Reviewer’s report

Title: Workplace Standing Time and the Incidence of Obesity and Type 2 Diabetes: A Longitudinal Study in Adults

Version: 1 Date: 10 December 2014

Reviewer: Nyssa Hadgraft

Reviewer’s report:

This is an interesting and well-written paper that seeks to investigate the association between standing time in the workplace and the incidence of obesity and type 2 diabetes in a Canadian population. There is increasing interest in interventions aimed at reducing sitting time in the workplace, many of which involve replacing sitting with standing. In this context, there is a need for greater evidence on the health effects of standing – which this study seeks to address. There are a few areas which the authors should attend to, in order to improve their manuscript.

Major compulsory revisions

1. The main aim of this paper is to investigate the association between standing time at baseline and incidence of obesity/overweight and T2D/IGT over a follow-up period. However, the authors reference a sample size of n=293 throughout, including Table 2 and Figure 1, which appears to include participants who have these chronic diseases at baseline. Could you please explicitly state (i.e. in the statistical analysis and results sections) how many participants were included in each of the logistic regression analyses? For example, if only those with normal weight at baseline were included in the logistic regression analysis investigating the incidence of overweight/obesity, this would reduce the n for this analysis substantially.

Minor essential revisions

2. In the ‘Covariates’ section of the methods section, it is stated that “These 6 covariates were chosen because of their association with the exposure and outcomes”. Could you please indicate if this is based on previous published research, and if so, reference relevant studies?

3. In the results section, it is stated that “total annual family income and submaximal working capacity were the main effect modifiers of the relationship (data not shown)”. This statement suggests that these variables are confounders, not effect modifiers, particularly in the context of the previous sentence which notes that associations become non-significant after adjusting for these and other variables.

4. Discussion (page 11): It is noted that the definition of standing time may include walking or other movement. This appears to be a limitation of the measurement tool as the study specifically aimed to investigate standing, rather
than other movement. It would be worth referencing this in the limitation section. In this paragraph there is also some discussion of the benefits of light-intensity physical activity other than standing. As standing is also generally considered to be light intensity PA, the language in this paragraph should be altered slightly to reflect this.

5. Discussion (page 11). It is asserted that “The results of the present study emphasize the potential health importance of such light intensity activities”. As the findings of this study were found to be non-significant after adjusting for all covariates, this statement appears to be overstepping the results.

Discretionary Revisions

6. It would be helpful to include a table of results for the analyses investigating the associations between change in standing time and the outcome variables, in addition to the figure. Particularly as Figure 2A does not appear to show a linear trend across the categories. It would also be beneficial to provide greater detail of how these analyses were conducted in the statistical analysis section – e.g. were logistic regression analyses conducted in addition to the chi-squared test?

7. Consider including the results of the statistical tests assessing associations between standing time/changing in standing time and the outcome variables with Figures 1 & 2. This would aid comprehension as standalone figures.

8. As participants were included who had OW/OB or IGT/T2D at baseline, have the authors considered conducting a cross-sectional analysis of the association between standing time and these outcomes at baseline?

9. Discussion – the authors provide detailed discussion of a few studies (e.g. Buckley et al.; Thorp et al.) which found beneficial associations between standing and health outcomes. This level of detail may be more suited to the introduction, as would the description of the proposed biological mechanisms. This would strengthen the rationale for the present study and the discussion section could refer to these findings in a more general manner.

Level of interest: An article whose findings are important to those with closely related research interests

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.