

Does Eating a Meal before Testing Alter the Percent Body Fat Measurement Determined by Bioelectrical Impedance Analysis?

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When using the bioelectrical impedance analysis (BIA) to assess body composition, it is recommended that clients avoid eating or drinking four hours prior to the test. **PURPOSE:** To examine the effect of meal consumption on measures of percent body fat (%BF) using BIA. **METHODS:** Forty-four young adults (25 women; 19 men) volunteered to participate in this study (age = 20.5 ± 1.1 years; body mass index = 24.1 ± 3.8 kg/m²). Subjects had their body composition assessed using four different BIA analyzers: leg-to-leg (LBIA), hand-to-hand (HBIA), segmental (SBIA), and multi-frequency (MBIA), on two separate occasions. After an initial baseline %BF measurement, subjects consumed a self-selected meal (919 ± 215 kcals) or received nothing, which served as the control (CON). Subjects were reassessed 20, 40 and 60 min following (POST) the baseline measure in each treatment condition. **RESULTS:** Twenty minutes after eating, body mass (All analyzers = 0.7 kg, $p < 0.01$) and %BF (LBIA = 0.9%, HBIA = 0.9%, SBIA = 1.7%, MBIA = 0.8%, $p < 0.001$) significantly increased above baseline and remained elevated at 60 min POST. During the CON trial, %BF was unchanged ($p > 0.05$) at 20 min for each of the BIA analyzers except MBIA (0.5%, $p < 0.001$). **CONCLUSION:** Eating a meal prior to the assessment resulted in a significant increase in the %BF estimate for all four of the BIA analyzers. However, the magnitude of change was relatively small (range = 0.8% - 1.7%), and therefore, may have little practical significance when using BIA to assess a client's %BF in a health and fitness setting.

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