

## Dementia 2015: Adapting the Tinetti tool for balance and gait for person with dementia

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**Background:** A recent review of the literature reveals an absence of standardized measures to assess mobility in persons with advanced dementia. Persons with moderate to severe dementia have significant difficulty adhering to instructions. The aim of the study was to develop an identical measure of gait and balance to be used with persons with dementia. We chose to switch the 'Tinetti Assessment Tool for Balance and Gait' because many of the things are supported observation. Modification of test items requires analysis of reliability before establishing validity. **Objective:** to see the inter-rater and test-retest reliability of 'Tinetti Assessment Tool for Balance and Gait-Dementia' **Methods:** Inter-rater reliability: Participants were observed and scored simultaneously by two raters conversant in the written instructions (physiotherapy, psychiatrics or nursing staff). Test-retest reliability: The test was re-administered after 10 to half-hour. **Results:** a complete of n=20 participants were recruited and included. The mean age of participants was 75 with the bulk being female (n=11, 55%). All were diagnosed with dementia or cognitive impairment. Secondary diagnoses include heart condition, diabetes and Parkinson's disease. The mean cognitive assessment (SMMSE) score was 8.5/30 (n=12). Inter-rater reliability of the overall score was high (r=0.90) as was test-retest reliability (r=0.92). **Discussion:** These results are like established reliability of the initial Tinetti tool (r>0.8). The results indicate that the modified measure has sufficient reliability to commence validity testing. Developing a measure that assesses functional changes during this population is vital for determining the impact of mobilization and least restraint programs for people with dementia in future care. Further study will establish validity of the cut score for predicting falls risk. Falls in frail elderly are a typical problem with a rising incidence. Gait and postural instability are major risk factors for falling, particularly in geriatric patients. As walking requires attention, cognitive impairments are likely to contribute to an increased fall risk. An objective quantification of gait and balance ability is required to spot persons with a high tendency to fall. Recent studies have shown that stride variability is increased in elderly and under dual task condition and may be more sensitive to detect fall risk than walking speed. within the present study we complemented stride related measures with measures that quantify trunk movement patterns as indicators of equilibrium ability during walking. The aim of the study was to quantify the effect of impaired cognition and dual tasking on gait variability and stability in geriatric patients.

Walking in standard of living places high demands on the interplay between cognitive and motor functions. A well-functioning dual-tasking ability is thus essential for walking safely. The aims were to review longitudinal changes in gait function during single- and dual-tasking over a period of two years among people with initially mild AD (n=21). Data were collected on three occasions, twelve months apart. An optical motion capture system was used for three-dimensional gait analysis. Gait parameters were examined at comfortable gait speed during single-tasking, dual-tasking naming names, and naming animals. The dual-task cost for gait speed was pronounced at baseline (names 26%, animals 35%), and remained so during the study period. a major (p<0.05) longitudinal decline in gait speed and step length during single- and dual-

tasking was observed, whereas double support time, step width and step height showed inconsistent results. Systematic visual examination of the motion capture files revealed that dual-tasking frequently resulted in gait disturbances. Three main characteristics of such disturbances were identified: Temporal disturbance, Spatial disturbance and Instability in single stance. These aberrant gait performances may affect gait stability and increase the chance of falling. Furthermore, the observed gait disturbances can contribute to understanding and explaining previous reported gait variability among individuals with AD. However, the role that dual-task testing and aberrant dual-task gait performance play within the identification of people with early signs of cognitive impairment and in predicting fall risk in AD remains to be studied.

**Recruitment—**Potential participants were identified by members of their care team and consent sought from substitute decision-makers (SDMs). Participants with dementia were included and excluded with delirium or medical instability. **Data collection—**Inter-rater reliability: Participants were observed and scored simultaneously by two raters aware of the written instructions (physiotherapy, psychiatrics or nursing staff). Test-retest reliability— the test was re-administered after 10 to half-hour. a complete of n=20 participants were recruited and included.

The mean age of participants was 75, with the bulk being female (n=11, 55%). All were diagnosed with dementia or cognitive impairment. Secondary diagnoses include heart condition, diabetes, and Parkinson's disease. The mean cognitive assessment (SMMSE) score was 8.5/30 (n=12). Inter-rater reliability of the overall score was high (ICC= 0.85) as was test-retest reliability (ICC=0.92).

These results are cherish established reliability of the initial Tinetti tool (ICC>0.8) (Kekelmeyer, Kloos, Thomas & Kostyk, 2007). The results indicate that the modified measure has sufficient reliability to commence validity testing. Developing a measure that assesses functional changes during this population is vital for determining the impact of mobilization and least restraint programs for people with dementia in future care. Further study will establish validity of the cut score for predicting falls risk.

**Foot Note:** This work is partly presented on 3rd International Conference on Alzheimers Disease & Dementia