

BODY MASS INDEX, PERCENT BODY FAT AND NORMAL WEIGHT OBESITY

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Practical Implications:

- More than 7% of individuals with a normal BMI estimates actually had high body fat levels. (false negative).
- 39% of women and 47% of men with high BMI estimates actually had normal body fat levels. (false positive).
- It is important to track percent body fat as well as BMI to evaluate obesity and disease risk.

ABSTRACT

Objective: Recently, a new bioelectrical impedance analysis (BIA) instrument which does not require attachment of electrodes on the subject's body was developed. Subject simply stands on this device that combines a standard scale with stainless steel foot pads which serve as electrodes to measure total body impedance.

Design: Using this new BIA device, we investigated the relationship between percent body fat (%BF) and body mass index (BMI) of Japanese adults (M:F=1624:451, Age 46±10 yrs.).

Results: Percent BF was 20.4±4.6% for men and 24.2±5.3% for women. BMI was 23.0±2.7 kg/m² for men and 21.5±2.8 kg/m² for women. There was a significant correlation between %BF and BMI ($r=0.71, p<0.001$). However, %BF of 157/329 (47.7%) of men with BMI over 25 was within the normal range and %BF of 59/151 (39.1%) of women with BMI below 20 was also within the normal range. On the other hand, %BF exceeds 25% in 78/1071 (7.3%) of men with BMI 20-25 and in the female whose BMI 20-25, %BF exceeds 30% in 19 (7.6%) subjects among 251 and they were considered to be the normal weight obesity. Therefore, it is important to measure not only BMI but %BF to evaluate obesity in the population study.

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