Reviewer's report

Title: Using Pedometers to Increase Physical Activity in Overweight and Obese Women: A Pilot Study

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Reviewer: Stacy Clemes

Reviewer's report:

This study investigated whether feedback from a pedometer along with goal setting increased the activity levels of a sample of overweight and obese women. Unfortunately, in its current form, I believe the article doesn't add much to the field. It suffers from many of the limitations highlighted by Bravata et al. (JAMA 2007: 298; 2269-2304) that have been associated with previous pedometer interventions (e.g. Small sample size, relatively short intervention, no follow-up, pedometer used as both a measurement tool and as a motivational device, female only sample). Some of the points below are suggestions of how the manuscript could be improved.

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Please number your comments and divide them into

- Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1. Methods, page 6. Can the authors add further justification for their decision to use the Yamax Digi-Walker pedometer? Of concern, Crouter et al. (MSSE 2005: 37(10):1673-9) have previously reported that the spring-levered Yamax SW-200 pedometer is less accurate at counting steps in overweight and obese adults.

2. Methods, page 6. Did the authors check the accuracy of the pedometer, for example by the means of a 20 step test, on each participant at the outset?

3. Methods, page 6. Can the authors clarify that the control group recorded their own steps on a weekly basis by unsealing the pedometer, recording their weekly total, and then resetting and resealing the pedometer?

4. Methods, page 6. As a follow-on to the above point, how were the pedometers sealed? And how did the authors confirm that the control group definitely resealed their pedometer?

5. Methods, page 6. If I am correct in what I’ve said above, even though the control group wore a sealed pedometer for 12 weeks, they still received weekly
feedback in terms of their step count. How can the authors be sure that the control group didn’t receive motivation, and perhaps change their activity, from this feedback?

6. Methods, page 6. How can you be sure that you measured a true baseline in terms of both groups steps/day? There is evidence to suggest that despite participants not being able to see their daily step count when wearing sealed pedometers, a certain amount of reactivity (i.e. steps are higher) occurs during the first 2-3 days of monitoring under these conditions (Clemes and Parker, MSSE 2009:41, 675-681). The limitation of using a pedometer without a memory chip, whereby only a total step count for the week is available, should be discussed in the discussion. For future studies of this kind, I’d recommend using a pedometer with a memory chip which is capable of storing daily step counts over a period of seven days.

7. Methods, page 8. Can the authors explain why they measured body composition using both the Tanita scales (please also specify the model used here) and the RJL Systems BIA – 101 Body Composition Analyser? Was body composition also measured using the skin fold measurements? In the results, please specify what device the % body fat measure presented in Table 2 came from.

8. Results, page 10. It is mentioned in the methods section on page 8 that resting heart rate and blood pressure was measured from participants at baseline and at week 12, however no results on these measures are included in the results section. Can these results also be added to the paper, were there any changes in these measures seen over the 12 weeks in the intervention and control groups?

9. Results, page 10-11. Throughout the results the authors report differences between the intervention and control groups, in terms of pre and post intervention measures. Were any analyses conducted looking at within group differences? From looking at the data in Table 2 I’m guessing no significant differences will be found between, for example, pre and post intervention weight of the pedometer group, but it might have been good to include these analyses.

10. Discussion, page 12, lines 17-18. The authors state here that “In this study, pedometer users increased their number of steps by 27% over baseline.” Whereas in the results (page 10, lines 17-18) it states “At week 12, the pedometer group was taking an average of 3461 steps per day more (36% increase) than at baseline.” Please clarify the correct result.

11. Discussion, pages 12-13. The main finding of the study is that the intervention group increased their activity by an average of 3461 steps/day over a 12 week period. This is an impressive increase in activity. However, rather surprisingly, no beneficial changes in this groups body weight, BMI, waist circumference and body fat appears to have occurred. How can the authors explain this given they have also shown that reported dietary intake didn’t change substantially over the 12 weeks?
12. Discussion, pages 12-13. In relation to the above point, it would be interesting to compare the results of your study with those of Chan et al. (Prev Med 2004:39 1215-1222), like your study Chan et al. used a 12 week pedometer intervention in a predominantly overweight/obese sample. On average, their participants increased their activity by 3451 step/day, but in-line with this increase their participants showed significant reductions in body weight, BMI, waist circumference and heart rate. Please discuss the differences in study results.

13. Discussion, pages 12-13. There are no study limitations highlighted in the discussion, a section on study limitations should be added. In particular, there was no follow-up of participants, it would be interesting to know whether the pedometer group maintained their elevated step count at for example, 12 weeks post intervention.

- Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

14. Methods, page 6. Can the authors clarify what model pedometer they used, was it the Yamax SW-200?

15. Table 2. The legend of Table 2 does not describe the actual data presented in Table 2, can this be corrected?

- Discretionary Revisions

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.

16. Introduction: Page 4, lines 8 to 10. The authors state that studies are needed which compare “participants who can see their daily step counts vs pedometer use in which they are blinded to their daily step counts”. We have recently conducted a couple of studies comparing step counts when participants are not aware that they are wearing a pedometer (covert monitoring) versus step counts when participants wear a sealed, unsealed, and unsealed pedometer coupled with step count recording (Clemes and Parker, MSSE 2009:41, 675-681; Clemes et al. Br J Sports Med 2008:42, 68-70). These articles maybe of interest as background information should the authors wish to explore this topic further.

17. Tables 1 and 2 show very similar information, for example, both show the baseline data for weight, height, and BMI of the two groups. These two tables could be merged into one, to save the replication of information.

Level of interest: An article of limited interest

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