The use of a pressure-sensitive mat to monitor bed transfer changes in an older adult

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BACKGROUND

- Falls among older adults are associated with significant morbidity and mortality
- Pressure-sensitive mats have been used successfully to differentiate between transfers in healthy older adults and those with mobility impairment
- Longitudinal data on bed transfer variability in an older adult may show changes which could predict a fall

OBJECTIVE

- Determine whether changes in functional mobility can be detected by a pressure-sensitive mat in a community dwelling older adult over time

METHODS

- DESIGN: Observational case study
- MATERIALS: Tactex Systems Inc. Bed Occupancy Sensor placed under the mattress
- SUBJECT: 79 year old woman
- LOCATION: Seniors apartment building in Ottawa, ON
- TIME LINE: December 2011 to June 2012
- METHODOLOGY: Data collected on a Dell Optiplex computer. MT developed custom algorithms written in Matlab software to analyse transfer timing.

RESULTS

Clinical Outcome Measures

![Graph showing clinical outcome measures]

Mat Measures of First Morning Transfer

![Graph showing mat measures]

CONCLUSION

- The mat was able to detect changes in mean transfer times over a half-year period
- These changes corresponded to a clinically meaningful change in functional measures
- Given the variability of unobtrusively monitored transfers, a larger amount of data will be required to show statistically significant change over time
- We believe that this is the first time longitudinal bed transfer timing data have been collected from an older adult in their home.

REFERENCES


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