

Comment on “Relationship between different body composition and bone mineral density in Qinhuangdao city”

André Pontes-Silva^{1,2,3*} 

Dear editor,

I read with great appreciation the article entitled “Relationship between different body composition and bone mineral density in Qinhuangdao city” by Zhang et al.¹ In this study, the authors concluded that body composition was related to bone mineral density and bone mineral salt content, and the correlation between different body composition indexes, bone mineral density, and bone mineral salt content was different. The article has a very elegant rationale and I am sure that it will generate further research; however, there are some methodological weaknesses that may compromise the results.

The authors used the body mass index (BMI) to classify participants as normal, overweight, and/or obese. Although BMI is an internationally used index, it is not appropriate to use it to classify healthy individuals (like those in this study), as it is a confounding variable. For example, an individual with stature (height) of 190 cm and body mass (weight) of 108 kg has a BMI of 29.9 kg/m²; this means the individual is classified as obese (do you agree?). However, if the individual has an above-average muscular component (such as an athlete or

someone who does resistance training), then he is not obese, but an outlier—do study participants exercise? If yes, what kind of exercise? Why was not it described?

BMI can be useful for a study with this structure; however, it is necessary to collect other variables (to help in the interpretation of the findings); for example, waist-to-stature ratio (the waist circumference divided by the height in centimeters)^{2,3}. This ratio, together with BMI, will help verify if the “obese” are really obese (or just outliers). The problem is that the authors did not present the variables capable of correcting this error: what was the waist perimeter? Mean stature of the participants? Body mass?

In addition, the authors describe that the DEXA was calibrated; however, considering that it is error-sensitive equipment, it is necessary to test the calibration, evaluating the same participants by doubly indirect methods (e.g., skinfolds, bone diameters, and body perimeters). How do you know that DEXA has been calibrated correctly?

I hope that the authors understand my concern about these very fragile findings. Good luck to everyone!

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¹Universidade Federal de São Carlos, Physical Therapy Department, Physical Therapy Post-Graduate Program – São Carlos (SP), Brazil.

²Universidade Federal do Maranhão, Biological and Health Sciences Center, Adult Health Post-Graduate Program – São Luís (MA), Brazil.

³International Society for the Advancement of Kinanthropometry – Buritcupu (MA), Brazil.

*Corresponding author: contato.andrepsilva@gmail.com

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