Author's response to reviews

Title: Stability and change in screen-based sedentary behaviours and associated factors among Norwegian children in the transition between childhood and adolescence

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

We are very thankful for the constructive reviews. We have addressed the comments from reviewer 2 point by point as follows. Please also note the minor additional change described at the end.

Major Compulsory Revisions

1. It is not clear for me why the authors have chosen to create gender-specific tertiles, and stratify the analysis for gender. Not stratifying will increase power, as confidence intervals are wide. Unless the authors have a good reason for stratifying for gender, I would recommend to analyze boys and girls together, and maybe put sex-specific estimates in a appendix.

As the reviewer suggested, keeping the whole sample unstratified would have increased the power of the study. Nevertheless, in these age groups, gender-specific differences in energy-balance related behaviors do exist and it is therefore important to do analyses stratified by gender. Our study indeed shows gender-specific differences in the screen time behaviors. In addition, the regression analyses show differences in factors associated with both stability and change patterns in TST between genders, e.g. reflecting the importance of ethnicity in females versus weight status and family status in males. We believe these are very important to report as they indicate gender-specific factors to be potentially taken into consideration in the future. This stratification could also help inform review studies which often report gender-specific similarities and differences in this age group. We therefore believe that stratification was appropriate in this study.

2. Did the authors consider a GEE to evaluate tracking for repeated (>2) measurements? A GEE can adjust for continuous and categorical covariates.

GEE analysis was initially considered in this study and discussed in the group but was not conducted because of the relatively short period between time points when T1 is considered, as tracking is dependent on the duration of follow-up. Indeed, in this paper, except for the tracking coefficient analysis, the rest of the paper focuses on the two time points: baseline and T2. Nonetheless, the comments of the reviewer were taken into consideration, in particular the
fact that this method allows for adjustment of both time dependent and time independent covariates, and GEE analysis was conducted for assessment of tracking/stability coefficients. The Spearman coefficients have been replaced by these coefficients. See changes made in the methods, results section and table 2. The discussion section remains largely unchanged since there were no significant differences between the coefficients previously reported and the ones obtained from the GEE analysis. The analysis involving weighted kappa and percentage of agreement between BL and T2 is kept, although the main focus of discussion of tracking in this paper are the tracking coefficients which are most widely used in other studies and hence comparable to other studies.

Minor Essential Revisions

1. A minor issue is that the authors report means and SD, while they do not give a statement that the data are appropriate for that (i.e. normally distributed)/stability

This has been added on page 7

2. Results section: readers would benefit for a more concrete description of the beta's. For example, low parental educational level resulted in an almost 3 hour increase in TST per week.

This has been added on page 10

3. Attrition analyses showed that the baseline measurements did not differ between participants and drop-outs. Although no more information can be retrieved for the attrition analyses itself, the inference of this analyses is not mentioned. It is relevant to consider whether drop-outs would be different considering their tracking.

This has been added on page 13

4. Multinomial regression is used to assess predictors of tracking high sedentary behavior. This seems a dichotomous variable, so I assume the authors did a multiple binary logistic regression?

What was done was a multinomial logistic regression. As described in the analysis section, subgroup analysis was done for this purpose including those in the lower and upper tertile at
BL (low and high users). Three tracking patterns were identified: [1] tracking high TST (those in the upper tertile for TST at BL who remained there at T2, persistent high users/high-risk group), [2] tracking low TST (those in the lower tertile for TST at BL who remained there at T2, persistent low users/low-risk group), and [3] no tracking of TST (increase or decrease). What is reported in the paper is the comparison of [1] and [2] i.e. the persistent high users vs the persistent low users or those tracking high TST vs those tracking low TST (change for the whole sample has been covered using the linear regression analyses). Small changes have been made in the abstract to make the analyses clearer, and there is a footnote at the end of the table reporting the methodology and the reference group used.

Discretionary Revisions

1. Reporting odds ratios is generally fine for a dichotomous/categorical outcome. However, because the event (high sedentary behavior) is very common, the odds ratios will be much higher than risk ratios. The authors could consider using risk ratios instead of odds ratios, to enhance interpretation and because it is easily performed in most statistical packages. However, odds ratios are measures of association, which is the main aim of this paper, and the description of the associations are correct.

As mentioned by the reviewer, ORs were used as measures of association and interpreted accordingly. This also allows for comparison with other studies. In conclusion, no changes have been made.

Additional change

The test-retest coefficients have been changed since the range previously reported was for the weekday and weekend variables used to compute the weekly variables; but we believe it is better to report the coefficients for the weekly variables as used in the study. See changes on page 5.