Author's response to reviews

Title: The effect of the UP4FUN pilot intervention on objectively measured sedentary time and physical activity in 10-12 year old children in Belgium: the ENERGY-project.

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Author's response to reviews: see over
Dear Editor,

We thank you for considering publication of our manuscript ‘The effect of the UP4FUN pilot intervention on objectively measured sedentary time and physical activity in 10-12 year old children in Belgium: the ENERGY-project’ (MS 1806995354741758) in BMC Public Health. We thank the reviewers for their valuable comments which enabled us to further improve our paper.

We have separately responded to each of the comments made by the reviewers and we have indicated the changes we incorporated in the manuscript. All changes that have been made, are highlighted in the manuscript.

We hope that these changes made our paper acceptable for publication in BMC Public Health.

Sincerely yours,
Maïté Verloigne

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Reviewer's report

Title: The effect of the UP4FUN pilot intervention on objectively measured sedentary time and physical activity in 10-12 year old children in Belgium: the ENERGY-project.
Version: 1 Date: 26 July 2012
Reviewer: Luísa Aires

Reviewer's report:
Major remarks
Abstract/ Introduction
The paper needs some adjustments concerning to objectives and results presented. Analysis about the likelihoods of being more or less sedentary, if children were living with siblings and both parents, should be included in the aim of the study.

Answer:
We have now added more information in the abstract:
Finally, we aimed to investigate demographic differences (i.e. age, gender, ethnicity, living status and having siblings) between children in the intervention group who improved in sedentary time and PA at post-test and children in the intervention group who worsened in sedentary time and PA at post-test.

... and the introduction of the manuscript:
Finally, the third aim was to investigate demographic differences (i.e. age, gender, ethnicity, living status and having siblings) between children in the intervention group who reduced sedentary time and increased light PA (LPA) and moderate-to-vigorous PA (MVPA) at post-test from children in the intervention group who showed unfavourable changes in these behaviours. By investigating these differences, certain risk groups that are less likely to improve their behaviour after an intervention can be identified.

Methods
Study protocol - The authors should give a brief description of the development and contents of the intervention, because reference 14 (Lien et al.) is “In preparation”, so the reader cannot be truly informed about the methods.

Answer:
We have now added a table summarizing how the intervention was developed (see Table 1) and a table describing the intervention (see Table 2). More information was also added in the Methods section.

Although it is clear that the intervention aims to reduce the sedentary time, it is unclear what type of actions were made and what kind of sedentary activities were focused.
We hope that the addition of more information on the UP4FUN intervention is an answer to the question of the reviewer. We also want to add that the intervention does not truly focuses on one particular activity, e.g. the children can register their sitting time and based on which sedentary activity they spent the most time, they have to set up a personal goal. It could be, for example, that one child focuses on reducing TV time and another child on breaking up the total sitting time, etcetera.

Other influencing factors at home could be considered beyond living with siblings and parental living status. Why did the authors choose these variables?

**Answer:**

We have only included demographic variables to be investigated, as we specifically wanted to identify subgroups for whom special attention might be needed when conducting an intervention. The demographic variables investigated in the current study were the only variables at our disposal in the child questionnaire. We did not include other influencing factors at home, as (a) those factors could have changed after the intervention because people were made aware of it (e.g. TV in bedroom) and (b) the other factors in the questionnaire were more about TV watching and computer use and not about sedentary time in general.

**Statistics**

By the word “Condition”, I understand that is related to living with both parents and having siblings, but there is no information about that. Authors should add some details about the interactions, how was the interaction made with the two dummy variables (living with parents, and siblings)?

**Answer:**

The use of the word ‘condition’ is an error in the manuscript and we thank the reviewer for the attentiveness. We analyzed the variables separately, which means no interactions were made to detect differences between children with complete data and children with incomplete data. We have changed the sentence:

Attrition analyses, comparing the 372 children with complete data to those with incomplete data (n = 368), showed no significant differences in age, ethnicity, **parental living status and having siblings**, but boys were twice more likely to have incomplete data than girls (OR = 1.99; 95% CI = 1.49 – 2.69).
There is a lack of consideration of effect size.

*Answer:*

We have calculated Cohen’s d and have included these values in the text (see Results). The effect size was small, so we have slightly adapted our Discussion by being more carefully about our results (e.g. ‘the weather influences MIGHT be taken into consideration’, instead of ‘SHOULD be taken into consideration). Following information was included in the Statistical Analyses:

*To consider the effect size of significant time or interaction effects, we have reported Cohen’s d statistic (small = 0.20, moderate = 0.50, large = 0.80) [22]. Values were only reported in the text, not in the tables.*

References should be revised. I think the authors should not include submitted manuscripts but not yet accepted for publication (see references 14 and 23).

*Answer:*

We have deleted both reference. For the previous reference 14: we have added more information on the development and content of the intervention in the Methods section.

**Minor remarks**

**Introduction**

In pag 3, line 20, authors could add some examples of “all forms” of sedentary activities beyond the screening time.

*Answer:*

We have now added more information on all forms of sedentary behaviour:

*It is therefore recommended to target all forms of sedentary behaviour (i.e. both screen-based activities and non-screen sedentary activities such as sitting at school and passive transportation) in an intervention programme instead of focusing on one or two specific sedentary activities [3].*

Model adjustments (age, gender and number of sedentary bouts) should be referred in tables’ subtitles.

*Answer:*

We have added to the tables for which variables the analyses were adjusted.

Please check the reference list. Lacks a space between the year and the journal.
**Answer:**
We have checked the reference list, but in our document there is already a space between the journal and the year that the article has been published. This might be due to the font that has been used.

**Level of interest:** An article of outstanding merit and interest 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 declare that I have no competing interests

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**Reviewer's report**

**Title:** The effect of the UP4FUN pilot intervention on objectively measured sedentary time and physical activity in 10-12 year old children in Belgium: the ENERGY-project.

**Version:** 1  **Date:** 28 July 2012

**Reviewer:** Michael Duncan

**Reviewer's report:**

**General**
This is a well written and interesting manuscript which clearly lies within the remit of BMC Public Health. The work is well presented and I enjoyed reading the manuscript. The authors should be commended on their preparation of the paper and I have very few comments to make in relation to the manuscript. I have indicated these below. These comprise some minor grammatical issues plus some areas where perhaps additional information would help strengthen the manuscript.

**Specific**

**Introduction**
- line 3: should read ‘recent meta-analysis by Tremblay…..’
- Line 6-7: similarly when referring to Leung’s work it should not be a study of Leung, or a systematic review of Leung. This should read ‘A systematic review by Leung et al’.
For future reference the authors should only refer to a study ‘of’ an author when stating ‘The’ at the onset. For example, ‘The systematic review of Leung et al’
Page 5, 2nd Para, Line 5: should read change ‘till’ to ‘until’

**Answer:**
We thank the reviewer for the grammatical corrections and we have changed it accordingly.

Page 6, end of para 1: Were the ‘motivating factors’ such as bracelets, pedometers, etc provided based on any theoretical rationale for motivation and social support of activity interventions?

**Answer:**
The use of motivating factors was based on the theoretical and empirical rationale that economic or rewarding incentives and enjoyment are important to change behaviour in general and sedentary and physical activity behaviour specifically. Furthermore, the step counters provide behavioural feedback which is also a theory- and evidence-based motivator for behavioural change. Moreover, the stickers were also used to indicate with a ‘smiley’ or a ‘frowny’ if the children had reached their personalized goal in week 3, i.e. another feedback instrument. The bracelets can be considered a sign of public commitment to the message of the project.
We refer here to the manuscript of Michie et al., 2008 (reference 16) and to Table 2, where the link is made between some intervention components and determinants and behaviour change techniques.

Page 7, Demographic variables: Suggest change the start of the first sentence. To ‘Participants’ age..’ or Al children’s ages…’

**Answer:**
We have changed the start of the sentence.

**Results,**
Sample characteristics: the authors make a very good section here on how and why participant data was excluded and included. I commend them on this as this is not always apparent in some papers.

**Answer:**
We thank the reviewer for the commendation.

P8, The description of beta values here is fine but it may be worth providing some more holistic statement as to what these really mean for readers. For example, what does a beta
value of -0.44 for MVPA mean in real world terms. Such information could be included in the results or in the discussion section as the authors see fit and would enhance the practical application of the manuscript.

**Answer:**
We have decided to include this information in the Methods section (Statistical analyses) where we explain how the beta values can be interpreted (both for ‘Time’ and ‘Time*condition’):

*Two β-values will be reported in the results: (a) the β-value for ‘time’ can be interpreted as the amount of change in the outcome associated with going from time 1 (pre-test) to time 2 (post-test), and (b) the β-value for the interaction effect between ‘time’ and ‘condition’ can be interpreted as the difference in the change in the outcome going from time 1 (pre-test) to time 2 (post-test) for the condition to which children belong (intervention vs. control condition).*

**Discussion**
The discussion section is good and succinct. However, it would be useful if the authors might perhaps frame their results (and possibly the intervention) on some form of theoretical background. On which basis theoretically does the intervention work? E.g., social cognitive theory? This would more strongly anchor their findings in theory and strengthen the impact of their work for future citation.

**Answer:**
The intervention was framed in a social ecological perspective due to the influence of the family physical and social environment. However, in a social ecological framework, it is the interaction between many environmental factors that affects children’s behaviour and changes in those factors could have higher chances on an effect. This is indeed useful information and we have tried to include this in a concise way in the Discussion section:

*Finally, the ENERGY-project including the UP4FUN intervention was grounded in a social ecological perspective, highlighting the importance of both individual and environmental factors [10,15]. The focus in this intervention was specifically on parents, but other influencing environmental factors might be taken into account as well when developing an intervention programme to induce an effect on children’s behaviour, particularly since we already stated that sedentary behaviour is a behaviour difficult to change. For example, it could be that involving the community and introducing changes in*
the physical environment of the school might increase the chance on intervention effectiveness.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests