

# Cannabinoids induce seizures by acting through the cannabinoid CB1 receptor

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**THE DANGER OF MARIJUANA:**  
CANNABINOIDS INDUCE SEIZURES



Marijuana is the most commonly abused drug in the world, and the advent of synthetic cannabinoids creates additional challenges to society because of their higher potency and ability to escape drug detection screenings. Scientists from Japan have a warning about a danger of cannabinoid abuse.

A research group led by Olga Malyshevskaya and Yoshihiro Urade of International Institute for Integrative Sleep Medicine (WPI-IIS), University of Tsukuba, discovered that seizures can be induced by natural  $\Delta^9$ -tetrahydrocannabinol or the synthetic cannabinoid JWH-018 in mice. This was demonstrated by continuous recording of animals' electric brain activity, video and movement activity tracking. Based on their data, they propose a potential treatment for cannabinoid overdose with the cannabinoid-1-receptor (CB1R) specific antagonist (AM-251), which, in their study, prevented cannabinoid-induced seizures.

"Our study is quite important, because people see [marijuana](#) as a soft drug, without dangerous health effects," Malyshevskaya says. Use of synthetic cannabinoids and the associated complications in humans are on the rise and spreading all over the world. People are synthesizing different variants of cannabinoids to evade regulatory agents, with minimal information on their pharmacology and potential harm.

Considering the recent irreversible spread of [synthetic cannabinoids](#) and their impact on human health, their data should serve as a public alert. It is critically important for [health care professionals](#) and policy makers to be aware of the serious adverse effects, as shown in this report. Clinicians in emergency departments should always suspect seizure activity in patients with a history of [cannabinoid](#) intoxication. The number of clinical cases involving [marijuana intoxication](#) has been steadily increasing due to increase in cannabis potency over the last two

decades.

Reflecting the scientific debate on the action of cannabinoids, there are numerous disputes regarding the legal status of marijuana. As governments proceed with legalization for both medical and recreational use, there will always be public health concerns, as marijuana overdose often results in direct adverse reactions.

**More information:** Olga Malyshevskaya et al. Natural ( $\Delta^9$ -THC) and synthetic (JWH-018) cannabinoids induce seizures by acting through the cannabinoid CB1 receptor, *Scientific Reports* (2017). [DOI: 10.1038/s41598-017-10447-2](https://doi.org/10.1038/s41598-017-10447-2)

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