Reviewer’s report

Title: Definitions and methods of measuring and reporting on injurious falls in randomised controlled fall prevention trials: a systematic review

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Reviewer: John Campbell

Reviewer’s report:

This paper provides a comprehensive review of randomised controlled trials which have tested interventions to decrease falls and injuries resulting from falls. This is a further paper from the Prevention of Falls in Europe Network (ProFaNE) which has already done excellent work in establishing an agreed terminology and classification for falls, fall prevention interventions and trials.

The literature review has been thorough using appropriate methods to ensure all relevant studies have been included. However, it is not clear whether all RCTs reporting fall related fractures, as opposed to injurious falls, have been included. A number of additional studies (approximately 30 in the community) have reported fracture as an injury caused by a fall. It appears these trials are missing from table1. If these have not been included in this review because the fracture was not described separately as an injurious fall then this needs to be clarified in the methods.

The authors state as a possible limitation of the paper that they did not review the epidemiological literature for a classification of fall related injuries. The epidemiological studies will have been reviewed by most researchers prior to the intervention trials. To my knowledge no satisfactory classification exists in the epidemiological literature.

As well as reviewing the classification of injury the authors have also reviewed the methods used in the trials for determining if injury has occurred.

The great majority of fall prevention trials have been powered to determine an effect of the intervention on falls not injury. The authors have very usefully calculated the number of participants who would need to participate in trials in which injury of different types and severity was the outcome. Because of the large numbers of participants needed and the difficulties of funding such studies a meta-analysis of existing and planned fall prevention studies would be a more practical approach.

The authors have made valuable suggestions about standardizing the methods of determining and classifying fall related injuries in trials so that, in the future such a meta-analysis will be possible.

In summary, this is a clearly written paper reporting a comprehensive review of the literature and containing valuable recommendations for future studies.
However, the inclusion of studies reporting fractures needs to be clarified.

Minor issues that need to be addressed prior to publication.

i) The number of papers given as reviewed and rejected is different in the results in the abstract and the body of the paper.

ii) Abstract methods description of an electronic search “of various databases” would sound more planned as an electronic search of “selected, comprehensive databases”.

iii) The use of dot points would make table 1 easier to follow

iv) Table 5 is difficult to follow. “Fallers” needs clarification. Presumably this is the total proportion of participants who had a fall whether causing injury or not. The assumptions for sample size calculation appear to refer to hip fracture only. Do these assumptions apply to all injuries?

v) It would also be worth commenting in the paper that a fall related injury should be classified by an independent person, blind to group allocation.

**Level of interest:** An article of importance in its field

**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'