

# INFORM PATIENTS

- Not all “cannabis” is alike; there are different THC potencies, and some cannabis is primarily CBD-rich (with limited THC).
- There is a delayed onset of drug effect when ingesting edible cannabis products (cookies, brownies, candies, etc.) and a greater dose than intended may be consumed before the drug has taken effect, resulting in profound adverse effects.
- The effects of cannabis, particularly edibles, can last up to eight hours after intake. Driving should be restricted during this period.
- Acute cannabis use likely increases crash risk and this effect is exacerbated when mixed with alcohol.
- Drivers under the influence of cannabis can be convicted of DUI regardless of whether consumed for medical or recreational purposes.
- The legal and financial consequences of a cannabis-related DUI conviction are the same as those for driving under the influence of alcohol.

## RESOURCES

Let's Talk Cannabis | California Department of Public Health (CDPH) [bit.ly/CDPH-cannabis](https://bit.ly/CDPH-cannabis)

Marijuana-Impaired Driving - A Report to Congress | National Highway Traffic Safety Administration (NHTSA) [bit.ly/NHTSA-marijuana](https://bit.ly/NHTSA-marijuana)

The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research | National Academies of Sciences, Engineering, and Medicine (NASEM) [bit.ly/NASEM-cannabinoids](https://bit.ly/NASEM-cannabinoids)

Drug Impaired Driving: A Guide for States | Governors Highway Safety Association (GHSA) [bit.ly/GHSA-drug-impaired-driving](https://bit.ly/GHSA-drug-impaired-driving)

What You Need to Know About Marijuana Use and Driving | Centers for Disease Control and Prevention (CDC) [bit.ly/CDC-marijuana](https://bit.ly/CDC-marijuana)



# TREDS

TRAINING, RESEARCH AND EDUCATION FOR DRIVING SAFETY

## CANNABIS & DRIVING

### A GUIDE FOR CLINICIANS AND PHARMACISTS

Driving under the influence of any impairing substance is a major cause of motor vehicle crashes. Cannabis can affect driving-related skills, such as response time and the ability to divide attention. Cannabis use is increasing nationwide: a 2014 survey by the CDC found that there were 7,000 new cannabis users every day. Although the impact of acute cannabis use on driving is not clear, it is important that you and your patients understand the facts related to cannabis use and the potential effects on driving.

**UC San Diego**  
SCHOOL OF MEDICINE



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SKAGGS SCHOOL OF PHARMACY  
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### TREDS: Training, Research and Education for Driving Safety

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# CANNABIS 101

Of the hundreds of bioactive compounds in the *Cannabis sativa* plant, the most common and clinically-relevant are:

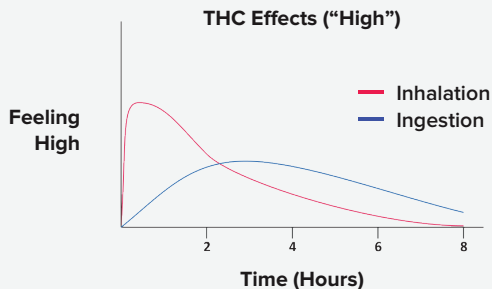
- Delta-9-tetrahydrocannabinol (THC) - noted for psychotropic effects (feeling “high”)
- Cannabidiol (CBD) - increasingly used medicinally with no noted psychotropic effects

Cannabis is getting more potent. THC concentration in cannabis has increased at least three-fold since the 1990s.

As of July 1, 2018, legal dispensaries in California must verify and display the levels of THC in their products, as well as test for pesticides and contaminants.

Due to complex pharmacokinetics and the fat-soluble nature of THC, blood concentration does not correlate to feeling “high.”

- When smoking, THC blood concentration peaks at around 10 minutes, with the “high” typically lasting for 2-4 hours.
- With edibles, THC blood concentration peaks approximately two hours after intake; the feeling of “high” continues up to eight hours.
- The figure below shows the effects of smoking and edibles; note that the effects on any individual depend upon variables such as the doses taken and cannabis use history.



General effects of cannabis: levels of highness for any individual is greatly affected by the dose of THC as well as the user's prior experience with cannabis.

Risks associated with medical or recreational cannabis use include:

- Uncertain variability in dosage (THC levels)
- Overdose due to delayed onset of effects (e.g., with edibles, taking another dose before the full effects of the first dose are realized)
- Driving impairment
- Negative synergistic effect on driving when mixed with alcohol
- Children's access

Pilot studies suggest that cannabis may have some therapeutic benefit in reducing pain and chemotherapy side effects, as well as in the treatment of conditions such as multiple sclerosis, seizures, and neuropathy.

## IMPACT ON DRIVING

Among drivers tested in fatal vehicle crashes, drivers who test positive for drugs of potential abuse (e.g. cannabis, opioids, and benzodiazepines) now surpass those testing positive for alcohol.

While research at the University of California San Diego and elsewhere will further clarify the driving safety risk, current evidence suggests that acute cannabis use impairs several abilities important for safe driving:

- Slowed reaction time
- Increased distractability
- Decreased visuospatial skills
- Poor decision-making and route planning

Estimates of crash risk while under the influence of cannabis vary. Complexity of metabolism, form of ingestion, dosage, and habituation influence the effect of cannabis on driving. Research approximates the risk of motor vehicle crashes when under the influence of cannabis (without alcohol) to be two-fold.