

**Body Adiposity Index Superior to Body Mass Index in Predicting Adiposity in Army ROTC Cadets**

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**ABSTRACT**

The Army's standards to assess body composition were established in the 1960s. The current body composition assessment is due for change as there are newer alternate methods to assess body composition using adiposity. Body Mass Index (BMI) is moderately correlated with % body fat and often used to assess obesity in the general population. The Body Adiposity Index (BAI) is an alternative anthropometric measurement suggested to be superior to BMI at predicting adiposity, but has not been well assessed within military populations. **PURPOSE:** The purpose of this correlational study was to determine the accuracy of the BMI overweight category as a measure of fatness in ROTC cadets, and to determine if BAI is a superior predictor of % body fat to BMI. **METHODS:** ROTC cadets were invited into the laboratory for measurements of height, weight, and body fat via BOD POD. Bodyfat above 33% was considered overfat and BMI >25 kg/m<sup>2</sup> was considered overweight. BAI was calculated as  $(\text{Hip Circumference}/\text{Height}^{1.5})-18$ . Pearson correlation determined the strength of relationships. **RESULTS:** 83 collegiate-aged ( $20.91 \pm 3.37$  yr.) ROTC cadets with an average BMI of  $24.85 \pm 4.87$  kg/m<sup>2</sup> and % body fat of  $23.69 \pm 5.95$  participated in the study. BMI and BAI significantly predicted % body fat ( $r = .508, p < 0.001, r = .482, p < 0.001$ , respectively). When using BMI to determine overfat, 4% ( $n = 2$ ) of ROTC cadets had a false positive (overweight, normal fat) and 10% ( $n = 5$ ) had a false negative (normal weight, overfat). BMI predicts 25.8% of body fat and BAI predicts 23.2% of body fat. Because BMI and BAI are statistically similar, both are good predictors of % body fat. **Conclusion:** Due to the army's outdated recent measures of body composition, alternative methods could improve quality and consistency of assessments in the future with the use of BMI and BAI.