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: 22 May 2012

Reviewer: MAIRENA SANCHEZ-LOPEZ

Reviewer's report:

- Major Compulsory Revisions

1. In my opinion sex differences in predictors of BMC are not sufficiently discussed. Certainly, girls spent more time studying, but boys spent more time in other computer-related activities than girls. My question is: why authors did not calculate the total chair time/day, and test it for sex differences?

2. Other question, why authors did not test to control for weight in the regression models?

3. Why authors don’t show figures about prevalence of low bone mineral density in boys?

4. The following sentence should be corrected because “time spent on console games” was not negatively associated with lumbar spine BMC as the authors say: “Our results showed that among the sedentary behaviours studied, time spent on console games and studying was negatively associated with BMC at the whole body and lumbar spine in girls” (9 pg-263-265 lines).

5. In line 265: “……..these associations disappeared after controlling for lean mass”. And MVPA?

6. Is the prevalence of low femoral neck BMC should not be lower for those girls who spend less than 2 hours of study and achieve #3 hours of extracurricular sport than those who spend more time studying (> 2h) and made more than 3 hours of extracurricular sport? According to data from, what would be the final message?

- Minor Essential Revisions

1) Throughout the entire text sometimes appear “min.” and other “minutes”

2) In the statistical analysis can be read: model 0, model 1 and model 2, however in the tables and results reads: model 1, model 2 and model 3. Please homogenize

3) What is BMD? This abbreviation should be described (line 153)

4) What is VPA? This abbreviation should be described (line 170)
5) In line 232 should read "time of study" rather than "students"

6) In line 242 lack “femoral neck” between low and BMC

7) Table 1, foot table: When differences significant p values in bold?

- Discretionary Revisions

Introduction

1) Not clear how increased bone mass in childhood has been associated to the frequency, intensity and type of PA. This needs to be described (3 pg; 68-69 lines)

2) The following idea is repeated below (77-78 lines), it might seem redundant: “However, much less is known on the association among sedentary behaviours and bone health” (69-70 lines)

3) Should include a reference to support this statement: “Therefore, a better understanding of the sedentary behaviour-bone health association is of great importance, especially on a key period as adolescence and, in regions with clinical relevance in the diagnosis of osteoporosis, such as femoral neck and lumbar spine” (86-89 lines)

4) I think the following sentence is not relevant in this paragraph (90-92 lines): “The Healthy Lifestyle in Europe by Nutrition in Adolescence Cross-Sectional Study (HELENA-CSS) used harmonized and well standardized methods of measurement in European adolescents in 2006-07 [13]."

Statistics

5) 1st parag.

I suppose authors refer to residual in regression models, but even in this case this sentence should be placed after the description of regression models.

Results

6) In girls, after adjusting for extra-curricular sport remains the negative association between study time and whole body, lumbar spine and femoral neck BMC? (2nd paragraph of the results section)

7) Table 1: could display the data for the total sample

8) Tables 2, 3 y 4: What does the P stand for? Is this the P value for the partial correlation or the regression coefficient? Do we need both regression coefficient and partial correlation results? The latter is really not contributing to any more relevant information considering the data on slope is already provided and is the more important result. To focus the reader's attention to relevant data may only be needed the table for the girls and put into text the results of boys. These tables can be revised similar to this:
9) Figure 1: I think it would be easier to interpret if the x-axis could be read: Time of study (h/day), and include an information to describe what is each bar. Not clear what is meant “abCommon superscripts indicate a significant differences”. Is it possible to miss a b in figure A?

Discussion

10) I think the following paragraph was correctly described in the methods section so I believe it may seem redundant to be in the discussion section again: “The cut-off for time of study (low: <2 h/day and high: # 2h/day) was based on the results obtained in a recent descriptive study of sedentary behaviours in adolescents [17] (272-274 lines)”

Level of interest: An article whose findings are important to those with closely related research interests

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 below