

All weight loss isn't equal for reducing heart failure risk

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Ambarish Pandey, M.D. Credit: UT Southwestern Medical Center

Reducing the level of body fat and waist size are linked to a lower risk of heart failure in patients with type 2 diabetes, a study led by UT Southwestern researchers indicates. The findings, reported today in *Circulation*, suggest that all weight loss isn't equal when it comes to mitigating the risk of heart disease.

The burden of diabetes is increasing, with an estimated 700 million adults worldwide predicted to have this disease by 2045. The vast majority of cases are type 2 diabetes, characterized by insulin resistance, an inability for cells to respond to insulin. Type 2 diabetes doubles the risk of cardiovascular events such as heart failure and heart attacks.

Being overweight and obese are strong risk factors for both type 2 diabetes and [heart disease](#), and patients are often counseled to lose [weight](#) to reduce the likelihood of developing both conditions. However, not all [weight loss](#) is the same, explains Ambarish Pandey, M.D., senior author of the study and assistant professor of internal medicine at UTSW.

"We have long counseled patients to lower their [body-mass index](#) into the 'healthy' range. But that doesn't tell us whether a patient has lost '[fat mass](#)' or 'lean mass,' or where the weight came off," Pandey says. "We didn't know how each of these factors might affect patients' risk of heart disease."

Fat mass accounts for fat in different parts of the body while lean mass is mostly muscle.

Understanding the relationship between heart disease and body composition has proven especially challenging, Pandey explains, because there hasn't been an easy and inexpensive way to evaluate body composition. The gold standard of determining fat mass and lean mass is to measure it directly with tools like dual-energy X-ray absorptiometry (DXA), a scan that's cumbersome, expensive, and exposes patients to radiation.

To help answer how different types of weight loss can affect cardiovascular disease, Pandey and his colleagues used data from the Look AHEAD (Action for Health in Diabetes) Trial, which investigated the effects of either an intense lifestyle intervention focused on weight loss and physical activity or diabetes support and education in more than 5,000 overweight or obese adults with type 2 diabetes. The study collected information on the volunteers' weight, body composition, and waist circumference at the baseline and again one and four years later. It also tracked the incidence of heart failure in this group over a 12-year period.

The Look AHEAD Trial determined body composition with DXA. But Pandey and his colleagues used a new equation that incorporates age, sex, race/ethnicity, height, body weight, and waist circumference to estimate fat and lean mass—producing results that closely matched those from DXA scans.

Among the 5,103 participants in the Look AHEAD Trial, 257 developed heart failure over the follow-up

period. Pandey and his colleagues found that the more these volunteers lowered their fat mass and waist circumference, the lower were their chances of developing heart failure. Just a 10 percent reduction in fat mass led to a 22 percent lower risk of heart failure with preserved ejection fraction and a 24 percent lower risk of heart failure with reduced ejection fraction, two subtypes of this condition. A decline in [waist circumference](#) significantly lowered the risk of heart failure with preserved injection fraction but not heart failure with reduced ejection fraction. However, a decline in lean mass didn't change the risk of heart failure at all.

These findings provide important insights, says Kershaw Patel, M.D., study author and former UTSW cardiology fellow who is now a cardiologist at Houston Methodist Hospital. "We showed that reductions in specific, not all, body composition parameters are linked to heart failure," Patel says.

More studies are needed to determine if reducing fat and retaining or increasing muscle may be more effective at decreasing the risk of [heart](#) failure, research that's facilitated with the new equation to estimate [body](#) composition, Pandey adds. In the meantime, he says, patients may benefit from incorporating strategies toward this goal—such as resistance training—into their weight loss efforts.

"Our study suggests that simply losing weight is not enough," Pandey says. "We may need to prioritize fat loss to truly reduce the risk of [heart failure](#)."

Provided by UT Southwestern Medical Center

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