Author's response to reviews

Title: Decreased levels of physical activity in adolescents with Down syndrome are related with low bone mineral density: a cross-sectional study

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Version: 3 Date: 23 May 2013

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

Please, find attached a revised version of our manuscript entitled “Decreased levels of physical activity in adolescents with Down syndrome are related with low bone mineral density: a cross-sectional study” to be reconsidered for publication in your prestigious journal. We have taken into account all the comments made from the referee and a point-by-point response has been attached to our submission. In addition, we have highlighted in yellow the pertinent changes in the main manuscript for an easier revision.

This manuscript represents original unpublished material; is not under consideration for publication elsewhere, and further, it will not be submitted for publication elsewhere until a decision is made regarding its acceptability for publication in your Journal.

All authors have read and approved of this final version, are responsible for the reported research and have contributed significantly to the research of the present manuscript. There are no conflicts of interest and financial disclosures for any author of this manuscript.

None of the authors have any financial interest.

Sincerely yours,

On behalf of all the co-authors

Ángel Matute-Llorente
Reviewer's report

Title: Decreased levels of physical activity in adolescents with Down syndrome are related with low bone mineral density: a cross-sectional study

Version: 2 Date: 8 May 2013

Reviewer: Carol Garrison

Reviewer's report:

Major Compulsory Revisions:

1) As discussed previously, the authors do not provide information indicating how well study participants adhered to the research protocol. Presently, the lowest tertile indicates physical activity of 11 hours, 52 minutes per day, and the medium physical activity tertile indicates total minutes of daily physical activity between 11 hours, 52 minutes and 13 hours, 15 minutes. This does not seem to represent normal activity for adolescents.

Response: thank you very much for you detailed revision of our manuscript again. Regarding to adhesion of the study participants, we described in the manuscript the inclusion criteria to participate in the study. Regarding to physical activity registration in Down syndrome group, one of them was excluded because not tolerate wearing the accelerometer. The rest of participants achieved the inclusion criteria, as stated in the manuscript as follow: “For inclusion in this study, the accelerometer had to be worn for a minimum of 10 hours per day, for at least 4 days out of the 7-day monitoring period, including one weekend day, as recommended in a previous study [21]” [1].

We have retested all data and no errors have been detected. In our sample, the group with DS had a mean of 12.45 ±1.01 hr/d wearing the accelerometer and the control group had 13.37±1.06 hr/d. Indeed, reviewing the current literature we found similar data about how much time was spent wearing the accelerometer. For example, Esposito et al. 2012 [1] showed that the time spent wearing the accelerometer was 14.23 hr/d; Shields et al. 2009 [2] 12.37 ± 1.23 hr/d; Phillips and Holland [3] 2011 12.71 ± 1.22 hr/d. Just Whitt-Glover et al. 2006 [4]
showed that in their study, children with Down syndrome engaged in 8.9 hr/d, but also they registered inactivity time which was the rest of the daily time.

We have to take into account that also following the Ojiambo et al. [5] 20-min periods of inactivity have been deleted during the reduction analyses of the raw data. The reduction process has been described in detail in the manuscript in page 7 and this information has now been included.

Did the authors determine how much time was spent in activity without the accelerometer present (ie - in the excluded activities such as bathing, showering, swimming, and playing contact sports)? Without some system to assess how much time was spent in such activities, the information regarding total daily physical activity time is incomplete. With the small numbers in this study, this calls into question the results regarding the relationship between BMD z-score and total physical activity tertile in children with Down syndrome.

For example, a daily log indicating the time the individual showered/ bathed, was involved in swimming/ contact sports, slept, and the times the accelerometer was placed on or removed - would augment and complete the data being examined. If such data is not available, then perhaps this could be addressed in the discussion.

R: As I said previously, we get from them a time sheet with the time of the day when the accelerometer was placed on or removed each day. Sport activities were recorded in this sample and no sport-contact or swimming was practiced by this adolescents. Additionally, these children are under a strict paternal control. We have also a close-contact with parents and caregivers because we have been working with them for six years. We have contacted them again and they reported that during accelerometer evaluation no other events with the exception of showering/bathing were cause of removing accelerometer. In any case, following your recommendation this issue has been included as a limitation in the discussion section.

Minor Essential Revisions:

1. Appreciate the attention to previous suggestions.
2. I apologize for getting the units wrong on the BMD measure.

3. Appreciate the rewording of the tertile groups using "low", "medium" and "high". Recommend reviewing the manuscript to assure the changes were made consistently throughout - including labels of the figures.

   **R:** We appreciate also your input to help us to improve the quality of the manuscript. The manuscript has been reviewed deeply and the tertile groups have been reworded throughout the whole manuscript.

4. Just as you used the Z-score for the BMD, recommend using age and gender adjusted Z-score or % for the BMI, height and weight for comparison purposes.

   **R:** We have calculated Z-score for the BMI, height and weight. The process and the used tools has been described in material and method section, as stated in the manuscript as follow: “Height, weight and BMI Z-scores were calculated using a Microsoft Excel add-in to access growth references based on the LMS method[32] using a reference European population[33]” [6] and [7]. As expected, there are differences between adolescents with and without Down syndrome in weight and height.

Discretionary Revisions

1. I would appreciate more discussion regarding the "valid time". Does valid time equal the total minutes of daily PA? An explanation as to why the 20 minutes of zero periods is deleted would be interesting.

   **R:** As you can see above, this information has been improved and clarified in the method section (last paragraph in page 7).

2. The BMD Z-score is often referred to simply as the "Z-score". I would suggest using "BMD Z-score"

   **R:** thanks, it has been reworded throughout the manuscript, even in legends and figures.

3. I do not believe that the abbreviation "VPA" is noted the first time that vigorous physical activity is used (in the abstract).
R: thanks, changed.

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.

References


