

## **ABSTRACT for Canadian Association on Gerontology Meeting 2013**

**Title:** Can smart mat technology measure mobility improvements seen in geriatric Day Hospital out-patients?

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**Background:** Transfer training is commonly provided as part of rehabilitation efforts to improve the independence and safety of geriatric patients. Although a number of functional clinical measures include components involving sit-to-stand, none focus solely on this ability which is fundamental to independence.

**Objective:** To determine whether pressure-sensitive mat technology can measure changes in sit-to-stand transfer times among Day Hospital patients over the course of treatment.

**Methods:** An S4 pressure-sensitive mat was placed under a bed mattress and connected to a computer. Participants with mobility problems were asked to rise from the bed at 3 points in time during the course of treatment at a Day Hospital (i.e. admission, midway, discharge). Computerized algorithms were used to determine sit-to-stand transfer times based on pressure-sensitive mat data. Functional performance measures (Berg Balance Scale, 6 Minute Walk Test and Timed Up & Go) were also collected at three points in time.

**Results:** Twenty-eight patients, mean age 82 years, agreed to participate. Mean sit-to-stand times were 1.69 seconds at admission, 1.58 seconds midway and 1.39 seconds at discharge. All functional performance measure means improved -Timed Up & Go by 8.1 seconds, Berg Balance Scale by 4.4 points and 6 Minute Walk Test by 79 meters.

**Conclusion:** The pressure-sensitive mat detected a trend of improving sit-to-stand times which corresponded with clinical improvements. Further research is required to confirm correlations. The ability to monitor changes with pressure-sensitive mat technology has implications for being able to detect declines in mobility remotely following discharge from hospital.