Author's response to reviews

Title: Effects of two exercise protocols on postural balance of elderly women: a randomized controlled trial

Authors:

Laiana S A Mesquita (laianasepulveda@hotmail.com)
Fabiana T Carvalho (fabianatcarvalho@hotmail.com)
Lara S A Freire (larasepulveda@hotmail.com)
Osmar P Neto (osmarpintoneto@hotmail.com)
Renato A Zângaro (razangaro@gmail.com)

Version: 2 Date: 16 March 2015

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

We have revised our manuscript in accordance with the reviewers’ suggestions. We have also improved the English throughout the paper. Modifications are shown in yellow highlighted text. If any further modifications are required before our paper is published in *BMC Geriatrics*, please do not hesitate to contact me.

Abstract

_Reviewer: Tim Henwood_

Good, but the results are misleading. Line 42. No difference between PNF and PG was found, so how can PNF be the only group that showed a significant reduction? L48. Conclusion needs adjusting.

_Response:_

- The results and conclusions paragraphs were revised to show that the PNFG exhibited reduced stabilometric parameters compared with the CG instead of stating that the PNFG was the only group to show a significant reduction. In the conclusion section, we have stated that no significant differences were observed between the PNFG and PG.

Introduction

_Reviewer: Kate Bolam_

It's not overly clear in the introduction or paragraph detailing the aim, that the 2 different methods of exercise will be trialed separately with the 2 groups trialing one method each. Please reword to clarify this. 2. Our ultimate goal is to identify the best method of preventing falls and promoting health through functional independence. This statement is not in line with the aim of the study. Please
Reviewer: Tim Henwood

The section is not well grammatically structured, and lacks sufficient justification for the study and the interventions chosen.

Explain “…..pattern diagonal and spiral…..”? L80. “….power house”? L96. “Our ultimate goal…….” What is the relevance of this statement?

Response

- The last two paragraphs were modified to justify and better explain the reasons for choosing these two exercise methods and the purpose of the study.

- The exercises for proprioceptive neuromuscular facilitation were performed diagonally. Thus, we have revised the sentence containing the phrase “…pattern diagonal and spiral…”

- The meaning of “powerhouse” has been clarified as follows: “One of the main objectives in Pilates is to strengthen the core muscles, also known as the ‘powerhouse.’”

- The last sentence of the introduction section has been modified from “Our ultimate goal is to identify the best method of preventing falls and promoting health through functional independence” to “Consequently, the aim of this study was to conduct a randomized controlled trial to investigate and compare the effect of both exercise methods on the static and dynamic postural balance variables in elderly women, thus identifying alternatives to prevent falls and promoting functional independency.”

Methods
**General revisions**

- We have added detailed information regarding the recruitment process, inclusion and exclusion criteria, how the women were considered to be suitable for the trial, data collection, and delivery of the interventions.

**Reviewer: Tim Henwood**

Is it fair to say based on the exclusion criteria that only health older adults were included, those without any disease?

**Reviewer: Kate Bolam**

Do the authors mean that the participants should have been sedentary (and healthy) or are they defining sedentary behavior as being unhealthy?

**Response**

- We have detailed the criteria to clarify what we meant by sedentary behavior. A geriatrician who volunteered for the project examined the women to exclude any diseases that could compromise their performance in the trial.

**Reviewer: Tim Henwood**

How was PNF range of motion tracked to ensure progression? In the PG how was individual capacity allowed for and dealt with?

**Response**

- Our main goal was to assess the women’s balance. Although the PNF exercises were performed using the entire range of motion, the PNF range of motion was not evaluated. The Pilates exercises followed a progressive protocol involving a gradual increase in the number of repetitions and difficulty level; however, these exercises were performed in groups of up to three people.
Reviewer: Kate Bolam
Were the participants trained (exercising) prior to entry into the study? Was this measured?

Response
- The participants were not trained prior to the trial because this may have interfered with the initial assessment (functional tests and stabilometry). The exercises were only taught and performed during the trial. This was important to verify whether the different methods (Pilates and PNF) during the study period (4 weeks, 12 sessions) would improve the women’s balance.

Reviewer: Tim Henwood
As an exercise physiologist I am not sure I have heard of a specific PNF certification/course?

Response
- In Brazil, there are certifying courses for both Pilates and PNF instructors. This is why the interventions were delivered by certified instructors.

Reviewer: Tim Henwood
How was the platform marker for all 58 participants?

Reviewer: Kate Bolam
The platform was demarcated in the first trial of each individual as support base, and repeated in the other trials to ensure the same basis in all tests, as suggested by Teixeira et al. Please re-word this sentence to improve its clarity.

Response
- The platform marker has been described in the revised manuscript.
Reviewer: Tim Henwood
Also how was the sample size calculated.

Reviewer: Kate Bolam
Were sample size calculations performed prior to recruitment, please add them to this section. If not, please add this to the limitations section.

Response
- This study involved a convenience sample using older women belonging to a church project named “Pão dos Pobres.” Therefore, a sample size calculation was not necessary.

Reviewer: Tim Henwood
Why is the PG intervention tabulated but not the PNFG one?

Response
- We did not include the PNF exercise protocol in a table, as we did with the Pilates protocol, because we believe that it is better understood by describing it in the text.

Reviewer: Tim Henwood
See above about requested more detail about analysis. The statistical methods employed need to be more detailed so the reader can understand better what has been undertaken.

Reviewer: Kate Bolam
Were there differences between the groups for the main outcome variables? And if so- were they accounted for statistically? Were equivalent non-parametric tests needed for between groups analysis?
**Response**

- The statistical methods have been described in greater detail.

**Results**

*Reviewer: Kate Bolam*

Was attendance to the sessions and adherence to the program monitored and measured? If so, please detail this in the methods and results section.

**Response**

- Attendance and conclusion percentage for the Pilates and PNF programs have been added to the revised manuscript.

*Reviewer: Kate Bolam*

it is most important to report the between groups differences as the first results written (suggest changing the order so that all between groups comparisons results are written before within groups comparisons results).

*Reviewer: Tim Henwood*

I would assume that all measures underwent a pre-post repeated measures analysis? This should be the primary discussion in the results section and tables, not the between two group comparisons.

**Response**

- The reviewers are in disagreement regarding the presentation of the results. Therefore, the current order was maintained: First, the stabilometric data (within- and between-group comparisons) are presented, and then the functional test results (within- and between-group comparisons) are presented.
Tables 3, 4, and 5 were organized (new Tables 3, 4, and 5) to show all results of the within- and between-group comparisons and thus facilitate easier visualization of the results.

Reviewer: Kate Bolam
It should be made clearer throughout the results section about which analyses the authors are referring to in the results section—between OR within groups analyses. Additionally, between and within comparisons are commonly understood terminology and it's not necessary to explain them (e.g., before and after differences means).

Response
- The results have been revised in terms of within-group and between-group comparisons.

Discussion

General revisions
- A paragraph was moved from the Discussion to the Introduction to justify the trial.
- A paragraph was added to discuss the results regarding the Pilates method.

References

Reviewer: Tim Henwood
In addition, recent evidence (Sherrington et al. 2008 and 2011) is ignored.

Response
- The suggested references (Sherrington et al. 2008 and 2011) have been added to the revised manuscript.
Yours sincerely,

Laiana Sepúlveda de Andrade Mesquita