Abdominal Fat Predicts Heart Disease Risk Better Than BMI

Study shows BMI does not reflect overall body composition since central adiposity is not measured.

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WASHINGTON (Aug 11, 2026) — The size of a person's midsection is a better indicator of cardiovascular disease risk when compared to their body mass index (BMI) alone, according to a study published in JACC, the flagship journal of the American College of Cardiology.

BMI has traditionally been used to determine overweight or obesity, common risk factors for heart disease, but this study shows that not accounting for waist circumference (WC) or waist-to-hip ratio (WHR) can lead to misclassification of cardiovascular disease risk.

"Indeed, it appears that WC and WHR reclassify risk defined by traditional BMI thresholds," said Michael J. Blaha, MD, MPH, senior author of the study and director of clinical research at Johns Hopkins Ciccarone Center for the Prevention of Cardiovascular Disease. "We saw individuals with clinically determined normal weight who had elevated central adiposity and high WHR, associating them with higher risk across most outcomes."

BMI is calculated by dividing weight in kilograms by height in meters squared and is a common practice for diagnosing obesity. However, BMI cannot account for distribution of body fat. Studies have shown that visceral fat, which is fat that surrounds the internal organs in the abdominal area, is associated with chronic diseases like heart disease and diabetes, while subcutaneous fat, which is located directly under the skin, is not as strongly associated.

Despite evidence linking central adiposity, the accumulation of both visceral and subcutaneous fat in the abdominal area, to adverse cardiovascular health outcomes, BMI is still the most used metric to determine overweight and obesity and future cardiovascular risk.

This study examines whether adding WC and WHR to BMI better predicts future cardiovascular risk. Researchers from the Cross Cohort Collaboration looked at over 260,000 people over an average of 20 years who had either WC or WHR data and at least one of nine outcomes: time to first fatal and non-fatal myocardial infarction, fatal and non-fatal stroke, heart failure, atrial fibrillation, total coronary heart disease (CHD), total cardiovascular disease (CVD), CHD mortality, CVD mortality and/or all-cause mortality.

In individuals with normal weight as determined by BMI, 5% had high WC and 18% had high WHR; among those with overweight, 39% had high WC and 40% had high WHR. Among those with obesity, 9% had low WC and 45% had low WHR.

Those individuals with normal weight or overweight and clinically defined high WC or WHR were associated with a 15% to 50% greater risk for most of the nine studied outcomes. Those with obesity and low WC were not found to be associated with a significantly different risk of outcomes compared with those who had normal weight and low WC, except for all-cause mortality, for which risk was significantly lower.

“Our findings emphasize the critical role of identifying elevated central adiposity, even in individuals with a normal BMI or with a BMI in the overweight range. Relying solely on BMI may result in misclassification of cardiovascular risk across a wide range of cardiovascular outcomes,” Zeina A. Dardari, PhD, MS, lead author of the study, said. “We encourage clinicians to consider central adiposity distribution across the entire BMI spectrum when evaluating cardiovascular risk in primary prevention settings.”

Limitations of the study include that it did not have measures of physical activity, diet or genetic obesity risk, which have all been shown to play a role in the development of CVD. It also included only one assessment of WC and WHR, which could limit understanding of how changes in central fat accumulation over time influences CVD risk.

“It is time to abandon a sole focus on body mass index,” said Harlan M. Krumholz, MD, SM, MACC, FAHA, editor-in-chief of JACC and the Harold H. Hines, Jr Professor at the Yale School of Medicine. “This enormously important study, based on data from hundreds of thousands of participants in large-scale cohort studies, authoritatively shows that waist circumference and waist-to-hip ratio provide critical information about cardiovascular risk, even among people with a BMI considered normal. Where fat is distributed matters, and these simple measures should be part of routine cardiovascular risk assessment.”

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