



Muscle strength and function rather than muscle mass in sarcopenia

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Abbreviations

MQ Muscle quality

ALM Appendicular lean mass

Dear Editor,

We have read the article recently published in your journal (Lees et al. 2019). We wish to congratulate the authors for having drawn attention to muscle quality (MQ) whereby muscle power and physical performance decrease before the muscle mass declines (Frontera et al. 2000; Hicks et al. 2011). In this sense, it is definitely important to show the prognostic value of functional evaluations; however, we have some comments regarding the study design of the aforementioned paper by Lees et al.

First of all, gender ratios are not equal between the groups. For sure, the difference between the muscle mass and strength of men and women may easily affect the results. Likewise, the authors found negative correlations between upper body MQ and total appendicular lean mass (ALM) in both groups. They have also calculated two equations for young and older subjects. However, they did not add gender as a variable for either correlation or regression analysis.

Second, the aim of the study seems to calculate upper/lower body ALM by regression analysis. However, poor prognostic outcomes are associated with muscle strength and function rather than muscle mass (Hicks et al. 2011).

Therefore, when evaluating subjects, the aim should be to assess muscle strength and function which are also/especially affected by age, gender, height and weight. Further, despite the fact that hand grip and knee extensor strength values are correlated, it may not be clinically relevant to use hand grip strength when calculating lower body ALM or to use leg strength when calculating upper body ALM. Additionally, the onset of decrease in grip strength and knee extensor strength does not ensue simultaneously—i.e., the latter being much earlier.

Finally, in the younger group, mean age seems to be too low. It is well known that the hand grip strength increases until the age of 40, then begins to decrease (Dodds et al. 2014), and limb muscle thicknesses also increase in the middle age (Abe et al. 2014). In this sense, since the authors have used the cut-off values from the literature (pertaining to young adults), they might have found lower upper body MQ in their young study group ($N=16$). Further, possibly due to the same reason, the two groups in their study seem to have similar upper body MQ (worse than healthy adults).

Author contributions MK and AMA wrote the paper. BK and LÖ revised the paper. All authors read and approved the manuscript.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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