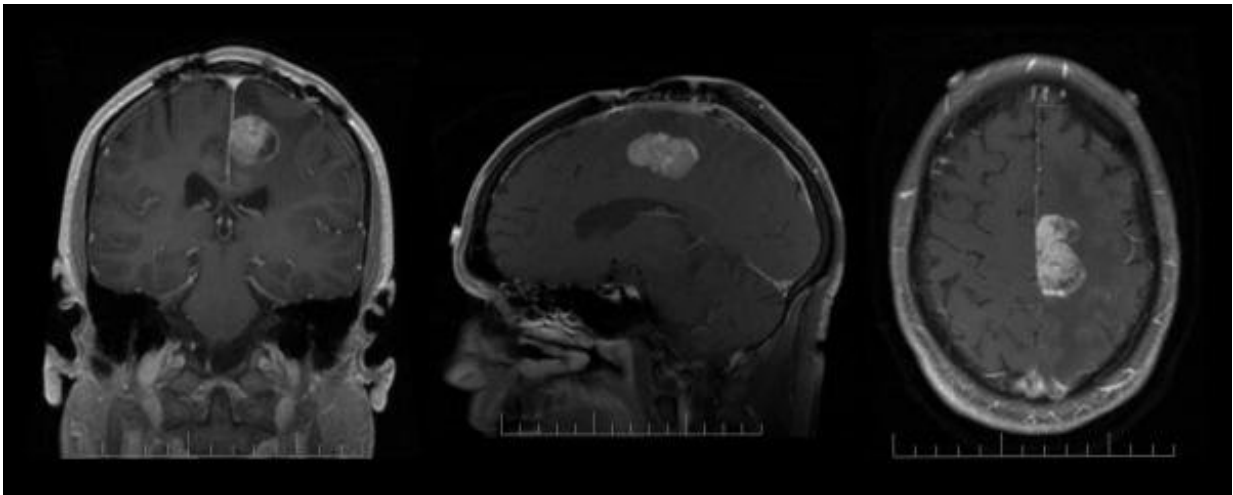


# Cannabinoids are easier on the brain than booze, study finds

February 9 2018, by Cay Leytham-Powell

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Credit: University of Colorado at Boulder

Marijuana may not be as damaging to the brain as previously thought, according to new research from the University of Colorado Boulder and the CU Change Lab.

The research, which was published in the journal *Addiction*, examined the brains of more than 1,000 participants of varying ages, and found that long-term alcohol use is much more damaging to the brain than [marijuana](#), contradicting years of research into the effects of marijuana and other cannabinoid products on the brain.

These findings, and other conclusions suggesting the potential public health benefits of marijuana, come amid the recent back-and-forth on federal marijuana policy and the nation's opioid crisis.

Yet scientists are still hesitant to say that cannabinoid usage, specifically as it pertains to marijuana and its associated products, is beneficial.

"Particularly with marijuana use, there is still so much that we don't know about how it impacts the brain," said Rachel Thayer, a graduate student in clinical psychology at CU Boulder and the lead author of the study. "Research is still very limited in terms of whether marijuana use is harmful, or beneficial, to the brain."

While the negative effects of alcohol on the brain have been known by researchers for years, it has been assumed that cannabinoids are as damaging to long-term brain health—if not more—given the immediate psychoactive effects of the THC (the chemical that gets a person high) in marijuana.

However, this may not necessarily be true.

"When you look at the research much more closely, you see that a lot of it is probably not accurate," said study co-author Kent Hutchison, a professor of behavioral neuroscience at CU Boulder and co-director of the CU Change Lab, which explores the factors linked with health and risk behavior.

"When you look at these studies going back years, you see that one study will report that marijuana use is related to a reduction in the volume of the hippocampus. The next study then comes around, and they say that marijuana use is related to changes in the cerebellum or the whatever."

"The point is that there's no consistency across all of these studies in

terms of the actual brain structures."

To combat this misconception in the existing literature, the researchers gave a fresh look at some existing neurological imaging data from the MRIs of both adolescents and adults to see how, using the same variables and controls, the influence of cannabinoids on the brain compared to or contrasted with alcohol.

"With alcohol, we've known it's bad for the brain for decades," said Hutchison. "But for cannabis, we know so little."

To see any potential difference, the researchers used the data to examine the most important neurological components: gray matter and white matter.

Gray and white matter are the two main types of tissue that make up the brain and central nervous system. Gray matter is the "stuff"—the cell bodies, dendrites and axon terminals—that enable functionality. White matter, then, is how the grey matter communicates between clusters. Any loss of size or integrity in either can make the brain not work quite like it should.

The study found that alcohol use was significantly associated with a decrease in gray matter size and white matter integrity, particularly for adults who may have decades of exposure. Marijuana and associated cannabinoid products, on the other hand, were not shown to have any long-term impact on the amount of [gray matter](#) in the [brain](#) or on the integrity of the [white matter](#).

The research demonstrated that, "while marijuana may also have some negative consequences, it definitely is nowhere near the negative consequences of alcohol," according to Hutchison.

Despite marijuana not being as harmful as once thought, and definitely

not as damaging as other legal and illegal products, the research has not yet proved any possible benefits. This is particularly the case as it relates to the different products on the market (both THC and non-THC-containing cannabinoid products), their usage with pain and addiction treatment and the effect on different ages—especially as [cannabinoid](#) usage is on the rise among older populations.

"Considering how much is happening in the real world with the legalization movement, we still have a lot of work to do," Hutchison said.

**More information:** Rachel E. Thayer et al. Structural neuroimaging correlates of alcohol and cannabis use in adolescents and adults, *Addiction* (2017). DOI: [10.1111/add.13923](https://doi.org/10.1111/add.13923)

Provided by University of Colorado at Boulder

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