Author’s response to reviews

Title: The Fracture Predictive Ability of a Musculoskeletal Composite Score in Old Men – Data from the MrOs Sweden Study

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Author’s response to reviews:

Reviewer reports:

We thank all reviewers for the work they have done and for the comments and suggestions made in order to improve our paper. Below follow point-by-point answers to the questions and comments made by each reviewer.

Therma Cheung (Reviewer 1): The methods used in this study were well described and appropriate although unfortunately the hypothesized was found not to be superior with the conventional method of using aBMD to predict fractures.

The author gave an interesting discussion on the roles of bone size, cortical shell thickness as well as physical activity in predicting fractures. That makes the reader wonder how many elderly men in this sample actually had a fall without fracture. It would be interesting to capture the data of incidents that include injury or fall and test if there is any association with the other study findings.

Page 4 line 21 the language of the sentence needs to be revised. Original text says 'The primary aim of this study was to in elderly man investigate if a musculoskeletal composite score...'
In summary, the paper is clear and readable. The findings are good to know though does not have an impact on current practice.

Answer:

We thank the reviewer for these words and the comments made in order to improve our paper.

As for the question regarding incidents that include injury or fall and the association with the study outcomes we thank the reviewer for this very interesting question and comment. In order to provide the reviewer with an answer we have conducted a post-hoc-analysis where we, in the sub-cohort of men that reported a fall during the past 12 months at baseline (n=495), compared the study outcomes composite score and femoral neck aBMD Z-score between fallers with a fracture during the follow-up (n=149) to those without fracture during the follow-up (n=346). We found that the men who did not sustain a fracture had a better composite score (+0.12 (-0.01, 0.25) mean difference (95% CI)) and a better femoral neck aBMD Z-score (+0.39 (0.19, 0.59) mean difference (95% CI)) than the men who sustained a fracture during the follow-up. Once again we feel that this is a truly interesting question that needs to be assessed further, but we argue that this should be done in a separate article since this aim, hypothesis and analysis of a study cohort sub-group was not included in our pre-defined study design in the current study and therefore should not be included in this paper. It will however provide important input to new upcoming articles.

As for the comment on language revision on page 4, line 21, this sentence has now been rewritten and now reads “The primary aim of this study was, to in a cohort of older men, investigate if a musculoskeletal composite score could predict fractures, and if so, superior to the included traits as well as femoral neck aBMD”. Please see page 4, paragraph 2 line 1.

Eva Ekvall Hansson, Associate professor (Reviewer 2): Reviewer report BMC Geriatrics

The fracture predictive value for a musculoskeletal composite score in old men

General comments

This study addresses an important subject and has a robust design. The manuscript is very well written and easy to follow. The use of the word "elderly" should be changed throughout the manuscript to "older" (http://www.bcli.org/older-adult-older-person).

Answer:

We thank the reviewer for these words and comment. We change the word “elderly” to “older” throughout the whole manuscript as suggested by the reviewer. Please see the whole manuscript.

Title
Describes the study well.

Abstract
Very well written and clear.

Introduction
Gives a good view of the topic.

Aim
Clear.

Method
Well described.

Results
Well written

Discussion
Thorough and well written

Conclusion
Well written

References
Appropriate

Tables
Clear and easy to read
We thank the reviewer for these words. No questions forwarded in this section, no further answers provided.

Trine Elisabeth Finnes, M.D. (Reviewer 3): General comment:

Felix Cronholm et al. present in this paper a study aiming to investigate the association between defined musculoskeletal traits and fractures in 3000 elderly home dwelling men included in the MrOs study. Further the association between physical activity (PA) and fractures and between PA and musculoskeletal traits was investigated. The language is in general good, the paper is well structured, and the references are relevant. The methods are clearly described, the tables easy to read, and the discussion is balanced and addresses relevant findings. No power analysis was done regarding the current aim, however, the data were already collected, and the cohort is large. The paper is of interest for both researchers and clinicians.

Answer:

We thank the reviewer for these comments. No questions forwarded in this paragraph and no further answers provided.

Minor comment:

The use of the word "predictive value" may lead the reader to expect a predictive value to be estimated and reported. However, no positive predictive value is reported. The authors could consider changing the expression into "association", were relevant. (heading, line 29, page 8)

Answer:

We acknowledge this comment from the reviewer and change the use of wording from “predictive value” to “predictive ability” as suggested, since we do not present a positive predictive value for our included traits but instead analyze the fracture predictive ability of the traits and the musculoskeletal composite score. The title thus now reads “The Fracture Predictive Ability of a Musculoskeletal Composite Score in Old Men – Data from the MrOs Sweden Study”. Please see title. We also change the background section in the abstract and also remove the wording “predictive value” and replace the corresponding sentence so that it now reads “This study assessed whether level of physical activity (PA) and a musculoskeletal composite score could be used as fracture predictive tools, and if the score could predict fractures better than areal bone mineral density (aBMD)”. Please see background section in the abstract.