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Are accelerometers a useful way to measure activity in care home residents?

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Introduction

Accurate measurement of activity in care home residents is important for monitoring and evaluating interventions for activity promotion. Accelerometers provide a potential method. However, their usefulness in this population has not been well documented. We aimed to explore the feasibility of these in care home residents.

Method

Mobile residents who had fallen in the past year, were asked to wear a tri-axial accelerometer (ActivPAL³TM) on the lower thigh for 7 days. Care staff were trained in device application. Users' skin and problems with use were checked daily. Activity data sought were: step count, time sedentary, time standing and Metabolic Equivalent of Task. Care records were checked for falls.

Results

10/16 residents agreed to wear accelerometers. 7 wore them for 7 days and the remainder for 4, 5 and 6 days respectively. No falls were recorded. Data indicated 1 resident continuously standing which was verified not to be the case by observation. Problems were: data disturbance through removal/fidgeting, hydrofilm dressing flaccidity, premature detachment, care staff non-compliance to waterproof continuous wear, resident skin check non-compliance, prior leg ache attributed to accelerometers (with no worsening), pink skin and activity restriction by care staff. The accelerometers and attachment materials cost £2062.59.

Table 1: Activity per day

	Steps	Sedentary (mins)	Standing (mins)	METs	Minutes >3 METs
Mean (SD)	832 (914.63)	1358.67 (79.68)	77.67 (53.16)		4.95 (5.64)
Median (IQR)				1.26 (1.26 - 1.30)	
Range	5.00 - 2685.00	1228.20 - 1472.40	2.57 - 163.71	1.25 - 1.32	0.00 - 16.11

Conclusion

In this small feasibility study of care home residents tri-axial accelerometers were so problematic to be of negligible use and we will not be using them in our definitive trial. Activity levels, where recorded were in keeping with published literature showing care residents to be highly sedentary,