?)		-0,10	-0,11	-0,13

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

Group A which received a significant increase pre vs 30 days p = 0.02 vs 60 days p = 0.00 and p = 0.00 110 days. In group B only realize that only a significant improvement in 60 days vs. 110 days where p = 0.01. In the period of 110 days group B had a significantly worse outcome than the group A, p = 0.04.

Table 5. Test Sitting and rising from a chair in 30 seconds (Matsudo, 2010)

	Pre	30 days	60 days	110 days
Able (Group A)	12,0 ± 1,26	15,33 ± 0,82 ?	19,33 ± 1,21 ?, ?	22,67 ± 1,63 ?, ?, ¦
Delta (?)		0,28	0,61	0,89
Unfit (Group B)	10,0 ± 1,41 *	11,0 ± 2,16 *	11,75 ± 0,96 *	12,75 ± 2,22 ?, *
Delta (?)		0,10	0,18	0,28

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

The Group found that the obtained improvement in training and pre vs 30 days p = 0.00, vs. 60 days p = 0.00 and vs. 110 days p = 0.00 .. The group B showed a significant improvement compared 30 days vs 110 days where p = 0.01. When we bought the groups A and B, there was already in the pre significant differences, p = 0.05, p = 0.00 30 days, 60 days p = 0.04 and p = 0.02 110 days , ie, in all periods the group A had a higher speed.

Table 6. Balance Testing - Right Leg (Spirduso, 2005)

	Pre	30 days	60 days	110 days
Able (Group A)	84,80 ± 5,26	88,33 ± 4,08 ?	96,33 ± 3,83 ?, ?	99,17 ± 2,04 ?, ?, ¦
Delta (?)		0,04	0,14	0,17
Unfit (Group B)	68,75 ± 6,40 *	70,25 ± 6,08 *	69,75 ± 4,99 *	70,25 ± 4,92 *
Delta (?)		0,02	0,01	0,02

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

Group A showed positive progressions over the course of training, pre vs 60 days p = 0.01 and vs. 110 days p = 0.01. By comparison the two groups showed that group A had a degree of balance a little higher when the older group B, where the pre-time p = 0.00, 30 days p = 0.00, p = 60 days 110 days 0.00 and p = 0.00.

Table 7. Equilibration Test - Left Leg (Spirduso, 2005)

	Pré	30 Dias	60 dias	110 dias
Able (Group A)	79,00 ± 7,92	82,83 ± 6,18 ?	91,17 ± 4,67 ?, ?	97,50 ± 3,21 ?, ?, ¦
Delta (?)		0,05	0,15	0,23
Unfit (Group B)	70,00 ± 6,73	71,50 ± 5,45 *	72,50 ± 5,69 *	72,50 ± 4,65 *
Delta (?)		0,02	0,04	0,04

Legend: Pre ? ≠, ● ≠30 days, ■ ≠60 days, 110 days ? ≠, ≠* Group A

With the left leg the group A showed significant improvement, pre vs 30 days p = 0.03, vs. 60 days p = 0.00 and vs. 110

days p = 0.00. Thus the group B showed improvement in the pre vs. 60 days where p = 0.03. In connection with this leg, the group A showed significant improvement after 30 days p = 0.02, p = 0.00 60 days and 110 days p = 0.00.

DISCUSSION

The results are encouraging in this studio, it indicated that the elderly to be trained in TA significantly improve the balance, as in other physical valences. Thus showing the benefits generated by the TA in relation to the balance in the elderly. It is observed that one of the limitations of this study was compared to the small sample and short time to study. Nevertheless, the results indicated that the TA has provided training in improving balance in older women, preventing them from falling. However, we suggest further research with a larger number of participants.

CONCLUSION

In this study we observed a significant increase in all physical valences in Group A (training) during those 3 (three) months of research. After analysis of data obtained from group A pre, 30, 60 and 110 days was noted that all the tests they had improved after 30 days of training. The same was not observed in group B, which proves the effectiveness of training used in this study.

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TRAMPOLINE ACROBATIC FOR PEOPLE OVER FIFTY YEARS OF AGE, AND THEIR INFLUENCE FOR THE BALANCE

ABSTRACT

Many are the evidences concerning the reduction of motor skills in older people. Since aging is a physiological phenomenon common to all human beings, characterized by a progressive process, individual and influenced by several factors, where the systems responsible for balance are greatly affected, with the coming of the age, causing a decrease in performance the ability to maintain balance. Physical activities bring beneficial effects to prevent the cognitive decline of elderly people, as well as the maintenance of functional capacity, reduction in the number of falls and fractures, allowing the elderly a better quality of life. The objective of this study was to investigate the influence of the practice of Acrobatic Trampoline (TA) on balance in elderly women with more than 50 years old (± 63.1 years). However strength tests were performed for upper and lower limbs, balance test, agility test and flexibility test on 10 elderly practitioners gym at least twice a week. It was found that seniors who participated in the training program showed improvement in TA increased in all periods of training, not only the balance in question, but also in other physical valences, subject to testing

KEYWORDS: Aging, Trampoline Acrobatics and balance

TRAMPOLINE ACROBATIQUEACROBAT POUR LES PERSONNES DE PLUS DE CINQUANTE ANS, ET LEUR INFLUENCE SUR L'EQUILIBRE

RÉSUMÉ

Nombreux sont les témoignages concernant la réduction de la motricité chez les personnes âgées. Depuis le vieillissement est un phénomène physiologique commun à tous les êtres humains, caractérisé par un processus progressif, individuel et influencés par plusieurs facteurs, dont les systèmes responsables de l'équilibre sont grandement affectées, avec la venue de l'âge, entraînant une diminution des performances la capacité à maintenir l'équilibre. Les activités physiques apporter des effets bénéfiques pour prévenir le déclin cognitif des personnes âgées, ainsi que le maintien de la capacité fonctionnelle, la réduction du nombre de chutes et de fractures, permettant aux personnes âgées une meilleure qualité de vie. L'objectif de cette étude était d'étudier l'influence de la pratique du trampoline acrobatique (TA) sur l'équilibre chez les femmes âgées de plus de 50 ans (± 63,1 années). Cependant des tests de résistance ont été effectués pour les membres supérieurs et inférieurs, test

d'équilibre, de tester l'agilité et la flexibilité de test le 10 gymnase pratiquants âgés d'au moins deux fois par semaine. Il a été constaté que les aînés qui ont participé au programme de formation a montré une amélioration dans TA augmenté dans toutes les périodes de formation, non seulement l'équilibre en question, mais aussi dans d'autres valences physique, soumis à des tests

MOTS-CLÉS: vieillissement, acrobatie sur trampoline et d'équilibre.

TRAMPOLÍN ACROBÁTICO PARA PERSONAS MAYORES DE CINCUENTA AÑOS DE EDAD, Y SU INFLUENCIA EN EL EQUILIBRIO

RESUMEN

Muchas son las evidencias relativas a la reducción de las habilidades motoras en las personas mayores. Puesto que el envejecimiento es un fenómeno fisiológico común a todos los seres humanos, que se caracteriza por un proceso progresivo, individual y depende de varios factores, donde los sistemas responsables de balance se ven muy afectados, con la llegada de la edad, causando una disminución en el rendimiento la capacidad de mantener el equilibrio. Las actividades físicas pueden producir efectos beneficiosos para prevenir el deterioro cognitivo de las personas mayores, así como el mantenimiento de la capacidad funcional, la reducción en el número de caídas y fracturas, lo que permite a los ancianos una mejor calidad de vida. El objetivo de este estudio fue investigar la influencia de la práctica de Trampolín Acrobático (TA) sobre el equilibrio en las mujeres de edad avanzada con más de 50 años (± 63,1 años). Sin embargo las pruebas de resistencia se realizaron para miembros superiores e inferiores, prueba de equilibrio, prueba de agilidad y flexibilidad de la prueba el 10 de gimnasio profesionales de edad avanzada por lo menos dos veces por semana. Se encontró que los adultos mayores que participaron en el programa de entrenamiento mostraron una mejoría en la asistencia técnica aumentó en todos los períodos de formación, no sólo el equilibrio en cuestión, sino también en otras valencias físicas, sin perjuicio de las pruebas.

PALABRAS CLAVE: Envejecimiento, Trampolín Acrobático y el equilibrio.

TRAMPOLIM ACROBÁTICO PARA IDOSOS COM MAIS DE CINQUENTA ANOS DE IDADE, E SUA INFLUENCIA PARA O EQUILÍBRIO

RESUMO

Muitas são as evidências referente à diminuição das habilidades motoras em pessoas idosas. Visto que o envelhecimento é um fenômeno fisiológico comum a todo o ser humano, caracterizado por um processo progressivo, individual e influenciado por diversos fatores, onde os sistemas responsáveis pelo equilíbrio são bastante afetados, com a chegada da idade avançada, provocando uma diminuição do desempenho na habilidade de manter o equilíbrio. As atividades físicas trazem efeitos benéficos de prevenção do declínio cognitivo dos idosos, assim como a manutenção da capacidade funcional, redução no número de quedas e de fraturas, possibilitando ao idoso uma melhor qualidade de vida. O objetivo deste estudo foi verificar a influência da pratica do Trampolim Acrobáticos (T.A.) sobre o equilíbrio em idosas com mais de 50 anos de idade (± 63,1 anos). No entanto foram realizados testes de força de membros superiores e inferiores, teste de equilíbrio, teste de agilidade e teste de flexibilidade, em 10 idosas, praticantes ginástica ao menos duas vezes por semana. Verificou-se que os idosos que participaram do programa de treinamento no T.A. apresentaram melhoras crescentes em todos os períodos de treinamento, não só em questão ao equilíbrio, mas também nas demais valências físicas, submetidas a testes.

PALAVRAS CHAVES: Envelhecimento, Trampolim Acrobático e equilíbrio.