

Discrepancies in Obesity Levels by Three Separate Criteria (Waist Girth, BMI, and Body Fat Percentage)

Cassaro, J., Rossi, C., Bopp, CM. Department of Kinesiology, Pennsylvania State University, University Park, PA

Body Mass Index (BMI) is a widely used measure of body composition. However, only relying on height and weight, and thus BMI, can lead to misclassification of obesity status. **Purpose:** To determine discrepancies in obesity status against the three separate measures (waist girth, BMI, and body fat percentage) in both males and females. **Methods:** Data was collected on 3,842 college-aged males and 2,995 college-aged females. BMI was calculated from height and weight measured using standard procedures. Waist girth was measured using a tension-regulated tape measure. Body fat percentage was measured using a bioelectrical impedance analysis (BIA) machine. Obesity status for each subject was determined for each technique. The correlation coefficients between BMI and the other two criteria were calculated using Pearson product moment correlation. **Results:** There was a discrepancy in obesity classification between Body Mass Index (BMI) and waist girth of 9.52% (366 out of 3842) in males. The correlation coefficient between BMI and waist girth in males was 0.65. There was a discrepancy in obesity classification between BMI and body fat percentage of 6.56% (252 out of 3842) in males. The correlation coefficient between BMI and body fat percentage in males was 0.51. There was a discrepancy in obesity classification between BMI and waist girth of 1.80% (54 out of 2995) in females. The correlation coefficient between BMI and waist girth in females was 0.51. There was a discrepancy in obesity classification between BMI and body fat percentage of 3.21% (96 out of 2995) in females. The correlation coefficient between BMI and body fat percentage in females was 0.56. **Conclusion:** The data suggests a strong positive correlation between BMI and both waist girth and body fat percentage in both males and females. The data also suggests BMI, a measure of obesity that is widely considered inaccurate, to be reliable in college-aged individuals with less than 10% of males and less than 3.5% of females having a discrepancy in obesity classification in a population of over 6,800 subjects.