

# Obesity/mortality paradox demonstrates urgent need for more refined metabolic measures

August 26 2013

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Researchers from the Perelman School of Medicine at the University of Pennsylvania point out that the body mass index (BMI), based on the weight and height, is not an accurate measure of body fat content and does not account for critical factors that contribute to health or mortality, such as fat distribution, proportion of muscle to fat, and the sex and racial differences in body composition.

Obesity predisposes to diabetes, heart diseases, sleep apnea, cancer and other diseases. Although several studies have shown an increase in mortality in obese people, recent studies have suggested that [obesity](#) protects against death from all causes as well as death due to chronic diseases such as diabetes, [heart failure](#), and stroke. This so-called "obesity-mortality" paradox suggesting a beneficial influence of obesity has generated a lot of controversy.

In a new perspective article in the journal *Science*, Rexford Ahima, MD, PhD, Professor of Medicine and Director of the Obesity Unit in the Institute for Diabetes, Obesity and Metabolism, and Mitchell Lazar, MD, PhD, Professor of Medicine and Genetics and Director of the Institute of Diabetes, Obesity, and Metabolism, discuss the challenges of studying the health and mortality risks of obesity.

"There is an urgent need for accurate, practical and affordable tools to measure fat and skeletal muscle, and biomarkers that can better predict

the risks of diseases and mortality," said Dr. Ahima. "Advances to improve the measurement of obesity and related factors will help determine the optimal weight for an individual, taking into account factors such as age, sex, genetics, fitness, pre-existing diseases, as well novel blood markers and metabolic parameters altered by obesity."

Obese BMI is strongly associated with substantial increases in the risk of developing diabetes, cardiovascular diseases, cancer and other [chronic diseases](#), leading to higher mortality, However, studies have shown that some people with obese BMI have improved metabolic profile and reduced cardiovascular risk, whereas a subset of people with normal BMI are metabolically unhealthy and have increased mortality risk. The researchers note that the true impact of obesity may not be appreciated because population studies often describe associations of BMI and health and mortality risks without assessing how intentional or unintentional weight loss or weight gain affect these outcomes.

"Future research should be focused more on molecular pathways, especially how metabolic factors altered by obesity change the development of diabetes, heart diseases, cancer and other ailments, and influence the health status and [mortality](#)," noted Dr. Lazar.

Provided by University of Pennsylvania

Citation: Obesity/mortality paradox demonstrates urgent need for more refined metabolic measures (2013, August 26) retrieved 3 January 2023 from <https://medicalxpress.com/news/2013-08-obesitymortality-paradox-urgent-refined-metabolic.html>

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