Reviewer's report

Title: Volume, patterns, and types of sedentary behavior and cardio-metabolic health in children and adolescents: a cross-sectional study

Version: 1 Date: 10 January 2011

Reviewer: Costan Magnussen

Reviewer's report:

In this manuscript, the authors evaluate the cross-sectional association between volume, patterns, and types of sedentary behaviour with cardiometabolic risk factors (independent of moderate-vigorous physical activity) among 2527 youth aged 6-19 years participating in the 2003-04 and 2005-05 NHANES. The authors found type of sedentary behaviour (TV viewing time, but not computer viewing time) to be associated with a clustered cardiometabolic risk score, which remained independent after adjustment for time spent in moderate and vigorous physical activity. Volume, bouts, and break in bouts of sedentary behaviour were not associated with the clustered cardiometabolic risk score.

The manuscript is concise, well-written, and contains novel data. The novel aspect of this paper is the inclusion of information on volume, bouts, and breaks of sedentary behaviour and the consideration of moderate and vigorous PA in interpretation of any observed associations – in a population-based, representative sample of U.S. youth. For all these factors, the authors are to be commended. I have only minor remarks that the authors could consider for their manuscript. General and specific comments follow.

Specific comments:
Page Comment

INTRODUCTION -You may also wish to consider a recently published paper by Sisson et al. J Adolesc Health. 2010 Sep;47(3):309-11 in addition to the papers mentioned in the introduction.

METHODS -Participants, 2527 was the subsample used for these analyses as they had all measures available, but what was the total N of the main population (i.e. all those measured). Are you able to say anything about differences (if they exist) between those in your subsample and those missing variables of interest (does the sub-sample differ in any way to the full representative sample?)

-Accelerometer text, what was considered ‘unreasonable values’ – it would be useful to have additional text on this.

-Was triglyceride data available? If so, why was it not considered in the clustered score?
RESULTS - Do the results differ if the continuous CRS score is used? Please add a sentence on these results.
- Under heading ‘patterns of sedentary behavior’ – replace ‘predictor’ with ‘predict’
- Under ‘additional analyses’ replace ‘forth’ with ‘fourth’, also, add the P for trend for MVPA analyses.

DISCUSSION - Under discussion concerning ‘possible explanations’ for observations of TV use but not volume being associated with CRS score – another plausible explanation could be that the catchment period of the sedentary behaviour differed between measures, e.g. accelerometer was 7-days, self report was based on ‘past 30 days’ – it may be that the self-report measure, covering a longer period of time, might better reflect the ‘normal’ behaviour.
- Conclusions should not only emphasise what was found to be important, but also what sedentary components were found to be not important – this is a key, I feel, as the component (TV) that was found to be significant.

REFERENCES - Reference 5 is missing the year.

Table 1 - Left-hand column, ‘TV’ and ‘Computer’ are missing units, presumably the units are hrs/day?
- Left-hand column, parentheses are used to denote units in the upper portion of the table, but a comma in the lower portion – choose one or the other.

Table 3 - Please define in the table footnote and also in the methods text how you defined ‘high CRS’
- Table footnote, ‘diet’ – please add the specific diet variables that were included in the model.

**Level of interest:** An article of importance in its field

**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'