Reviewer’s report

Title: Effects of aquatic physical intervention on fall risk, working memory and hazard-perception as pedestrians in older people: a pilot trial

Version: 0 Date: 19 Dec 2019

Reviewer: Matthew Abramowitz

Reviewer's report:

This is a clinical trial comparing the effects of an aquatic-based physical intervention with a land-based physical intervention and a non-physical intervention on fall risk, working memory, and street-crossing safety in older adults. The authors found significant improvement with the aquatic intervention, compared with the other interventions, for the first 2 outcomes. The authors appropriately acknowledge limitations of their study including the small sample size and the fact that 17% of participants were not randomly allocated. I have the following comments:

1. In the interest of a balanced presentation of the study findings, Figures 2 and 3 should include measures such as the Tinneti gait score that did not show significant improvement. Otherwise people who view the figures but do not read the paper in detail may think that all outcomes improved.

2. Discussion, page 13, lines 1-2: The authors should comment on whether their recommendation of the Ai-Chi method is based solely on their study, which was conducted in a small number of participants and had other limitations, or can be placed in broader context by consideration of previous reports.

3. Discussion, page 13, line 8: It is unclear to this reviewer why showing an effect at 6 weeks is important when a previous study already showed an effect at 12 weeks. Normally one would think that a longer time interval is more clinically relevant, so it is not clear what 6 weeks adds.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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