Reviewer’s report

Title: What is the best adjustment of appendicular lean mass for predicting mortality or disability among Japanese community dwellers?

Version: 0 Date: 03 Oct 2017

Reviewer: Jean Woo

Reviewer’s report:

This manuscript makes use of longitudinal anthropometric data over a 15 year period and relates them to incident disability and mortality. Specifically ASM and a combination of adjustments for height, height2, leg length, weight and BMI were examined in relation to prediction of disability and mortality. While the statistical methods and analyses are appropriate, it is unclear what research question is being addressed. It appears that the authors may be trying to state that the ASM/ht2 used as part of the Asian Consensus Panel Definition of Sarcopenia is not appropriate. If that is the case then the appropriate analysis would be using each of the options suggested as part of sarcopenia definition, and compare the AUC values for predicting disability and mortality. Sarcopenia was briefly mentioned but the whole exercise is presented as various ASM measurements in predicting disability and mortality. There is no direct link between ASM and these adverse outcomes, as various studies have shown that strength may decline faster without much change in muscle mass (and vice versa). So it is not surprising that when age is included in the model, there is little association, since age would be a strong predictor of these outcomes.

There is little explanation regarding why these adjustments were chosen.

ASM measurement includes water and intramuscular fat, and it is uncertain what the effect of ageing is on the relative proportion of these components in ASM measurements using DEXA. By adjusting for weight and BMI one may be taking into account the fat component.

The authors should comment on the impact of habitual lifestyle on muscle mass changes with age.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**  
Please indicate the quality of language in the manuscript:

Acceptable

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