

Title: Characterization of cognitive and functional performance in everyday tasks: implications for health in institutionalized older adults

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Abstract: Functional and cognitive difficulties have been associated with early cognitive decline in older adults and increased risk for conversion to dementia in cognitive impairment, but our understanding of this decline has been limited by a dearth of objective methods. The primary purpose of this study was to investigate functional and cognitive performance in institutionalized older adults. Ten subjects [(78.1 years (9.5), 158.4 cm (9.6), 68.2 kg (13.2), 27 BMI (3.9)] performed a battery of functional ability tests. These tests included functional measures as chair stand test (STS), 6-minute walking test (6MWT) and get-up and go test (GUG). Cognitive impairment was evaluated by mini mental state examination test (MMSE), activities of daily living using barthel index (BI) and balance assessment with tineti test (TT). Results showed lower performance in all tests ( $P \leq 0.05$ ). Chair stand test ( $9.8 \pm 3.0$  repetitions), 6MWT ( $226.4 \pm 114$  meters), GUG ( $14.0 \pm 10.9$  seconds), MMSE ( $21.4 \pm 5.9$  total score) BI ( $95 \pm 5.5$  total score) and TT ( $21.9 \pm 5.0$  total score) at baseline of the study. Results suggest that the effectiveness of health intervention programs with dual-task seems to be the new strategic way to improve functional capacity and cognitive performance and can be useful in decrease functional decline in institutionalized older adults. Activities targeting episodic memory may be most effective in addressing early functional impairment in older age.

Keywords: Cognition, Dual-task, Gait, Muscular performance, Institution, Health promotion