https://doi.org/10.6063/motricidade.32891

Abstract

Effect of a community dual-task exercise program on physical fitness of elderly: the MEMO_MOVE program

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Conflict of interest: nothing to declare. **Funding:** This work was supported by CIDESD (NORTE-01-0145-FEDER-000083).

The elders experience a progressive loss of cognitive and physiological functions, including cognitive impairment and functional motor skills. It is estimated that by 2050, the number of people with dementia will reach 131.5 million worldwide (World Health Organization, 2015). In addition to cognitive and behavioural deficits, people with dementia have increased deficits in balance, gait and motor coordination, leading to an increased risk of falls. Exercise improves cognitive and physical functions and is an important contributor to functional independence. The aim of this study was to determine the effect of a tailored dual-task exercise program on physical fitness in people over 65 years of age in the Fundão community. The longitudinal study included elderly people aged ≥ 65 years. Twenty-five community residents, 13 female (F; age: 71.37±11.77 years; height: 160.46±0.08cm; body mass: 67.29±13.67 kg) and 12 male (M; age: 71.25±9.26 years; height: 169.54±3.67 cm; body mass: 79.98±11.94 kg) participated in this cross-sectional study. All participants received a six-month individualised exercise program.

Physical fitness was assessed at baseline and the end of the intervention using the Rikli and Jones Test (Rikli & Jones, 1999) for cognitive functions using the MOca test battery (Hobson, 2015). Pre-post analysis was conducted using a t-test for paired samples. As this is a community-based program, there is no control group, as participants in the program are evaluated. A general improvement was found in all tests, from baseline to post-test. Significant differences were found for all physical fitness tests, walking 6 minutes (P=0.006), push-ups (P=0.006), sitting and walking 2.44 m (p=0.006), sitting and standing from a chair (P=0.003), sitting and reaching (P=0.003) and reaching behind the back (P=0.036). There were significant improvements in cognitive functions: Visuospatial/executive (P=0.002), Naming (0.000), Attention: sequence of numbers (P= 0.001), Attention: Subtraction (P=0.001), Language: repetition (P=0.042), Abstraction: similarities (P=0.003) Memory: delayed recall (P=0.004), Orientation (P=0.000), Total Score MOCA (P=0.000). This trial of a personalised dual-task exercise intervention presents preliminary evidence that the MEMO_MOVE community program can improve physical fitness in the elderly, which may decrease the prevalence of falls, a prevalent accident in this population.

Keywords: Mild Cognitive Impairment, Physical Fitness, Aging, Community program

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