A New Paradigm for Bodyweight Classification from the 2001-2006 National Health and Nutrition Examination Survey

Parina Depani and Michael Bruneau Jr., Drexel University, Philadelphia, PA

Obesity is a major public health issue in the United States (US) that affects an estimated 78 million US adults each year. Since the 1970's, obesity rates have more than tripled and have been associated with a higher prevalence of developing cardiometabolic and renal disease. However, body mass index (BMI) alone may be an imprecise measurement of body weight classification as it does not account for either visceral or total body fat. Furthermore, the current fitness categories for body composition are not standardized to the World Health Organization's (WHO) general population guidelines, and therefore, limit their use in clinical practice. **PURPOSE.** To perform a large-scale population-based cross-sectional analysis from the (2001-2006) National Health Assessment and Nutrition Examination Survey (NHANES). **METHODS.** Our population included 20,676 men and women who selfreported their age and sex, and who had complete anthropometric and body composition data from NHANES. Body composition variables included BMI, waist circumference, and total body fat percentage, measured with dual-energy x-ray absorptiometry (DXA). All study participants provided written informed consent prior to enrollment. Descriptive statistics, frequency distributions and percentiles were computed for the total population, and by age, sex and BMI. **RESULTS.** Of the included population, 49.1% were men and 50.9% were women. Those with a BMI between 18.024.9 kg/m² (normal weight) had a total body fat between 19.6% 30.4% and a waist circumference between 67.2 -85.9 cm (10th - 45th percentile). Those with a BMI ≥ 25.0 29.9 kg/m² (overweight) had a total body fat between 31.6% - 39.0% and a waist circumference between 88.5-101.5 cm (50th and 75th percentile). Those with a BMI ≥ 30 kg/m² (obese) had a total body fat ≥ 40.7% and a waist circumference ≥ 104.6 cm (80th – 99th percentile). **CONCLUSIONS.** We performed a large-scale population-based crosssectional analysis from NHANES to standardize metrics of waist circumference and body fat percentage to the WHO's general population guidelines for body weight classification. Our findings may provide clinicians and healthcare practitioners with a more comprehensive assessment of body composition and serve as a supplemental resource to BMI when determining body weight status for Americans.