Reviewer’s report

Title: Accelerometer-derived physical activity estimation in preschoolers - Comparison of cut-point sets incorporating the vector magnitude vs the vertical axis

Version: 0 Date: 15 Jun 2018

Reviewer: Sanne Veldman

Reviewer's report:

Title: Accelerometer-derived physical activity estimation in preschoolers - Comparison of cut-point sets incorporating the vector magnitude vs the vertical axis

Manuscript ID: PUBH-D-18-01101

Overall comments

The manuscript reads well and has a clear aim. I agree there is a need for more research in this area as there are still several limitations when it comes to measuring physical activity in young children. The sample size is a strength of the study as well as the wear time in this young age group. The discussion can be improved in regards to implications and future research. Please see my specific comments below.

Introduction

The introduction is clear and well written.

- Line 100: Please explain what you mean by meaningful differences in MVPA.

Methods

- Participants: Please add some information on eligibility criteria. Were the centers equal in size and number of participants?
- Recruitment: Please add the recruitment rate.
- Lines 137-8: Please specify the cut-points used.
- Lines 139-141: Please justify your choice for the wear time inclusion criteria.
- Line 155: Please justify your choice for the three cut-point sets used. Why not include VM-15?

- Please check the methods section on consistency in wording (e.g. hours/day vs m/d, lines 143-4).

- Please check the methods section on writing style (passive voice is recommended).

Results

Tables in the additional files: I suggest improving the clearance of the significant findings. I know adding a description of the data is a requirement for additional files, however, an additional symbol/superscript letter would improve clarity.

Discussion

There are a few extra points I suggest adding to the discussion/questions to be answered. These are mostly around practical implications and future research.

- Results show different cut-point sets give different estimations of PA, but what does this mean for current and future research?

- Should PA analyses be changed or should reporting change?

- Is using the vector magnitude preferred over using the vertical axis?

- Are 15 second epochs preferred over 60 second epochs in young children?

- Can you draw any conclusions?

- Or what other studies are needed before conclusions can be drawn and recommendations can be made?

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**

If not, please specify which controls are required in your comments to the authors.

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

No

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:

Acceptable

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

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons
CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal