Reviewer's report

Title: Discriminant validity and test re-test reliability of a gait assessment in patients with vestibular dysfunction

Version: 3 Date: 1 August 2015

Reviewer: Thorlene Egerton

Reviewer's report:

MS: 4850285901546823
Discriminant validity and test re-test reliability of a gait assessment in patients with vestibular dysfunction
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Comments on revision:
The manuscript is much improved and authors are to be congratulated on their efforts. I am satisfied with their responses and changes to the manuscript apart from the following:

“Most of the data were between 2 standard deviations in the Bland-Altman plots, with the exception of a few outliers (1-2) in gait speed and cadence for self-selected walking speed. The Bland and Altman plots for step length yielded 4 data points outside the 2 standard deviations.”

These sentences do not say anything about the quality of the assessment technique you are evaluating in the study. In fact they are redundant because the limits of agreement are determined from the data such that most of the data points will always be inside the LOA and a few will always be outside the LOA.

Another way of explaining it is that 2SD will always include most of the data.

These sentences should be removed as they are redundant but it would improve the paper if there was a comment on the magnitude of the LOA in terms of clinical significance of the outcomes or magnitude of the difference between groups, and about any systematic errors the plot identifies. You could for example, comment that the mean difference was negative in both plots meaning that the second test seemed to be slower (or faster depending on whether you subtracted first from second or second from first). Although you might also argue that the mean difference was very close to zero which indicates no systematic error in re-test. Bland Altman plots need to be discussed qualitatively with regard the magnitude of the LOAs and the mean difference.

I also noticed that you use “self-defined” instead of “self-selected” in the Figure title and caption. And also that in the figure you use “1.96SD” but in the text you use “2SD”.

Finally, to be consistent with the manuscript the title should be changed to ‘test-retest reproducibility’.

**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