Purpose Falls are a major source of morbidity and mortality in older adults. Reducing their frequency could lead to significant improvements in the quality of life of older adults, and reduce health care expenditures. The TAFETA (Technology Assisted Friendly Environment for the Third Age) program of research has been using a pressure sensitive mat to develop an unobtrusive home monitoring system to analyse the quality of transfers in older adults[1-5]. In this study, the goal was to assess whether the mat could help differentiate between older adults with normal mobility versus those with mobility challenges. **Method** Fifteen older adults: five healthy volunteers (HV), five patients recuperating from hip surgery (PH) and five recuperating from a cerebrovascular accident (PS), were recruited from a Canadian rehabilitation hospital. Inclusion criteria included being able to transfer out of bed independently (FIM≥5). A set of three pressure sensor arrays, each containing 44 fibre optic pressure sensors, were placed under the mattress of a bed (*Figure 1*). Each participant was videotaped while performing 10 transfers out of bed from a lying position. The data from the mats were transmitted via an NPort server box into a Dell Latitude laptop computer. Proprietary Tactex software collected the data, and it was then analysed with custom algorithms written in Matlab. **Results & Discussion** The average age of the participants was 74.5 years (HV 70.2, PH 81.4, PS 72.0). Sixty percent of participants were women (HV 60.0%, PH 80.0%, PS 40.0%). Using an automated timing algorithm, developed with the help of the video data, timing data for the initial phase of the sit-to-stand portion of 191 transfers were generated. Using a definition of normal time from sit to lift off (SiStT1) as ≤ 1.6s, and physically challenged SiStT1 as ≥ 1.7s, the algorithm was able to correctly classify 189/191 transfers (99.0%). Specifically, it correctly identified 98.9% of HV, 98.0% of PH, and 100.0% of PS transfers. We believe that this is the first time an algorithm using data from an unobtrusive sensor has been shown to successfully classify transfers from healthy, older adults versus those with impaired mobility. However, further research is required in this area. Although there were a large number of transfers to classify, they came from a small sample size of selected participants. Next steps should include the determination of appropriate cut-off times and the development of additional transfer characteristics that can be extracted from the mat data in a wider range of individuals. Ultimately the goal is to be able to identify intra-client variability.

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Figure 1: Hospital bed with pressure sensor array (mattress is placed on top)