Reviewer’s report

Title: High molecular weight adiponectin and anthropometric variables among elementary schoolchildren: a population-based cross-sectional study in Japan

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Reviewer: Brian A Irving

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Major Compulsory Revisions

1.) Considering the authors interest in relating adiponectin concentrations to the metabolic syndrome, did the authors measure fasting blood glucose, triglycerides, and or blood pressure?

2.) Does serum adiponectin levels predict the metabolic syndrome in the present population. SJ Lee et al. (Journal of Pediatrics 2008) reported that adiponectin levels were able to predict the metabolic syndrome both white and black American children.

3.) Hsieh et al. (IJO 2003) has already demonstrated that the WHtR is a practical index for assessing central fat and metabolic risk in Japanese Men and Women. Has this been done in a Japanese pediatric population? If not the authors should consider assessing their participants cardiometabolic risk in greater detail, and validate its ability to predict cardiometabolic risk in Japanese children. Determining whether the WHtR is valid for predicting metabolic risk in Japanese children is important.

4.) Indeed, Yan et al. (Obesity 2007) defined WHtR of > 0.445 as overweight and a WHtR of > 0.485 as obese. To cut-off values predict the presence of the metabolic syndrome and/or low adiponectin concentrations. Similar analyses were performed by Maffias et al. (Journal of Pediatrics in 2008). These studies should also be discussed.

5.) Unfortunately, the authors were not able to assess the effect of tanner stage on adiponectin concentrations, which would be of much interest. Is it feasible to do a sub-analysis to determine whether tanner stage effects adiponectin concentrations. Indeed Travers et al (JCEM 1995) clearly demonstrated that tanner stage effects both body composition and insulin sensitivity in a gender specific way. This warrants further discussion.

6.) Bioelectrical impedance was used to estimate % fat, were standardized procedures used to ensure that % fat estimates were valid (e.g., were the participants properly hydrated, did the participants refrain from vigorous activity prior to testing)?

7.) Were the waist circumference measurements made in duplicate or triplicate?

8.) The majority of the correlations between adiponectin and the anthropometric variables were < |0.200|, which means the shared variance between the
anthropometric variables and the adiponectin levels are < 4%. Therefore, are the associations clinically and/or physiologically important?

9.) Do the authors have information in the fitness or physical activity of their participants, how did that relate to the adiponectin concentrations and metabolic risk?

**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**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