LETTER TO THE EDITOR

When a reference value makes all the difference

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Dear Editor,

I read with great interest the article by Webber and Barr on the age- and gender-dependent values of skeletal muscle mass in healthy children and adolescents [1]. The authors open a field of scientific dispute that is often underrepresented if not totally neglected. The validity of any method of measurement depends not only on the appropriate choice of a certain method according to the question to be studied. In fact, the interpretation of the results depends just as much on the existence of adequate standards and reference values to which our measurements can be compared.

Age and gender are fundamental factors influencing probably *all* biological measurements and should be taken into account for correct interpretation of clinical data. Webber and Barr provide reference values for normal ranges of skeletal muscle tissue mass in children and adolescents separately for females and males. Moreover, they confirm the high reproducibility of dual X-ray absorptiometry (DXA) to detect differences in muscle tissue mass as low as a few hundred grams. For this rather sophisticated method of assessing body composition, interpretation according to age and gender seems well appreciated. By contrast, it is surprising that the most global measure of body composition, namely body mass index (BMI), is commonly applied to patients and populations irrespective of age.

There is increasing evidence that in older populations the association of body composition with mortality is substantially shifted as compared to middle-aged populations [2–4]. According to the World Health Organisation, the "optimum

BMI" ranges from 18.5 to 25 kg/m^2. It may be another point of discussion what the "optimum" refers to and whether these margins are still applicable, as the nadir of the mortality curves in recent epidemiological observations is around or even above 25 kg/m^2 [4]. The discussion on the accuracy of BMI as a predictor of disease and/or mortality is ongoing [5]. Clearly, the simplicity of the method may be weighed against the limitations of the data obtained. A first step would be to address different age groups for reference values of BMI, just as presented by Webber and Barr for DXA.

References

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