Reviewer's report

Title: Extra-curricular physical activity attenuates the effect of sedentary behaviours on bone mass in girls: the HELENA cross-sectional study

Version: 1 Date: 3 June 2012

Reviewer: Janet Shaw

Reviewer's report:

Major Compulsory Revisions

1. To ensure that this is a different study from the previous report by the same authors (Vincente-Rodriguez et al., 2009), the introduction (lines 82-89) should point out exactly what is different and/or expanded in this paper. I found the discussion section on lines 253-262 a bit confusing, which relates to the previous study. Are the present findings contradictory to the previous study? The present study did not find any association between BMC and sedentary behaviours in boys, but the previous study found that >3 hrs of TV watching was associated with lower whole body BMC. Is the present study based upon a different sample of boys?

2. Were distributions for all variables assessed for normality? The SDs for some of the sedentary behaviours are quite large and in some cases, larger than the mean values. Is it possible that some of the sedentary variables are not normally distributed and require transformation of some kind prior to further analysis?

Minor Essential Revisions

1. There are some awkward passages throughout where some changes in verbiage would be helpful. The following lines are areas that may be edited to improve writing clarity: 64-65; 74-75; 115-116; 169-170; 181-189; 300-302. The word "showed" is used frequently; "shown" is more appropriate.

2. Suggest using "participants" throughout instead of "subjects."

3. Line 127 states that hours of sedentary behaviour were measured, but the units throughout are minutes. Suggest clarifying this discrepancy in units.

4. Categories of sedentary behaviour were created. Were the categories or the continuous variables of sedentary behaviour used in the regression analyses?

5. Line 147 states that a spine phantom was used to calibrate the DXA equipment; the regular scanning of a spine phantom is for purposes of assuring quality control of measurement.

6. Line 203, "mean - 1SD" is used to define low BMC. As written, I am unable to construe exactly what this means. A more detailed description of this low BMC variable would be very helpful.

7. Reference 9 is incomplete.
Discretionary Revisions

1. On line 114, "objectively measured PA and sedentary behaviours" reads as though both PA and sedentary behaviours were measured objectively, when only PA was measured objectively. Suggest "objectively measured PA and self-report of sedentary behaviours."

2. Lines 165-177, references to justify the accelerometry cut-points are from previous studies using the same cut points. The reader may appreciate the primary references from which these cut points are justified for moderate and vigorous PA by accelerometry in adolescents.

3. The first sentence of the statistics section (line 192) could be re-written to form a more descriptive topic sentence.

4. After reading the results, I understand why time of study was singled out in the analysis of the girls' BMC. However, at first glance, I had difficulty understanding why this analysis was being done. Perhaps some explanation for this additional analysis would be helpful to other readers.

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.