Reviewer's report

Title: Validity and Relative Validity of a Novel Digital Approach for 24-h Dietary Recall in Athletes

Version: 1  Date: 13 February 2014

Reviewer: Megan McCrory

Reviewer's report:

In this study, the validity of an application for the iPad called DATA to estimate dietary intake was tested against direct observation and 24h recall interview for 3 days each. DATA was designed specifically for athletes as the food database contains sports-specific products often absent in conventional dietary databases. The major findings were in general that there was good validity for most nutrients analyzed when DATA was compared with observation and with 24h recall interviews. However there was a tendency for participants to overestimate their intake compared to observation and this is further demonstrated by the 12 participants' data which was excluded from the analysis for recalling eating episodes that were not observed. Additional analyses are recommended as described below.

Major compulsory revisions

1. The exclusion of the 12 participants represents bias and at least some of the results of the data analysis should be presented both including them and not including them (whereas only the latter was done). It may be an important result that 12 of 68 (nearly 18%) of participants recalled eating episodes that were not observed.

2. Please add Bland-Altman analyses which is conventional to do in studies such as these. This will give a description of the results on more of an individual basis and will show bias in reporting (if any) in relation to the magnitude of the outcome (for example, energy).

3. Page 9 lines 4-5. Dietary intake was reported from the time the participants woke up the previous day to the time they woke up on the day of testing. However this is not necessarily a 24h period as is also stated. Please clarify.

4. Results section. In various places in the results section where it is stated that paired differences were statistically significant, please add to the text the direction of the differences. Even though one can see this by looking at the table, it would be helpful to have it in the text and won’t take a lot of words since the differences tend to be in the same direction within each method comparison.

5. Page 15, middle paragraph. Please speculate WHY DATA overestimates energy and the nutrients mentioned. Is it something to do with the database used or something more with the participants as suggested on the next page?

Discretionary revisions
6. Please compute energy requirements estimated from a prediction equation (such as the DRI equations for EER) and compare energy intake by the 3 methods (observation, interview and data). This will provide information on whether the energy consumed was realistic in comparison to energy requirement, thus will provide more information on over versus underreporting. This is an important point to understand if these athletes tend to overreport in comparison to even observation. As pointed out in the manuscript, this is very different from that observed in other groups who have a tendency to rather underreport.

**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 I have no competing interests.