Do ergonomic and education interventions reduce prolonged occupational sitting?  
a randomised controlled trial

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1. Introduction
Prolonged sitting is a specific occupational hazard in office workers and there is growing evidence that prolonged sitting is detrimental to metabolic health (Chau, et al 2012, Owen et al 2010, Thorp et al 2011, van der Ploeg et al 2012).

The aim of this study was to determine whether providing office workers with an adjustable sit-stand ergonomic workstation together with targeted education, or targeted education alone would lead to changes in sedentary behaviour at work compared with no intervention.

2. Methods
The research design was a randomized controlled trial. We recruited 60 academic and administrative university employees whose normal role involved >15 hours per week of computer work. Participants were randomised to one of three groups as described below. The intervention period was four weeks.

- Group 1: Education based on ‘The Happy Body at Work’ program
- Group 2: The same education program as Group 1 and provision of an adjustable sit-stand workstation
- Group 3: No intervention control

The primary outcome was the average daily sedentary time during work hours. Participants wore an accelerometer during working hours for five working days prior to randomisation, then for another five days at four week follow up. Secondary outcomes included self-report of sitting behaviour using Occupational Sitting and Physical Activity Questionnaire (OSPAQ), musculoskeletal discomfort using the Nordic Musculoskeletal Questionnaire (NMQ), and work ability (Work Ability Index).

Mixed models analysis was performed for continuous variables comparing the average outcome score at baseline and follow-up between random allocation groups. Cohen’s D was used to measure the magnitude of these differences. For the categorical outcomes, there was a low number of participants who changed pain/disability status between baseline and follow-up overall therefore descriptive and non-parametric statistics (Fishers Test) were used to examine differences in change in pain/disability profiles between random allocation groups.

3. Results
Data from 59 participants were available for the mixed model analysis. No significant differences were found between both intervention groups and the control group in any primary or secondary outcome. However, consistently large effect size (Cohen’s D) differences were observed between the groups favouring the combined education/sit-stand workstation intervention. For this group, subjective but not objectively measured sitting time per work day, and per work week, (OSPAQ) were respectively 65 and 369 minutes less at follow up compared to baseline (Cohen’s D -0.61 and -0.69, p <0.01 for both). No significant within group difference in these outcomes were found for either the education only intervention or the control group.

4. Discussion
While not significant, the trend in the data favouring the combined intervention is in line with the effects found by other recently published studies evaluating the use of similar activity permissive workstations.
Implications: To effect positive change in sedentary behaviour in non-motivated individuals a longer adoption period may be required together with regular promoting and reinforcement to increase adherence.

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References