

Smoking may lead to heart failure by thickening the heart wall

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Credit: Vera Kratochvil/public domain

Smoking is associated with thicker heart walls and reduction in the heart's pumping ability, two factors associated with increased risk of heart failure, according to new research in the American Heart Association's journal *Circulation: Cardiovascular Imaging*.

The study, conducted in participants of average age 75.7 and no obvious signs of cardiovascular disease, also found that higher rates of cumulative cigarette exposure—measure of how much and how long people have smoked during their lifetime—were associated with greater heart damage. Studies have long established that smoking leads to heart attacks and is associated with heart failure even in people without [cardiovascular disease](#). However, none have found a clear mechanism by which tobacco may increase the risk of heart failure.

"These data suggest that smoking can independently lead to thickening of the heart and worsening of heart function, which may lead to a higher risk for [heart failure](#), even in people who don't have heart attacks," said Wilson Nadruz Jr,

M.D., Ph.D., lead author of the study and research fellow at Brigham and Women's Hospital in Boston, Massachusetts.

"In addition, the more people smoke, the greater the damage to the heart's structure and function, which reinforces the recommendations stating that smoking is dangerous and should be stopped."

The study examined data from 4,580 participants in the Atherosclerosis Risk in Communities (ARIC) Study who underwent an echocardiogram. Even after accounting for factors such as age, race, [body mass index](#), blood pressure, diabetes and alcohol consumption, current smokers had thicker heart walls and reduced pumping function, compared with nonsmokers and former smokers.

"The good news is that former smokers had similar heart structure and function compared with never smokers," said Scott Solomon, M.D., senior study author and professor of medicine at Harvard Medical School and Brigham and Women's Hospital. "This suggests that the potential effects of tobacco on the myocardium might be reversible after smoking cessation."

Provided by American Heart Association

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