Reviewer's report

Title: Balance Mediates the Association Between Executive Function and Fall Risk in Older Adults

Version: 1 Date: 23 June 2011

Reviewer: Taina Rantanen

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Compulsory changes

1. The study question is poorly stated at the end of introduction. The authors describe what they did and how but fail to specifically state what the question was. Please, clarify.

2. The statistical methods could be improved. Falls are recurring events and therefore logistic regression is not an appropriate method for studying fall risk prospectively. The authors are not taking full use of their prospective study design. Negative binomial regression would be a better choice. Please, reanalyze.

3. There does not appear to be an appropriate statistical analysis for capturing the mediators of the effect of executive functioning on falls. Based on the analyses presented, the conclusions go beyond the actual analyses. Please, reanalyze.

4. The subgroup analyses are not justified. I cannot follow the logic in selecting the subgroups. Please, clarify or omit.

5. Please, describe what was done with the motor sensors installed in peoples’ homes?

6. Falls data are collected prospectively which is strength of the study. This way recall bias is reduced. However, fall data was collected using a computer program. Attrition to this procedure is not described. Please, add.

7. The manuscript would benefit from better description of fall data quality. Do you know how often the participants logged on to report falls? Was using the computer acceptable to them? Do you have other information about falls (scene, injuries, time of day)?

8. There is a great deal of earlier literature including meta-analyses and reviews on fall risk. Please, acknowledge pertinent earlier reports. This has to do with study ethics.

9. The limitations are not clearly acknowledged. The statistical reanalysis may solve some of these problems.

10. The abstract is somewhat confusing in terms that the logic in the analyses is difficult to follow. Please, clarify.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
'I declare that I have no competing interests'