Relationship of backward walking to clinical outcome measures used to predict falls in the older population: A factor analysis

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Background: Backward walking has been found to be a more sensitive measure to detect fallers than forward walking. It involves greater reliance on neuromuscular control to make up for the lack of vision. In fact, backward walking speed has been determined to more accurately identify fallers in the older population than forward walking. This study examined if backward walking measures more than one underlying factor while also the examining the relationship between it and other clinical measures used to identify falls risk.

Methods: A convenience sample of 57 older adults (10 males and 47 females) with a mean age of 78.8 years (SD 8.9 years) participated in this cross-sectional study. Subjects walked backward on the computerized walkway system recording gait velocity, stride and step length, stance and swing time, single and double support. Additionally, subjects were tested on clinical measures commonly used to assess falls risk. An exploratory factor analysis was performed on various aspects of backward walking. Factor scores were found and then correlated with the selected clinical measures.

Results: Results revealed that there are 2 factors associated with backward walking: cadence and velocity. Cadence was only mildly correlated to one measure whereas velocity was highly correlated with each of the known predictors of falls used.

Conclusion: Given theses findings, a clinician could quickly measure backward walking velocity and count the number of steps an individual takes in order to screen those at-risk for falls.

Biography

Maritz C A has received her certificate in Physical Therapy from Hahnemann University in Philadelphia in 1981 and her Master's degree in Gerontology in 1988 from Saint Joseph's University. In 2004, she has received her Doctorate in higher education from Nova Southeastern University. She has practiced in the following settings: acute, skilled nursing, outpatient and home care with a focus on the geriatric patient. She has started her academic career as a Physical Therapy Faculty Member at Hahnemann University in 1995 and is currently a Professor of Physical Therapy and Associate Dean at University of the Sciences. Her research focuses on the use of exercise to prevent falls in the older population. She has presented and published her research both nationally and internationally.

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