Author's response to reviews

Title: Objectively determined physical activity levels of primary school children in south-west Germany

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Author's response to reviews: see over
Dear editorial board,

Please find enclosed the revised manuscript “Objectively determined physical activity levels of primary school children in south-west Germany” (Revision 2), which we would like to be considered for publication in BMC Public Health. The language quality in the manuscript has been revised accordingly with the assistance of several fluent English speaking colleagues and a native speaker.

The authors would like to thank the reviewers for their time and constructive comments to improve the manuscript and we greatly appreciate the opportunity to revise the manuscript accordingly. Following is a point-by-point response (in italics) to the comments made by the editorial office and the reviewers. Changes in the manuscript of the first revision are highlighted in red and changes of the second revision are highlighted in green.

Reviewer #1:
Ursina Meyer
Reviewer's report:

The authors addressed the majority of my concerns; however, there remain a few outstanding issues.

Major compulsory revisions:
- Methods; Study population: The description of the study sample selection is much better now! I would suggest to provide the information about how the measured children differed from the whole study sample in a paragraph at the beginning of the Results part instead of the Methods part (thus, after the measurements have been introduced). And also, if available, it would be interesting if the children of your study differed from the whole study population in regard of (subjectively assessed) PA behaviour (if the data are available). This would maybe help to interpret your data.

The information about how the measured children differed from the whole study sample has been revised accordingly at the beginning of the Results section instead of the Methods section.

Data of subjectively assessed PA behaviour (derived from a parental questionnaire) has been added accordingly, with no differences found between the sub-sample and the total study population.

- Methods; Physical activity measurements: If I understood well, the data of a child wearing the accelerometer over 10h on a certain day were extrapolated to 24h, irrespective whether the “wearing hours” were during day or during night. Is this correct? For how many days such an extrapolation was applied? In this context, it would be good to know if there were differences in the wearing time between boys and girls, first and second grade, and between overweight and normal weight children.

Children wore the motion sensor during day and night and have only been included in data analyses, if they wore the sensor for at least 10 hours per waking day with at least 3 days, including one weekend day and two weekday, respectively. For analysing PA, only days with 10 hours of daily recording time, where children were obviously awake, were considered. 37±95 minutes per 24 hours were completely lost for further analyses,
resulting in a total wear time of 1403±94 minutes per 24h. Furthermore, 87±139 min per 24h could be recovered by Actiheart’s software, which lead to a slightly different wear time than previously reported. Overall, extrapolation by the software was necessary in virtually all children on most days, resulting in 124±203 minutes per 24h being extrapolated.

There were neither differences in wearing time between boys and girls, first and second grade children nor between normal weight and overweight children (see Results section).

Minor essential revisions

- Abstract: The aim of the study could be improved by adding the information that the study used objective assessment tools.

The information that the study used objective assessment tools has been added to the aim of the study accordingly.

- Statistical analysis: You mentioned that underweight children were excluded from analysis. How many underweight children had to be excluded? Are they included in the n=318?

To determine differences by weight status 26 underweight children (8% of the subsample) were excluded from analyses, this aspect has been added to the manuscript accordingly.

Discretionary revisions

- Abstract; Methods: I would suggest to add the % of the whole cohort after “…were obtained in a sub-cohort of 384 primary school children (xx % of the whole cohort)”

The percentage of children measured with objective assessment tools based on the whole cohort has been added to the Abstract and Methods section accordingly.

- Methods; Physical activity measurement: Is there no possibility to exclude sleeping time, or at least night time (i.e. time between 8pm and 7am) from the analyses?

At this time, unfortunately it is not possible to exclude sleeping time. However, this limitation has been added to the discussion part at the end of the manuscript that further research is necessary to get a better understanding of PA behaviour of children over the whole day with excluding” inactive sleeping time”. 