

Obesity epidemic in America found significantly worse than previously believed

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The scope of the obesity epidemic in the United States has been greatly underestimated, according to a study published Apr. 2 in the open access journal *PLoS ONE*. Researchers found that the Body Mass Index (BMI) substantially under-diagnoses obesity when compared to the Dual Energy X-ray Absorptiometry (DXA) scan, a direct simultaneous measure of body fat, muscle mass, and bone density.

The disparity is particularly significant for women of advancing age, those with high blood leptin levels, and the normal weight obese.

The study found that as many as 39 percent of Americans who are classified as overweight based on BMI are actually obese as measured by DXA.

"The BMI is an insensitive measure of obesity, prone to under-diagnosis," said Eric Braverman, M.D., one of the authors of the study, "while direct fat measurements are superior because they show distribution of body fat."

Co-authors Braverman and Nirav Shah, M.D., M.P.H., recognize the convenience, safety, and low cost of the BMI, yet agree that it is an outdated mathematical equation that needs to evolve in order to correctly evaluate body fat.

"These estimates are fundamental to U.S. policy addressing the epidemic of obesity and are central to designing interventions aimed at curbing its

growth," the authors say, "yet the [current policies] may be flawed because they are based on the BMI."

The authors also found that levels of leptin, a hormone protein, are strongly correlated to body fat. They suggest that, in the absence of DXA, leptin levels may be used in conjunction with BMI to provide a more accurate measure of adiposity, and provide a leptin-adjusted BMI table to do so. They also note that the American Society of Bariatric Physicians use both BMI and DXA as criteria for interventions, which "may be a reasonable transition in [public health policy](#)."

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