Reviewer's report

Title: Development and validation of anthropometric equations to estimate appendicular muscle mass in elderly women.

Version: 3 Date: 14 March 2013

Reviewer: Spyridon Kanellakis

Reviewer's report:

Dear editor

This is an interesting study describing the development and validation of simple anthropometric equations estimating appendicular muscle mass using DXA as a reference method. These equations could be proven in the future to be helpful tools in estimating sarcopenia in the elderly. This manuscript is very interesting and could be published under major revision.

Comments to the authors:

Major compulsory revision:

1. Please restructure the results section in the abstract. It is not quite clear what has been made unless one has read the manuscript. Abstract should be self standing.

2. In order to support your work it would be nice to justify more extensively in your introduction why estimating appendicular muscle mass is better than estimating total muscle mass in elderly subjects. For example has it been linked better to sarcopenia? Why is it better than estimating muscle mass from equations estimating fat mass? A few models have been proposed lately estimating fat mass in the elderly from Manios et al and Kanellakis et al. Please discuss this a little.

3. Why didn’t the authors validated the equations from the literature and those developed in the same cohort? This would increase the sample size and statistical power of the validation cohort.

4. In the developed models have you checked for co-linearity between independent variables? It is likely that BM and BMI are highly correlated. Please provide VIF and Tolerance for all variables.

5. It would be nice to apply ICC additionally to Bland – Altman for validation of the developed equations.

6. How do you explain that the 6th predictive equation of AMM which seems to be the best has as an independent variable hip circumference?

Minor essential revisions:

7. Is there really a stadiometer with accuracy of 0.1mm? Probably the authors mean to say 0.1cm.
8. The manuscript should be checked for correct English usage.

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

I declare that I have no competing interests