

Cannabis use linked to increase in heart attack and stroke risk

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An analysis of 430,000 adults in the U.S. found that using cannabis, most commonly through smoking, eating, or vaporizing it, was significantly associated with a higher risk of heart attack and stroke, even after

controlling for tobacco use (combustible cigarettes and other tobacco products) and other cardiovascular risk factors, according to new research published today in the *Journal of the American Heart Association*.

Although cannabis, or marijuana, is illegal at the federal level, 24 states and Washington, D.C., have legalized the use of recreational cannabis. Additionally, the number of people in the U.S. who use cannabis has increased significantly in recent decades, according to the [2019 National Survey on Drug Use and Health](#) from the Substance Abuse and Mental Health Services Administration of the U.S. Department of Health and Human Services.

The annual survey found that in 2019, 48.2 million people ages 12 or older reported using cannabis at least once, compared to 25.8 million people ages 12 or older in 2002, an increase to 17% from 11%.

"Despite common use, little is known about the risks of cannabis use and, in particular, the cardiovascular disease risks," said lead study author Abra Jeffers, Ph.D., a data analyst at Massachusetts General Hospital in Boston.

"The perceptions of the harmfulness of smoking cannabis are decreasing, and people have not considered cannabis use dangerous to their health. However, previous research suggested that cannabis could be associated with cardiovascular disease. In addition, smoking cannabis—the predominant method of use—may pose additional risks because particulate matter is inhaled."

In this study, researchers reviewed [survey data](#) collected from 430,000 adults from 2016 through 2020 to examine the association between cannabis use and adverse cardiovascular outcomes, including heart disease, [heart attack](#), and stroke. The survey data was collected through

the Behavioral Risk Factor Surveillance System, a national, cross-sectional survey performed annually by the U.S. Centers for Disease Control and Prevention.

The researchers specifically investigated whether cannabis use was associated with adverse cardiovascular outcomes among the general adult population, among people who had never smoked tobacco or used e-cigarettes, and among younger adults (defined as men under age 55 and women under age 65) at risk for heart disease. They also factored in the number of days per month that people used cannabis.

The analyses found:

- Any cannabis use (smoked, eaten, or vaporized) was independently associated with a higher number of adverse cardiovascular outcomes (coronary heart disease, myocardial infarction, and stroke) and with more frequent use (more days per month), the odds of adverse outcomes were even higher. The results were similar after controlling for other [cardiovascular risk factors](#), including tobacco and/or e-cigarette use, alcohol consumption, body mass index, type 2 diabetes, and physical activity.
- Both daily and non-daily cannabis users had an increased risk of heart attack compared to non-users; daily cannabis users had 25% higher odds of heart attack compared to non-users.
- The odds of stroke for daily cannabis users were 42% higher compared to non-users, with a lower risk among those who used cannabis less than daily.
- Among younger adults at risk for premature cardiovascular disease (defined as men younger than 55 years old and women younger than 65 years old), cannabis use was significantly associated with 36% higher combined odds of coronary heart disease, heart attack and stroke, regardless of whether or not they

also used traditional [tobacco products](#). A separate analysis of a smaller subgroup of these adults who had never smoked tobacco cigarettes or used nicotine e-cigarettes also found a significant association between cannabis use and an increase in the combined odds of coronary heart disease, heart attack, and stroke.

"Our sample was large enough that we could investigate the association of cannabis use with cardiovascular outcomes among adults who had never used tobacco cigarettes or e-cigarettes," Jeffers said.

"Cannabis smoke is not all that different from tobacco smoke, except for the psychoactive drug: THC vs. nicotine. Our study shows that smoking cannabis has significant cardiovascular risk risks, just like smoking tobacco. This is particularly important because cannabis use is increasing, and conventional [tobacco use](#) is decreasing."

Study background and details:

- Survey participants were ages 18-74, with an average age of 45 years.
- About half of the participants self-identified as female. 60.2% self-identified as white adults, 11.6 self-identified as Black adults, 19.3 self-identified as Hispanic adults and 8.9% self-identified as other.
- Nearly 90% of adults did not use cannabis at all; 7% used it less than daily; and 4% were daily users. Among current cannabis users, 73.8% reported smoking as the most common form of cannabis consumption. More than 60% of total respondents had never used tobacco cigarettes; 28.6% of daily cannabis users had never used tobacco cigarettes; 44.6% of non-daily cannabis users had never used tobacco cigarettes, and 63.9% of participants who did not use cannabis had never used tobacco cigarettes.

The study had several limitations, including that cardiovascular conditions and cannabis use were self-reported, making them potentially subject to recall bias (potential errors in memory); that the authors did not have health data measuring participants' baseline lipid profile or blood pressure, and the study captured data for only a single point in time for the participants.

The authors note that there is a need for prospective cohort studies—studies that follow groups of individuals over time—to examine the association between cannabis use and cardiovascular outcomes while accounting for the frequency of cannabis use.

"The findings of this study have very important implications for population health and should be a call to action for all practitioners, as this study adds to the growing literature that cannabis use and cardiovascular disease may be a potentially hazardous combination," said Robert L. Page II, Pharm.D., M.S.P.H., FAHA, chair of the volunteer writing group for the 2020 [American Heart Association Scientific Statement: Medical Marijuana, Recreational Cannabis, and Cardiovascular Health](#).

Page is a professor of clinical pharmacy, medicine, and physical medicine at the Skaggs School of Pharmacy and Pharmaceutical Sciences at the University of Colorado School of Medicine in Aurora, Colorado. Page was not involved in this study.

"In the overall population, the study findings are consistent with other studies indicating that daily cannabis use was associated with an increase in heart attack, stroke, and the combined endpoint of [coronary heart disease](#), heart attack, and stroke," he said.

"As cannabis use continues to grow in legality and access across the U.S., practitioners, and clinicians need to remember to assess cannabis use at

each patient encounter in order to have a non-judgmental, shared decision conversation about potential cardiovascular risks and ways to reduce those risks."

More information: Association of Cannabis Use With Cardiovascular Outcomes Among US Adults, *Journal of the American Heart Association* (2024). [DOI: 10.1161/JAHA.123.030178](https://doi.org/10.1161/JAHA.123.030178)

Provided by American Heart Association

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