Reviewer’s report

Title: A cognitive-motor intervention using a dance video game to enhance foot placement accuracy and gait under dual task conditions in older adults: A randomized controlled trial

Version: 3 Date: 3 October 2012

Reviewer: Kate Laver

Reviewer’s report:

Major compulsory revisions

1. The title is quite wordy: could it be simplified? “Use of a dance video game to enhance gait under dual task conditions in older adults: A randomized controlled trial”.

2. Abstract: Discussion: needs to be more guarded. You need to specify in which aspects the video game group improved more, Your current sentence about this is too broad.

3. Abstract: Your study appears underpowered therefore you cannot say that older adults benefit more from a cognitive-motor intervention than from strength and balance exercise alone. You can only really say that your findings suggest that the addition of this particular program to traditional strength and balance exercises may result in improved outcomes for older people.

4. Introduction: The introduction contains all the pertinent information, refers to the important literature in this field and makes a good case for your study however, I feel this needs a bit of a rewrite to make it clearer. The sentences are a bit long and sometimes unnecessarily complicated. This needs to be addressed first by the authors and then secondly by the editorial staff.

5. Intro: Your paragraph summarising other studies using dance video games needs some work. Without increasing the length too much you need to provide a little more detail – in what settings? were the effects of the intervention strong?

6. Intro: “Previous dance video games studies have shown the feasibility of this approach in the elderly and have reported positive contributions to self-reported balance confidence and mental health in older adults.” You need to be more specific – what do you mean by feasibility? (safe? Acceptable to patients? Patients are able to manage the demands of the task?) Were these commercial games or games specifically designed for older people? What do you mean by mental health exactly (how was this measured?).

7. Results: Foot placement accuracy. Please specify that changes are statistically significant (rather than being necessarily clinically significant)

8. The discussion section is too long. Please shorten and choose the most important aspects to discuss.
9. Discussion: It would however be worth mentioning the age of your participants (who are older than the groups used in many other studies) and commenting on recruitment and compliance issues. I note that 6 patients had low motivation or exercise compliance. It is worth discussing this and it would be useful to refer to another related paper published in BMC Geriatrics: Laver et al ‘Is the Nintendo Wii Fit really acceptable to older people.

10. Conclusions: Also too long. Please try to reduce to 3 sentences. You need to be more guarded given that your study was underpowered. I don’t think that you can say that strength and balance exercise leads to better walking performance... You can say that your study supports previous larger studies that strength and balance exercises lead to better walking performance. You can also not say that you have ‘demonstrated’ that older adults benefit more from a CM intervention than physical exercises alone.

11. Figure 2; implies that the person was hanging on to the ropes. Does this reduce the benefit of the intervention by providing some steadying and thus the person having to use their balance skills less?

Minor essential revisions
1. Abstract: “Computer-based interventions have proved to be suitable”: This sentence does not make sense. It needs clarification.
2. Abstract: The first sentence of the methods subsection is too long and unclear. Please revise this.
3. Abstract: Please provide more detail in what you mean by ‘single support time’ in the results section.
4. Intro: Paragraph 1: You need to define the age group you are referring to when you say that 30% of older adults experience a fall each year (eg >65 yo).
5. Intro: When you talk about the cognitive aspect of walking you use lots of different terms. I think you need to simplify this a little for the reader by talking about the cognitive processes associated with walking. And then talking about the processes that are thought to be particularly relevant to focus on (and why these processes are the most important).
6. Methods: Participants: Please clarify whether being able to walk 8 metres was with or without a walking aid.
7. Methods Please clarify re the person with insufficient motivation. Did they initially express interest and then change their minds before randomisation?
8. Methods Your outcome measures are clearly described but it would be useful to make this section a bit more concise so that it is shorter.
9. Table 1: Please present Mini Mental mean and SD rather than mode.

Discretionary revisions
Nil
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests