



## Waist size predictor of heart failure in men and women

New research examines middle-aged and older populations

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Adding to the growing evidence that a person's waist size is an important indicator of heart health, a study led by investigators at [Beth Israel Deaconess Medical Center](#) (BIDMC) has found that larger waist circumference is associated with increased risk of heart failure in middle-aged and older populations of men and women.

The findings, published online in the April 7 Rapid Access Report of the journal [Circulation: Heart Failure](#), showed that increased waist size was a predictor of heart failure even when measurements of [body mass index \(BMI\)](#) fell within the normal range.

"Currently, 66 percent of adults in the United States are overweight or obese," explains [Emily Levitan](#), the study's first author and a research fellow in the [Cardiovascular Epidemiology Research Unit](#) at BIDMC. "Knowing that the prevalence of heart failure increased between 1989 and 1999, we wanted to better understand if and how this increase in obesity was contributing to these rising figures."

A life-threatening condition that develops when the heart can no longer pump enough blood to meet the body's needs, [heart failure](#) (also known as congestive heart failure) is usually caused by existing cardiac conditions, including high blood pressure and coronary artery disease. Heart failure is the leading cause of hospitalization among patients 65 and older, and is characterized by such symptoms as fatigue and weakness, difficulty walking, rapid or irregular heartbeat, and persistent cough or wheezing.

The researchers examined two Swedish population-based studies, the Swedish Mammography Cohort (made up of 36,873 women aged 48 to 83) and the Cohort of Swedish Men (43,487 men aged 45 to 79) who responded to questionnaires asking for information about their height, weight, and waist circumference.



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"This study reinforces the importance of maintaining a healthy weight," says researcher Emily Levitan.

Over a seven-year period between January 1998 and December 2004, the researchers reported 382 first-time heart-failure events among the women (including 357 hospital admissions and 25 deaths) and 718 first-time heart-failure events among men (accounting for 679 hospital admissions and 39 deaths).

Their analysis found that based on the answers provided by the study participants, 34 percent of the women were overweight and 11 percent were obese, while 46 percent of the men were overweight and 10 percent were obese.

“By any measure — BMI, waist circumference, waist-to-hip ratio or waist-to-height ratio — our findings showed that excess body weight was associated with higher rates of heart failure,” explains Levitan.

Further breakdown of the numbers showed that among the women with a BMI of 25 (within the normal range), a 10-centimeter higher waist measurement was associated with a 15 percent higher heart failure rate; women with a BMI of 30 had an 18 percent increased heart failure rate. In men with a BMI of 25, a 10-centimeter higher waist circumference was associated with a 16 percent higher heart failure rate; the rate increased to 18 percent when men’s BMI increased to 30.

Furthermore, adds Levitan, among the men, each one-unit increase in BMI was associated with a 4 percent higher heart failure rate, no matter what the man’s waist size. In women, she adds, BMI was only associated with increased heart failure rates among the subjects with the largest waists.

Finally, the authors found that the association between BMI and heart-failure events declined with age, suggesting that the younger the person, the greater the impact of weight to heart health.

“This study reinforces the importance of maintaining a healthy weight,” says Levitan. “Previous research has looked at various types of heart disease and related health issues, and no matter the particulars of the study, they’ve all been pretty consistent in determining that excess body weight increases a person’s risk of heart disease.”

Study coauthors include BIDMC investigators [Murray A. Mittleman](#) (senior author), [Amy Z. Yang](#), and [Alicja Wok](#).

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