

Assessment of fat-free mass from bioelectrical impedance analysis in obese women with Prader-Willi syndrome.

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Background: Fat-free mass (FFM) is lower in obese subjects with Prader-Willi syndrome (PWS) than in obese subjects without PWS. FFM prediction equations developed in non-PWS subjects may, thus, not work in PWS subjects.

Aim: To test whether the estimation of FFM from bioelectrical impedance analysis (BIA) in PWS subjects requires population-specific equations.

Methods: Using dual-energy X-ray absorptiometry, this study measured FFM in 27 PWS and 56 non-PWS obese women and evaluated its association with the impedance index at 50 kHz (ZI_{50}), i.e. the ratio between squared height and whole-body impedance at 50 kHz.

Results: At the same level of ZI_{50} , PWS women had a lower FFM than non-PWS women. However, when PWS-specific equations were used, FFM was accurately estimated at the population level. An equation employing a dummy variable coding for PWS status was able to explain 85% of the variance of FFM with a root mean squared error of 3.3 kg in the pooled sample (n=83).

Conclusion: Population-specific equations are needed to estimate FFM from BIA in obese PWS women.

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