

Long-term study finds cigarette smoking doubled risk of developing heart failure

June 8 2022



Credit: Pixabay/CC0 Public Domain

A new study from researchers at the Johns Hopkins Bloomberg School

of Public Health found that people who smoked tobacco cigarettes developed heart failure at twice the rate of those who never smoked. This higher rate occurred in two major heart failure subtypes and confirms that cigarette smoking presents a significant risk factor for both.

The study is thought to be one of the first to assess smoking's association with both [heart](#) failure subtypes: reduced ejection fraction and preserved ejection fraction.

For their study, the researchers analyzed records from a long-running study of nearly 9,500 individuals in four U.S communities. The study found that participants who had stopped smoking retained a significantly increased risk of either type of heart failure for decades after they'd stopped smoking.

The study was published online June 6 in the *Journal of the American College of Cardiology*.

"These findings underline the importance of preventing smoking in the first place, especially among children and [young adults](#)," says study senior author Kunihiro Matsushita, MD, Ph.D., associate professor in the Bloomberg School's Department of Epidemiology. "We hope our results will encourage current smokers to quit sooner rather than later, since the harm of smoking can last for as many as three decades."

Heart failure is a progressive condition in which the heart loses its ability to pump enough blood to meet the body's needs. It's one of the most common causes of disability and death in developed countries, with more than 6 million adults living with heart failure in the U.S. alone, according to the Centers for Disease Control and Prevention most recent data. Besides cigarette smoking, risk factors for heart failure include obesity, hypertension, diabetes, coronary artery disease, and advanced

age.

There are two types of heart failure: reduced ejection fraction and preserved ejection fraction. In heart failure with reduced ejection fraction, the [left ventricle](#)—the principal cardiac pump—fails to contract sufficiently when pumping blood outward. Heart failure with reduced ejection fraction is more closely tied to coronary artery disease. Treatment includes several medications that improve prognosis.

In heart failure with preserved ejection fraction, the left ventricle fails to relax sufficiently after contracting. Treatment for heart failure with preserved ejection fraction is very limited, making its prevention critically important. At the same time, its [risk factors](#) are less clear. Some prior studies have linked smoking to higher risk of preserved ejection fraction, while others have not.

Matsushita and colleagues evaluated health records of participants in the Atherosclerosis Risk In Communities (ARIC) study. Launched in 1987, the ARIC study includes middle-aged and older adults across the U.S., with substantial representation of Black individuals. The new study's analysis included data from four communities in Maryland, North Carolina, Minnesota, and Mississippi, and focused on 9,345 ARIC participants, ages 61 to 81, who had sufficient records and no diagnosis of heart failure as of the start of 2005.

Over a median follow-up of 13 years, there were 1,215 cases of heart failure in the study, including 492 cases of reduced ejection fraction and 555 cases of preserved ejection fraction. The researchers' analysis showed that smokers in the group were diagnosed with the two heart failure subtypes at about the same elevated rates compared to never-smokers—2.28 times higher for preserved ejection fraction, and 2.16 times higher for reduced ejection fraction.

The link with smoking also showed a "dose-response" relationship—more cigarettes per day and more years of smoking being associated with higher heart failure risk. Similarly, quitting smoking brought a drop in heart failure risk that increased over time. Overall, former smokers were 31% and 36% more likely to have preserved ejection fraction and reduced [ejection fraction](#), respectively, compared to never-smokers.

When the researchers stratified former smokers by the number of years since quitting, they found that their overall [heart failure](#) risk remained significantly higher than never-smokers' risk—except for the group that hadn't smoked for 30 years or more.

"This reinforces the view that [smoking](#) casts a long shadow over heart health," Matsushita says.

More information: Ning Ding et al, Cigarette Smoking, Cessation, and Risk of Heart Failure With Preserved and Reduced Ejection Fraction, *Journal of the American College of Cardiology* (2022). [DOI: 10.1016/j.jacc.2022.03.377](#)

Provided by Johns Hopkins University Bloomberg School of Public Health

Citation: Long-term study finds cigarette smoking doubled risk of developing heart failure (2022, June 8) retrieved 22 November 2023 from <https://medicalxpress.com/news/2022-06-long-term-cigarette-heart-failure.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.