Reviewer's report

Title: Feasibility of three wearable sensors for 24 hour monitoring in middle-aged women

Version: 4 Date: 12 December 2014

Reviewer: Sveinung Berntsen

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Twenty-one inactive overweight women were instructed to wear three types of physical activity monitors, each monitor on the non-dominant hip (ActiGraph GT3X+), wrist (GENEActiv), or upper arm (BodyMedia SenseWear Mini) for 24 h/day and record daily wake and bed times for one week over the course of three consecutive weeks. Women received feedback about their daily physical activity and sleep behaviors. Feasibility (i.e., acceptability and demand) was reported using surveys, interviews, and wear time. The aim of the present study was determine the feasibility of three widely used wearable sensors in research settings for 24 h monitoring of sleep, sedentary, and physical activity in middle-aged women. The authors concluded that 24 hour monitoring over seven consecutive days was a feasible approach in middle-aged women. They also highlighted that researchers should consider participant acceptability and demand, in addition to validity and reliability, when choosing a behavioral monitor. Further, the majority of the women preferred GENEActiv and SenseWear Mini. Mean wear time on valid days was similar across monitors and feedback was the biggest motivator, while appearance, comfort, and inconvenience were the biggest barriers to wearing devices.

The manuscript is well written and the topic of the present study is highly relevant given the last years focus on objective measures of physical activity and sedentary time. The combination of qualitative and quantitative data adds to the body of knowledge in this field. In few studies a qualitative aspect of individuals’ perspectives of wearing such monitors has been included. I have some minor comments presented below:

1. Please give producer/company, city and country for the monitor the first time mentioned (in the Background).
2. On page 6, did the women wear all three monitors simultaneously?
3. I do not find table 4, referred to on page 17.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I have no competing interests