Reviewer’s report

Title: Comparison and validation of accelerometer wear time and non-wear time algorithms for assessing physical activity levels in children and adolescents

Version: 0 Date: 06 Sep 2018

Reviewer: Paul McCrorie

Reviewer’s report:

In general, the paper is well written, clear, and concise with its content and message, if sprinkled with some grammatical issues and typos. Non-wear decisions in accelerometry studies are important for the accurate categorisation of sedentary time and PA outcomes and variability does exist in the literature with regards to their use and reporting. This has been echoed in the literature over a number of years. However, I am left unconvinced with the novelty of the paper's findings and the explicit contribution that the paper makes to the literature base. A number of studies have been left uncited within this paper; studies that have completed similar/identical analyses with larger samples in recent years. Therefore, I would suggest that this paper does not meet the high standards of BMC Medical Research Methodology.


I would like to provide some comments on a few sections that will hopefully aid future submissions (although not exhaustive):

Abstract

There is insufficient detail within the abstract for the reader to clearly understand why this study is important (should be in background) and what was actually done (Methods). In particular, the methods section of the abstract needs to be re written to convey what was actually done (journal guidelines state...." how the study was performed and statistical tests used"). For example, we
have no idea about age range of participants, but this is incredibly important to know. Because
the methods section is quite light, we are unaware that the 'r' coefficients in the results section are
actually concordance coefficients rather than Pearson correlation coefficients. If someone has a
short time to read papers, they will use the abstract to extract the important information - in this
instance, a reader would incorrectly assume you had tried to assess agreement by using an
unsuitable method.

Furthermore, the conclusion of the abstract should have a strong statement of what the study
contributes to the literature over and above what we already know. Presently, this isn't the case.

Background

Similar to the abstract, in future submissions, I feel the authors should really spend some time on
this section and focus on conveying the importance of the paper as a contribution to the
literature. Why does it add anything over and above what we already know? What has been
done before? Why is your paper better?

Methods

I had concerns over the wide range of ages used in the study and understand from previous work
that differences in prolonged sed bouts, and differences in lengths of breaks between sed bouts
change as children age. This is something that you do not discuss or consider in this paper.

I wonder if it would be more fruitful for future analyses to consider age as the primary focus of
any paper?

Furthermore, remember to explain this section as clearly as possible. There is a considerable
amount of assumed knowledge required on the reader's part. What is a count? What software was
used to initiate, download, and process data? Why were the accelerometers placed on the lower
back and not hip? How would this impact non-wear analysis? Why would you allow for
interruptions of 2 minutes in a non-wear algorithm? Is a log-book really considered 'gold
standard'? Do you know if the young people completed the log books in real time or were the
completed via recall?

Figures

CCC graph need a key to explain what the figures are showing. 95CI are missing from
description.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

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