

Marijuana smoke not as damaging to lungs as cigarette smoke

January 10 2012

Using marijuana carries legal risks, but a new study shows that the consequences of occasionally lighting up do not include long-term loss of lung function, according to a new study by University of Alabama at Birmingham researchers published in the January 11, 2012, issue of the *Journal of the American Medical Association*.

Marijuana is the most commonly used [illicit drug](#) in the United States, according to the National Survey on Drug Use and Health. In 2009, 16.7 million Americans ages 12 and older reported using [marijuana](#) at least once in the month prior to being surveyed. In addition, since 1996, 16 states and Washington, D.C., have legalized the medical use of marijuana to help manage the symptoms of many diseases, including cancer, AIDS and glaucoma.

"With marijuana use increasing and large numbers of people who have been and continue to be exposed, knowing whether it causes lasting damage to lung function is important for public-health messaging and medical use of marijuana," says the study's senior author, Stefan Kertesz, M.D., associate professor in the UAB Division of [Preventive Medicine](#) and with the Center for Surgical, Medical and Acute Care Research and Transitions at the Veterans Affairs Medical Center in Birmingham.

Kertesz says it's long been known that [marijuana smoke](#) has many irritant chemicals found in tobacco smoke and can cause lung irritation, wheezing and cough immediately after use; however, the research on

long-term effects on lung function have inconsistencies.

Using a large national database, the research team compared the lung function of marijuana and tobacco smokers during a 20-year period. The data revealed that [tobacco smoke](#) had exactly the effect shown in all prior studies — increasing a person's cumulative exposure to cigarettes results in loss of air flow and lung volumes; the opposite was true for marijuana smoke.

"At levels of marijuana exposure commonly seen in Americans, occasional marijuana use was associated with increases in lung air flow rates and increases in lung capacity," Kertesz says. "Those increases were not large, but they were statistically significant. And the data showed that even up to moderately high-use levels — one joint a day for seven years — there is no evidence of decreased air-flow rates or lung volumes."

Kertesz cautions that smoking marijuana is not an avenue to better lung health.

"It's not enough of an increase that would make you feel better," he says. "Healthy adults can blow out 3 to 4 liters of air in one second. The amount of gain, on average, from marijuana is small, 50 ccs or roughly a fifth of a can of coke. So it's not something that would be noticeable."

Also, Kertesz says, the increase does not hold steadfast over time.

"The relationship changes for people who get to high levels of lifetime exposure," he says. "At that point, the data suggests there is a decline in lung air-flow rate. There also may be other damaging effects that don't manifest until extremely high levels of exposure; we did not have enough very heavy marijuana smokers in this study to determine this."

To perform their analysis, Kertesz and a research team from other universities looked at data from the Coronary Artery Risk Development in Young Adults Study. CARDIA, funded by the National Heart, Lung and Blood Institute, is a long-term research project involving more than 5,000 black and white men and women from Birmingham, Chicago, Minneapolis and Oakland, designed to examine the development and determinants of cardiovascular disease and its risk factors. Participants were recruited when they were ages 18-30 and followed from 1985 to 2006.

The researchers looked closely at the reported use of both marijuana and tobacco and asked participants repeatedly during years of follow-up about their use of these substances. Marijuana and tobacco use were both commonly reported — 37 percent said they used marijuana at some point during the study. This is similar, the researchers say, to what many Americans have said in other national surveys.

As part of the CARDIA protocol, participants' lung function was measured for air flow and lung volume at years 0, 2, 5, 10 and 20 using standard pulmonary function tests. The [air flow](#) measure is the amount of air you can blow out of your lungs in one second after taking the deepest breath possible. The volume measure is the total amount of air you can blow out after taking the deepest breath possible.

Lead author, Mark J. Pletcher, M.D., of the Department of Epidemiology and Biostatistics, and Department of Medicine at the University of California, San Francisco, who led the statistical analysis, says what sets this study apart from any others is both the number of participants and duration of the study.

"This is not the first study to show that marijuana has a complicated relationship with [lung function](#). However, the size of the study and the long duration of follow-up help us to paint a clearer picture of the ways

in which the relationship changes over time," he says.

As a final note, Kertesz clarified that the study did not examine other ways in which smoking marijuana could affect a person's health and insisted this study does not advocate the use of marijuana.

"Marijuana is still an illegal drug, and it has many complicated effects on the human body and its function," he says. "In our findings we see hints of harm in pulmonary function with heavy use, and other studies have shown that marijuana use increases a user's likelihood of a heart attack, according to the American Heart Association, and impairs the immune system's ability to fight disease, according to the National Institute on Drug Abuse."

More information: *JAMA*. 2012;307[2]:173-181.

Provided by University of Alabama at Birmingham

Citation: Marijuana smoke not as damaging to lungs as cigarette smoke (2012, January 10)
retrieved 20 April 2024 from

<https://medicalxpress.com/news/2012-01-marijuana-lungs-cigarette.html>

<p>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.</p>
--