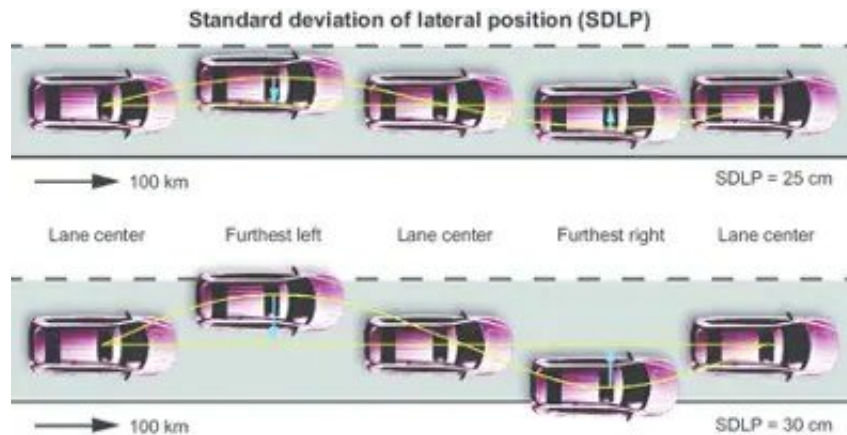


# Scientists put the stopwatch on cannabis intoxication

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Example of standard deviation of lateral position. Credit: Verster and Roth (2011) [International Journal of General Medicine](#).

How long is someone impaired after cannabis use?

New analysis from the Lambert Initiative defines durations of impairment after inhaled or oral THC doses. Findings raise questions about current drug-driving laws, which penalize for THC presence, not intoxication levels.

A comprehensive analysis of 80 scientific studies has identified a 'window of impairment' of between three and 10 hours caused by moderate to high doses of the intoxicating component of cannabis, tetrahydrocannabinol (THC). The findings have implications for the

application of drug-driving laws globally, researchers say.

The study found the exact duration of impairment depends on the dose of THC, whether the THC is inhaled or taken orally, whether the [cannabis user](#) is regular or occasional and the demands of the task being undertaken while intoxicated.

The study represents the first such meta-analysis and distilled the results of 80 separate scientific studies into THC-induced impairment conducted over the past 20 years. It has been published in *Neuroscience & Biobehavioral Reviews*.

"Legal cannabis use, both medical and non-medical, is increasingly common across the world," said lead author Dr. Danielle McCartney from the Lambert Initiative for Cannabinoid Therapeutics at the University of Sydney.

"THC is known to acutely impair driving and cognitive performance but many users are unsure how long this impairment lasts and when they can resume safety-sensitive tasks, such as driving, after cannabis consumption.

"Our analysis indicates that impairment may last up to 10 hours if high doses of THC are consumed orally. A more typical duration of impairment, however, is four hours, when lower doses of THC are consumed via smoking or vaporization and simpler tasks are undertaken (e.g., those using cognitive skills such as reaction time, sustained attention and working memory).

"This impairment may extend up to six or seven hours if higher doses of THC are inhaled and complex tasks, such as driving, are assessed."

For this study a moderate THC dose is about 10 milligrams, but

researchers say what is moderate for a regular user could be high for an occasional user.

Co-author Dr. Thomas Arkell, also from the Lambert Initiative, said: "We found that impairment is much more predictable in occasional cannabis users than regular cannabis users. Heavy users show significant tolerance to the effects of cannabis on driving and cognitive function, while typically displaying some impairment."

The authors noted that regular users might consume more cannabis to achieve an effect, leading to an equivalent amount of impairment.

Many medicinal cannabis users consume THC in the form of oils, sprays or capsules and another important finding was that with such oral use the impairment takes longer to appear and lasts significantly longer than with inhaling.

Researchers said that the findings have implications for so-called drug-driving laws.

Academic Director of the Lambert Initiative, Professor Iain McGregor, said: "THC can be detected in the body weeks after cannabis consumption while it is clear that impairment lasts for a much shorter period of time. Our legal frameworks probably need to catch up with that and, as with alcohol, focus on the interval when users are more of a risk to themselves and others. Prosecution solely on the basis of the presence of THC in blood or saliva is manifestly unjust.

"Laws should be about safety on the roads, not arbitrary punishment. Given that cannabis is legal in an increasing number of jurisdictions, we need an evidence-based approach to drug-driving laws," Professor McGregor said.

This paper follows recent research by Dr. Arkell and colleagues that shows one of the medically active components of cannabis, cannabidiol (CBD) does not cause impairment in driving.

**More information:** Danielle McCartney et al. Determining the magnitude and duration of acute  $\Delta 9$ -tetrahydrocannabinol ( $\Delta 9$ -THC)-induced driving and cognitive impairment: A systematic and meta-analytic review, *Neuroscience & Biobehavioral Reviews* (2021).  
[DOI: 10.1016/j.neubiorev.2021.01.003](https://doi.org/10.1016/j.neubiorev.2021.01.003)

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