



Original article

Effects of sensory motor training of lower limb in sedentary elderly as part of functional autonomy



A.A. Barbosa Rezende^a, E. Fernandes de Miranda^{a,b,*}, H. Souza Ramalho^a, J.D. Borges Da Silva^a, S.D. Silva Carlotto Herrera^a, G. Rossone Reis^a, E.H. Martin Dantas^{b,c}

^a Centro Universitário UnirG, Gurupi-TO, Brazil

^b Laboratory of Biosciences of Human Motricity (LABIMH) of the Federal University of Rio de Janeiro State (UNIRIO), Rio de Janeiro, Brazil

^c University Tiradentes (UNIT), Brazil

ARTICLE INFO

Article history:

Received 7 September 2013

Accepted 28 May 2014

Keywords:

Motor activity

Elderly

Limited mobility

ABSTRACT

Objective: Assess the effects of sensorimotor training on the functional autonomy levels of sedentary elderly people.

Methods: The sample was composed of 30 women (sedentary, functionally independent, $\chi = 65.03 \pm 4.93$ year), divided randomly into two groups: control (CG, $n = 15$) and experimental (EG, $n = 15$). Tests developed by the Latin American Development for the Elderly Group (GDLAM) were used to evaluate autonomy. The EG was submitted to a sensorimotor program three times a week, involving 24 thirty-minute sessions. Data were processed using the SPSS program, with a 5% significance level.

Results: The EG showed a significant reduction in execution time in all the tasks, while the CG only obtained a significantly better score on the 10-M walk test. Although the EG improved in the GDLAM index ($\Delta\% = -30, 3\%$, $p = 0.0001$), it remained at a “weak” level (GDLAM index > 27.42).

Conclusion: The results demonstrate that sensorimotor training reduces the execution time of tasks, as well as improving functional performance in activities of daily living.

© 2013 Consejería de Educación, Cultura y Deporte de la Junta de Andalucía. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Efectos del entrenamiento sensorio motriz del miembro inferior en ancianos sedentarios como parte de su autonomía funcional

RESUMEN

Objetivo: Evaluar los efectos del entrenamiento sensorio motriz en los niveles de autonomía funcional del anciano sedentario.

Método: La muestra se compuso por 30 mujeres (sedentarias, independientes funcionalmente, $65,03 \pm 4,93$ años) divididas al azar en 2 grupos: control (CG, $n = 15$) y experimental (EG, $n = 15$). Para la evaluación de la autonomía se utilizaron las pruebas del Grupo del Desarrollo Latinoamericano para la Madurez (GDLAM) antes y después de la intervención. El EG fue sometido a un programa de entrenamiento sensorio motriz, 3 veces a la semana, la duración de cada sesión fue de 30 minutos y realizaron 24 sesiones. Los datos se procesaron con el programa SPSS, versión 19, adoptando nivel de significación de la $p < 0,05$.

Resultados: En el grupo experimental se constató una reducción significativa del tiempo de ejecución en todas las tareas, mientras el CG solo obtuvo resultado significativamente mejor en la prueba de caminata de 10 m. En el índice general de GDLAM, el grupo experimental presentó mejora ($\Delta\% = -30, 3\%$, $p = 0,0001$), pero se mantuvo en un nivel «débil» (Índice GDLAM $> 27,42$).

Palabras clave:

Actividad motora

Mayores

Limitación de la movilidad

* Corresponding author at: Centro Universitário UnirG, Gurupi-TO, Brazil.

E-mail address: eduardounirg@gmail.com (E. Fernandes de Miranda).

Conclusión: Los resultados muestran que la práctica del entrenamiento sensorio motriz influye de forma positiva en la reducción del tiempo de ejecución de las tareas, lo que se relaciona con el mejor rendimiento funcional de las actividades cotidianas.

© 2013 Consejería de Educación, Cultura y Deporte de la Junta de Andalucía. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Efeitos do treinamento sensório-motor de membros inferiores em idosos sedentários como parte de sua autonomia funcional

R E S U M O

Palavras-chave:
Atividade motora
Idoso
Limitação da mobilidade

Objetivo: Avaliar os efeitos do treinamento sensório-motor sobre os níveis de autonomia funcional de idosos sedentários.

Métodos: A amostra foi composta por 50 mulheres (sedentárias, funcionalmente independentes, $65,03 \pm 4,93$ anos) divididas aleatoriamente em 2 grupos: controle (CG, $n = 15$) e experimental (EG, $n = 15$). Para a avaliação da autonomia funcional foi utilizado o teste Grupo de Desenvolvimento Latino-Americano para a Maturidade (GDLAM) antes e após a intervenção. O grupo EG foi submetido a um programa de treinamento sensório-motor, 3 vezes por semana, com duração de 30 minutos cada sessão, e foram realizadas durante 24 sessões. Os dados foram processados através do programa SPSS, versão 19, adotando nível de significância de $p < 0,05$.

Resultados: No grupo experimental foi constatada uma redução significativa do tempo de execução em todas as tarefas, enquanto que o grupo CG obteve resultados significativamente menores no teste de caminhada de 10 m. No índice geral do GDLAM, o grupo experimental apresentou melhora ($D\% = -30,3\%$, $p = 0,0001$), porém se manteve em nível «fraco» (índice GDLAM $> 27,42$).

Conclusão: Os resultados mostraram que a prática do treinamento sensório-motor influencia de forma positiva na redução do tempo de execução das tarefas, relacionando-se com melhor rendimento funcional das atividades cotidianas.

© 2013 Consejería de Educación, Cultura y Deporte de la Junta de Andalucía. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Mobility is one of the most important aspects of physical function, especially as a prerequisite for executing activities of daily living (ADL) and maintaining independence.¹ Thus, a significant decrease in the gait pattern of elderly individuals hinders the execution of activities such as walking, climbing up and down stairs, moving in and out of bed or a chair, personal hygiene, shopping and remaining active, thereby progressively compromising functional capacity.^{2,3}

The elderly have reduced muscle strength, suffering from negative influence on the ability of sensory discrimination, with consequent loss of motor coordination, balance and proprioception.^{4–6}

Likewise in elderly autonomous, there is a possibility that these defects, over time, may occur, affecting the pattern of movement and decreasing the individual's ability to walk and minimize the risk of falls. Since gait is a complex motor phenomenon, resulting from the interaction of neurological, musculoskeletal, vestibular and somatosensory systems and is one of the most important aspects of physical function and prerequisite for the execution of daily living (ADLs) activities, there may arise disability and functional dependence^{7–9} is important to test the efficacy of interventions aimed to recover and extend the good operational status of the march, aiming to promote functional autonomy of the elderly.

During the aging process these suffer impairment due to various factors, joint, muscle and nerve factors, and also because of balance disorders^{5,10} resulting in limitations in ADLs that negatively affect the self-confidence of the elderly, hampering their execution, due to fear of falling or other physical, psychological or social factors. Moreover, these restrictions may progressively compromise the functional autonomy over time, creating an irreversible cycle, resulting in total dependence or even bed confinement.¹¹

Functional autonomy is defined as follows: autonomy of action, referring to the notion of physical independence; autonomy of will, that is, the possibility of self-determination; and autonomy of thoughts, related to the possibility of judging any situation.^{12,13} Autonomy of action is also referred to as functional autonomy, describing the ability of an elderly individual to independently perform ADLs.¹²

Physical activity has produced positive effects on maintaining functional autonomy and is a preventive factor against functional limitations, that is, the inability to sustain normal daily tasks, in addition to enhancing performance in ADLs.^{14–15}

Several studies have investigated the benefits of physical activity on functional autonomy;^{1,14,15} however, there is a lack in regards to the training of sensorimotor functional activities that simulate displacement influencing ADLs and therefore part of the functional autonomy protocols.

The aim of the present study was to assess the effects of sensorimotor training of the lower limb in sedentary elderly as part of functional autonomy.

Methods

Subjects

Thirty sedentary, autonomous and functionally independent women, aged between 60 and 75 years ($\chi = 65.03 \pm 4.93$) and enrolled in the Physical Activity and Rehabilitation Program for Autonomy in the Elderly (PARPAE) at the Centro Universitário UnirG in Gurupi, Brazil, were randomly selected.

The following exclusion criteria were adopted: the need for walking aids or assistance from another person; suffering from cardiovascular diseases that limit physical exercise; visual acuity

Download English Version:

<https://daneshyari.com/en/article/4085712>

Download Persian Version:

<https://daneshyari.com/article/4085712>

[Daneshyari.com](https://daneshyari.com)