

# Frequent marijuana use linked to heart disease

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People who used marijuana daily were found to be about one-third more likely to develop coronary artery disease (CAD) compared with people who have never used the drug, according to a study presented at the

American College of Cardiology's Annual Scientific Session Together With the World Congress of Cardiology.

As cannabis becomes legal in an increasing number of U.S. states, this study is among the largest and most comprehensive to date to examine the potential long-term cardiovascular implications of using the drug. CAD is the most common form of heart disease and occurs when the arteries that supply blood to the heart become narrowed due to a buildup of cholesterol. CAD commonly causes chest pain, shortness of breath and fatigue, and can lead to a heart attack.

Previous studies have reported somewhat mixed findings on the relationship between cannabis and heart disease, with some suggesting that smoking marijuana can raise the risk of heart attack, stroke and other cardiac events, especially in younger people.

"We found that [cannabis use](#) is linked to CAD, and there seems to be a dose-response relationship in that more frequent cannabis use is associated with a higher risk of CAD," said Ishan Paranjpe, MD, a resident physician at Stanford University and the study's lead author. "In terms of the public health message, it shows that there are probably certain harms of cannabis use that weren't recognized before, and people should take that into account."

Using data from the All of Us Research Program of the National Institutes of Health, which includes detailed information about the health and habits of 175,000 people, researchers first analyzed the relationship between cannabis use frequency (assessed using surveys at the time of enrollment in the study) and rates of CAD (assessed based on medical records spanning several years).

They then used Mendelian randomization, a genetics-based approach to identify a [causal relationship](#) between [cannabis use disorder](#) and CAD

risk using data from an independent genetics consortium. Cannabis use disorder is a recognized psychiatric disorder involving frequent marijuana use and dependency.

After adjusting for age, sex and major cardiovascular risk factors, the results indicated that daily cannabis users were 34% more likely to have CAD than those who have never used marijuana.

In contrast, monthly cannabis use was not associated with a significant increase in the risk of CAD. The Mendelian randomization analysis suggested that this was due to a causal relationship, finding that people with cannabis use disorder were more likely to develop CAD. Additionally, in the genetic analysis, this causal relationship was independent of the potential confounding effects of tobacco and alcohol use.

Based on these findings, researchers said it is important for people to be aware that cannabis use is not without risk and make sure to inform their doctor if they use cannabis so that clinicians can take appropriate steps to monitor their heart health.

Previous studies have suggested that tetrahydrocannabinol (THC), the molecule responsible for the psychoactive effects of cannabis, acts on receptors that are found in the central nervous system and in the heart and blood vessels.

This interaction between THC and blood vessels may provide a pathway for cannabis to promote inflammation and the buildup of plaque, ultimately leading to CAD. The same effects would not necessarily be expected with the use of cannabidiol (CBD), another active ingredient in cannabis and hemp that is commonly extracted for products that do not contain THC.

By helping to better understand the molecular pathways involved in marijuana use and heart disease, the findings could open new opportunities for interventions to prevent or treat heart disease.

"From a scientific standpoint, these findings are exciting because they suggest there might be new drug targets and mechanisms we can explore to take control of this pathway going forward," Paranjpe said.

The datasets used in this study did not differentiate between various forms of cannabis use—for example, whether the drug was smoked or consumed in edibles or other forms. Since THC enters the body through a different pathway and gets to the brain more quickly when cannabis is smoked rather than eaten, researchers said it could be helpful to examine the health implications of these different forms of cannabis consumption in future studies.

Although the use and possession of [cannabis](#) remains illegal under federal law, over half of U.S. states have legalized or decriminalized recreational use of marijuana and three-quarters allow it to be used for medical purposes. A study conducted in 2019 estimated that about 18% of U.S. adults used marijuana in that year.

**More information:** Conference: [accscientificsession.acc.org/](https://accscientificsession.acc.org/)

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