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Comparisons of BMI, Body Fat Percentage, and Abdominal Girth as Obesity Indexes for College Students

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Obesity can be categorized using a number of methods, such as body mass index (BMI), abdominal girth (AG), and body fat percentage (BF%). Each of these methods have their strengths and weaknesses. **PURPOSE:** To compare rates of overweight and obesity as determined by BMI, AG, and BF% and to describe the associations among each method. **METHODS:** 5943 college students completed an objective fitness assessment, where height, weight, AG, and BF%, using BIA, were assessed. Correlation and chi-square tests for independence analyses examined the relationships between the variables and differences in obesity classification. **RESULTS:** The majority of participants identified as men (60.5%). Significant differences were found in the categorization of those meeting obesity criteria by technique. In men and women, respectively, 47.6% and 44.1%, of individuals categorized as normal based on %BF were categorized as overweight or obese by BMI (Men:χ^2=1547, p<0.001; Women:χ^2=1127, p<0.001). In men and women, respectively, 48.3% and 24.0% of individuals classified as normal based on AG were categorized as overweight or obese using BMI (Men:χ^2=1274, p<0.001; Women:χ^2=996, p<0.001). Comparing AG and BF%, 25.1% of men and 18.6% of women categorized as normal based on AG were categorized as overweight or obese using BF% (Men:χ^2=1412, p<0.001; Women:χ^2=421, p<0.001). Significant correlations were found between BMI and BF% for men (r=0.775, p<0.001) and women (r=0.849, p<0.001,); BMI and AG for men (r=0.868, p<0.001) and women (r=0.858, p<0.001); and, BF% and AG for men (r=0.749, p<0.001) and women (r=0.767, p<0.001) **CONCLUSION**: Significant associations between BMI, AG, and BF% were found for both sexes. BMI demonstrated an increased rate of misclassification compared to AG and %BF. Further research is needed in this, and other, populations due to the potential consequences of misclassification of obesity.