Reviewer's report

Title: Correlates of sedentary behaviour in children. A multilevel modelling approach

Version: 2 Date: 5 May 2014

Reviewer: Andrew J Atkin

Reviewer’s report:

Major compulsory revisions

1) The manuscript requires careful editing to improve the specificity of language used in reference to sedentary behaviour. For example, accelerometry assesses all accumulated time spent sedentary, rather than specific sedentary behaviours, therefore it is typical to refer to this outcome as ‘sedentary time’. In addition, when reviewing the literature in the introduction and discussing results of the current study in relation to previous research, the authors need to be more precise in referring to the specific sedentary construct assessed (e.g. TV viewing, total screen-time, sitting time, accelerometer-assessed sedentary time). The correlations between these different sedentary constructs are typically quite weak and they have demonstrated different associations with health outcomes and have different correlates.

2) Please clarify a number of points related to the accelerometer protocol and processing strategy.
   a. From a 24-hour wear protocol, the inclusion criteria of 10 hours/day seems very low. Did you specify that this 10 hours had to occur within a specific period of the day – what if a child wore the device overnight but then took it off for school? They may still have accumulated 10 hours of wear time but none of this would relate to daytime.
   b. How was non-wear time identified and dealt with?
   c. The method of deriving sleep time from the accelerometer data requires a more detailed explanation. Has this method been validated?
   d. I am unfamiliar with the presentation of accelerometer derived sedentary time as ‘counts’? How was this derived and does this approach have any particular advantages? Why not present sedentary time using a time-based unit (minutes / hours?) which is easier to interpret?

Minor compulsory revision

1) Abstract, background. To state that sedentary behaviour IS an important chronic disease risk factor is overstating the evidence as it currently stands and the literature pertaining to the influence of sedentary behaviour on health markers in children is inconclusive. I suggest you rephrase.
2) Abstract, methods. State the count threshold used to define sedentary time (i.e. 100 cpm)

3) Abstract, results. State that reported statistics are beta and standard error.

4) Abstract, conclusion. Why ‘strategies / approaches’? Are these not essentially the same thing?

5) Methods, sample. The authors state ‘Non-response was negligible, and missing information was at random’. Please provide evidence to support this statement.

6) Methods, family data. Socio-economic status is a latent construct that cannot be fully captured by a single marker. I suggest you refer specifically to family income to avoid any confusion.

7) Results. I suggest you avoid repeating statistics in the text that are reported in the tables. Did you conduct formal tests for interaction by weight status (e.g. cross-product terms) before conducting stratified analyses?

8) Discussion, paragraph 2. In the discussion of results related to child-level correlates, the authors refer predominantly to studies that assessed self-reported sedentary behaviours – it would be more appropriate to put results of the current study in the context of other studies that assessed sedentary time by accelerometry (even if there are relatively few of them).

9) Discussion, paragraph 3. The authors refer to the presence of a TV in the bedroom and TV viewing time in discussing the negative association between sleep and sedentary time, and suggest that these factors mediate this association. Did the authors consider including TV in the bedroom and TV viewing time as candidate correlates? This in itself would be interesting but it might also help provide insight into the sleep/sedentary time association.

10) Discussion, paragraph 4. Please see major comment above. Girls might accumulate greater overall sedentary time, but boys, for example, have greater screen-time.

11) Discussion, limitation. I don’t find the argument ‘the use of total sedentary time may be more appropriate because it includes all sedentary activities…’ to be convincing. It is possible that different sedentary behaviours have different correlates – therefore grouping all sedentary behaviours into an aggregate sedentary time variable may mask important associations.

12) Table 1. Include the number of boys and girls that were included.

13) Tables 3 and 4 The layout of the tables should be amended to improve clarity. I suggest you report estimates, SE and p-values in separate columns.

**Level of interest:** An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests