

Fat Distribution vs. BMI: Which is More Important?

This study examined the impact of obesity on total and cardiovascular mortality in individuals with normal Body Mass Index (BMI) with or without central obesity as measured by waist circumference or waist to hip ratio. It has been a source of major controversy as to whether measures of fat distribution provide any additional risk information beyond BMI alone. The 2013 American Heart Association/American College of Cardiology and The Obesity Society Guidelines for the management of obesity do not recommend measuring waist to hip ratio, and assume that people with normal BMI are not exposed to any obesity-related cardiovascular risk. The relationship between central obesity and survival in community-dwelling adults with normal body mass index is not well-known.

A total of 15,184 adults between the ages of 18 and 90 years were surveyed as part of the Third National Health and Nutrition Examination Survey. Persons with normal-weight central obesity had the worst long-term survival. For example, a man with a normal BMI of 22 kg/m² and central obesity had greater total mortality risk than one with similar BMI but no central obesity with a hazard ratio of 1.87 ranging between 1.53 to 2.29. Moreover, such a man would have twice the mortality risk of participants who were overweight or obese according to BMI only. Women with normal-weight central obesity also had a higher mortality risk than those with similar BMI but no central obesity with a hazard ratio of 1.48. and those who were obese according to BMI only had a 32% increase. Expected survival estimates were consistently lower for those with central obesity when age and BMI were controlled for.

In this study, normal-weight central obesity defined by waist to hip ratio was associated with higher mortality than Body Mass Index-defined obesity, particularly in the absence of central fat distribution.

Comment: Central obesity is measured by either waist circumference or waist-to-hip ratio.. Intra-abdominal or visceral fat is associated with numerous metabolic disorders associated with obesity including increased blood lipids and diabetes which may be the connection between central obesity and cardiovascular and total mortality. While this study was done in Americans, it has implications for Chinese and Asian individuals where visceral fat is present in individuals with normal Body Mass Index.

Sahakyan KR, Somers VK, Rodriguez-Escudero JP, Hodge DO, Carter RE, Sochor O,

Coutinho T, Jensen MD, Roger VL, Singh P, Lopez-Jimenez F. Normal-Weight Central

Obesity: Implications for Total and Cardiovascular Mortality. *Ann Intern Med.*

2015 Dec 1;163(11):827-35.