Reviewer's report

Title: Concordance between muscle mass assessed by bioelectrical impedance analysis and by dual energy X-ray absorptiometry: a cross-sectional study

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Reviewer: Hunkyung Kim

Reviewer's report:

General Comments
This study aimed to evaluate the concordance between BIA and DXA for assessing muscle mass. There are several problems with this study as it lacks focus on the purpose, and the originality or novelty of the study is questionable. The BIA method has been extensively researched and compared with DXA, MRI, and other reliable methods of assessing muscle mass. The data analysis is also quite flawed, and cannot be published in the current state.

Specific Comments

Abstract
1. The conclusion made on Pg 3 line 69 does not seem to match the results. The authors state that the agreement between DXA and BIA was low (ICC=0.37). The conclusion should reflect the results.

Background
2. What is the originality of this study? Many previous studies have investigated the validity and reliability of BIA in reference to DXA, MRI, etc. Why is your particular study necessary, and how would it add to the already extensive literature on this subject?

Methods
3. Please describe in more detail the inclusion and exclusion criteria.
4. How were the subjects selected/recruited?
5. On Page 7 line 153, was grip strength measured 6 times consecutively? Or were there intervals? Why did the authors measure grip strength 6 times? This may cause fatigue and perhaps make the reliability of the measurement questionable.
6. Why did the authors analyze all the males and females, as well as all the age groups together? It would make more sense to analyze the males and females separately, and also each age group (within each sex) separately, i.e. analyze those aged 18-34; 35-64, 65+ in males and females separately. Then, show the total analysis of men and women. There needs to be a comparison between each sex and age group before combining the entire sample.
7. Furthermore, why was only appendicular lean mass studied? In order to fully investigate the concordance between BIA and DXA, the investigators should
evaluate different body parts individually, such as the legs, arm, trunk, and then appendicular lean mass.

Results
8. Again, please separate the analysis between men and women, as well as each age group. Also, the analysis of concordance should show plots of arms, legs, and body for the assessment method used.
9. Why were the patients that were out of the limits (Page 9 line 195-196) included in the study/analysis? More details are necessary in the methods.
10. Page 9 lines 198-200, this should be a new table.
11. Page 9 lines 201-203, this should also be a new table.
12. The practical application: diagnosis of sarcopenia section seems very off topic. While the discussion of sarcopenia and its diagnosis is an important one, including this is confusing.

Discussion
13. The authors state that your study is the first to compare BIA InBody S10 values to DXA, however there are many studies that do this…do the authors mean this particular instrument? Please clarify.
14. The discussion on sarcopenia is confusing as it is not within the aim of the study. The purpose of your study, as I understand it was to compare BIA and DXA in regards to muscle mass, and not to investigate the predictive value of BIA for sarcopenia diagnosis in comparison to DXA. Please stay within the limits of your purpose. BIA for the diagnosis for sarcopenia would be an interesting study for a completely different article.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

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