Author's response to reviews

Title: Effects of resistance and functional-skills training on habitual activity and constipation among older adults living in long-term care facilities: a randomized controlled trial [ISRCTN87177281]

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Author’s response to reviews: see over
Dear Editor,

We are glad to submit our revised manuscript entitled: ‘Effects of resistance and functional-skills training on habitual activity and constipation in older adults living in long-term care facilities: a randomized controlled trial [ISRCTN87177281]’ to your journal ‘BMC Geriatrics’.

Below you will find the concerns or recommendations of the reviewers followed by our reply. The revised sections in the manuscript are printed in bold.

Looking forward to your reply, I remain

Marijke Chin A Paw
Concerns or recommendations of reviewer #1 followed by our reply

The reviewer states that this paper makes several very important points that have not been clearly made by other published literature.

The reviewer has two suggestions for the discussion section:

1. The exercise interventions evaluated may not have been adequate for the study population
2. Constipation is a multi-faceted problem that is thought to be related to physical activity, food and fluid intake and medication usage. To improve constipation, it may be necessary to implement an intervention that affects all of these risk factors.

Both suggestions have been included in the discussion section on page 13 and 14.

Concerns or recommendations of reviewer #2 followed by our reply

The reviewer states that the issues raised in our paper are of importance. The paper is clear on the design etceteras, well written, and pleasant to read. We would like to thank the reviewer for his compliments.

Major revisions:

1. A plausible physiologic rationale concerning the relationship between physical activity and constipation and insight into the expected sizes of the effectiveness. *Since there are hardly any trials available on the effect of physical exercise on constipation in older people it is difficult to assess expected effect sizes. We added the following sentence in the background section: ‘Underlying mechanisms are unclear but a favourable effect on colonic motility, decreased blood flow to the gut, biomechanical bouncing of the gut during running, compression of the colon by abdominal musculature, and increased fibre intake as a result of increased energy expenditure have all been reported (1).’ And: ‘However, the Nurses’ Health Study (2), which followed a cohort of 62,036 women, found that physical activity 2-6 times per week was associated with a 35 percent lower risk of constipation.’*
2. Exploration of data of an extended baseline period with frequent sampling in order to see the dynamics and individual differences in the scores of the main outcomes. We agree with the reviewer that it would have been interesting to collect data of an extended baseline period with frequent sampling. This study was part of a larger randomized controlled trial in which also other outcomes were measured such as physical fitness and functioning, quality of life, vitality and depression. To limit participant burden regarding the measurements, we chose to measure constipation with a simple questionnaire and did not collect data of an extended baseline period.

3. Insight in the data of an intermediate outcome concerning the progression of the exact loads during both the functional as well as the resistance training. We do not have data available on the exact loads of the exercise programs. We do have some subjective information and added the following information in the discussion section: ‘Looking at the resistance exercise logs all supervising physical therapists frequently modified the resistance training protocol in case subjects could not perform the 8-12 repetitions without complaints. Both our participants as well as the supervising physical therapists were reluctant to increase the resistance. Therefore, the increase in resistance often was at a slower pace than according to the protocol. Adherence to the functional-skills training protocol is more difficult to assess. However, as reported elsewhere twice weekly functional-skills training alone or in combination with resistance training did show functional improvement (3)’

4. Add data from other intermediate variables, for instance concerning possible changes during the trial in food- and water intake and/or daily activities. We agree with the reviewer that data on changes in food- and water intake would be very interesting to include. Unfortunately we did not measure these outcomes. The data on daily activities show that these have hardly changed and that changes were not significantly different between groups.

5. More explicit and detailed insight on the data and math used for the power analysis. This study described in the present paper is part of a larger study examining the effectiveness of different exercise training protocols on physical functioning, quality of life, vitality and depression. The initial power analysis
was performed on the primary outcome measure i.e. physical functioning. Based on the current data and sample size (N=160) we would be able to detect a difference of 25-30 minutes in moderate physical activity between intervention and control groups with an alpha of 5% and a power of 80%. This is a large difference which we did not achieve. Therefore, we can say that the study is underpowered. However, looking at the differences between intervention and control groups we can state that the differences found are small and not clinically relevant.

Minor revisions:

1. It is of interest to the reader to have knowledge on the sensitivity to change of the instruments used. **We agree with the reviewer that information on the sensitivity to change of the instruments would be very interesting. Unfortunately we have no such information available.**

2. Recent publications of Vreede et al. might be considered to take notice of. **We looked for publications of Vreede et al. but did not find any papers on the same topic (constipation and/or habitual physical activity).**

Discretionary Revisions:

A figure on the outcome might help to visualize the outcome. **Revised as suggested.**

Reference List

