Reviewer's report

Title: Children, parents and pets exercising together (CPET): exploratory randomised controlled trial.

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Reviewer: Lydian Veldhuis

Reviewer's report:

The aim of this Research article is reporting the feasibility and acceptability of the CPET intervention and trial, reporting preliminary evidence of its potential efficacy, giving implications for planning and powering of future interventions, and assessing to what extent dog walking contributes to MVPA among adults and children. In addition, the exploratory trial was intended to improve the understanding of the frequency, intensity and duration of dog walking among dog owning families in Scotland.

The authors conclude based on the results that the CPET trial was feasible and that the intervention was acceptable to participants. The results indicate however also that there was no significant change in PA outcome measures in the intervention group.

The manuscript is interesting, and the results will be of particular interest to those interested in developing an intervention to improve PA within families by dog walking.

- Major Compulsory Revisions

1. My main comment is that the authors should discuss their findings more, and should elaborate more on what can be concluded based on their findings. For example:

a. The authors do not discuss the findings of the focus groups in the discussion section.

b. Most parents indicated in the questionnaire that the intervention was sufficient to motivate them to increase the amount of dog walking they did previously. During the focus groups parents indicated that they experienced longer walks. However, these findings are not in line with the results of the PA measurements. What does this mean? What might be reasons for this contradiction?

c. What may be reasons for the lack of differences between the intervention and control group? Was the intervention duration too short? In the intervention group, the total duration of dog walking at follow up was even lower compared to the total duration of dog walking at baseline. Might this be due to bad weather in the follow-up measuring week for example? Might the results be different when PA was measured continuously during the study, and not only in week 11?

d. One of the aims of the study was to improve the understanding of dog walking
among dog owning families. These findings should be summarized in the discussion.

e. Implications for the planning and powering of future interventions should be described more specifically in the discussion section. What are specific recommendations for future interventions?

- Minor Essential Revisions

2. Abstract: in the background section it is stated that it was part of the study’s aim to assess the potential efficacy of the intervention, but this is not described in the discussion section of the abstract.

3. Abstract, methods section: please add a short description of the intervention (e.g. families in the intervention group were motivated and supported to increase frequency, intensity, and duration of dog walking; home visits, e-mails/calls were used, etc.).

4. The third paragraph of the introduction section ends with a part of the study aim: ‘The present exploratory … families in Scotland.’ This should be added to the aim of the study at the end of the introduction.

5. In the methods section of the main manuscript, in the paragraph on outcome measures, it is stated that the secondary outcome measures are listed in the article describing the study protocol (Yam et al). However, as the study also presents results on these secondary outcomes, a reference to the study protocol-article is not enough; all outcome measures investigated should be described in the methods section.

6. In the methods section, paragraph outcome measures, the specific cut-off points used to define the intensity of the PA of children and parents should be described, not just references to other papers. These numbers should also be added as footnotes to the tables.

7. Results section, potential efficacy, sedentary behavior and PA: the authors describe that the control group parents increased PA MORE than intervention group parents. However, PA did not increase at all in parents in the intervention group; it even decreased. Please consider revising this sentence.

8. The authors mention in the first paragraph of the discussion section that there were no effects on the primary and secondary outcome measures, but no description of these measures is given. Please, describe the primary and secondary outcome measures of this study in the first paragraph of the discussion section.

9. Discussion section, fifth paragraph: comparisons should be made with other studies that investigated the number and duration of dog walks (these studies are mentioned in the introduction section).

10. Footnotes should be added to the tables; the abbreviation cpm should be described, it should be described for which differences the p-value are reported, the definitions of the different levels of PA should be given, etc.

- Discretionary Revisions
11. The readability of the first sentences of the introduction might be improved. The link between low PA and health can be described more clearly. First, it would be informative to give some examples of the health benefits associated with MVPA. Further, I would suggest splitting the sentence “Recent evidence from … 7-11 years old)” into two sentences; one about the changes in PA during childhood and one about childhood weight status.

12. In the result section, baseline PA and dog walking; my suggestion is to add this information to the Tables 1 and 2. Instead of describing it fully in the text of the results, add a sentence to the results, e.g. “PA and dog walking of the total study population at baseline is described in Table 1 and Table 2.” Now it is quite a list, not easy to read, and this information is not of main interest.

13. Results section, potential efficacy: I would suggest the authors to remove the first paragraph about the duration of the accelerometry monitoring from the result section, and add this text as footnotes to Tables 1 and 2. In my opinion it is additional information, and not a main result of the study. This will also improve readability.

14. Results section, potential efficacy, second paragraph:
   a. The authors state in the third sentence that “Changes in all other outcomes were not significant …”. However, only one of the changes described in the Tables 1 and 2 was statistical significant. Please consider revising this text, perhaps by mentioning that the Tables represent the primary outcomes of the study?
   b. Please consider removing the sentences “Off the 28 … (see supplementary information).” and instead add this information as footnotes to the tables.

15. The first paragraph of the discussion section might be improved by restructuring some of the text. My suggestion is to split up the sentence “The results show … the secondary measures.” and first elaborate on the results regarding the feasibility and acceptability of the intervention, and than describe the effects on PA.

16. Discussion section, sixth paragraph: “…was shown to be promising.” Please clarify; was this promising based on earlier research? If so, please add the references here. If you mean that it is promising based on the results of the present study, please describe this more clearly.

17. Discussion section, sixth paragraph: “The amount of … were indeed so.” It is not clear to me what the authors mean to say by this sentence. Please consider revision.

- Minor issues not for publication:

18. (Actually a major issue, but not suitable for publication) In the documents I received for reviewing, Figure 1 is missing...

19. Abstract: “…, 97% of outcome data were collected at baseline and follow up.” It is not clear to me what the authors mean with this sentence. To what does this percentage refer?
20. In the results section, feasibility of the trial, second paragraph; please correct what seems to be an incorrect sentence: “Twenty-eight families (22% of those who expressed an interest), two with two eligible children IN EACH [?] …”

21. In the results section, feasibility of the trial, second paragraph; suggestion to change the following sentence: “… and 23/27 children (84%) available at follow up.” to “… and for 23/27 children (84%) at follow up.”

**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.