

Does Cannabis Protect or Harm the Brains of People With HIV?

An \$11.6 million grant will help researchers map the effects of cannabis—marijuana and related products—on the brains of people with HIV.

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How does cannabis affect the brains of people living with [HIV](#)? A federal grant of \$11.6 million over five years will help researchers at Weill Cornell Medicine find out.

It's possible that [cannabis](#)—including [marijuana](#) and other products made from the plant—may help protect the [brain](#) against the damage of HIV. But it's also possible that cannabis may exacerbate HIV's negative effects.

“We know that the virus may cause changes within the brain, but it's not clear yet how the use of cannabis might interact with the infection,” said principal investigator [Lishomwa Ndhlovu](#), MD, PhD, a professor of immunology in medicine in the Division of Infectious Diseases at Weill Cornell Medicine, [in a press release](#).

What's more, people with HIV frequently use cannabis, either recreationally or to treat symptoms linked to HIV, the researchers noted. But cannabis can be addictive and negatively affect the brain. On the flip side, some research shows that cannabis may fight the HIV-related inflammation that can harm cognitive function.

To better understand the effects of cannabis on the brains of people with HIV, the researchers will focus on gene activity in specific regions of the brain, including the hippocampus.

“It's unclear how different types of brain cells react to cannabis in the context of HIV,” Michael Corley, PhD, an assistant professor of immunology in medicine in the Division of Infectious Diseases, said in the press release. “New single-cell technologies will allow us to map these changes at a resolution high enough to examine the effects on specific cell types.”

The grant was awarded by the National Institute on Drug Abuse (NIDA) of the National Institutes of Health. The research is the latest project, which explores the long-term changes in the brains of people with HIV caused by addiction and substance misuse. The [SCORCH website explains](#):

Despite effective viral suppression with antiretroviral medications, approximately 50% of

people living with HIV have persistent neurocognitive deficits, especially in working memory and attention. The biological substrates of persistent neurological injury in people with HIV on treatment remain poorly understood, including detailed identification of specific cell populations in the brain that support viral infection. Moreover, use of addictive substances by people living with HIV has the potential to further diminish immune function and/or exacerbate HIV-related [central nervous system] impairment.

“People often use the words cannabis and marijuana interchangeably, but they don’t mean exactly the same thing,” [explains the National Institutes of Health](#) on the website for the National Center for Complementary and Integrative Health. “The word cannabis refers to all products derived from the plant *Cannabis sativa*. The cannabis plant contains about 540 chemical substances. The word marijuana refers to parts of or products from the plant *Cannabis sativa* that contain substantial amounts of tetrahydrocannabinol (THC).”

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