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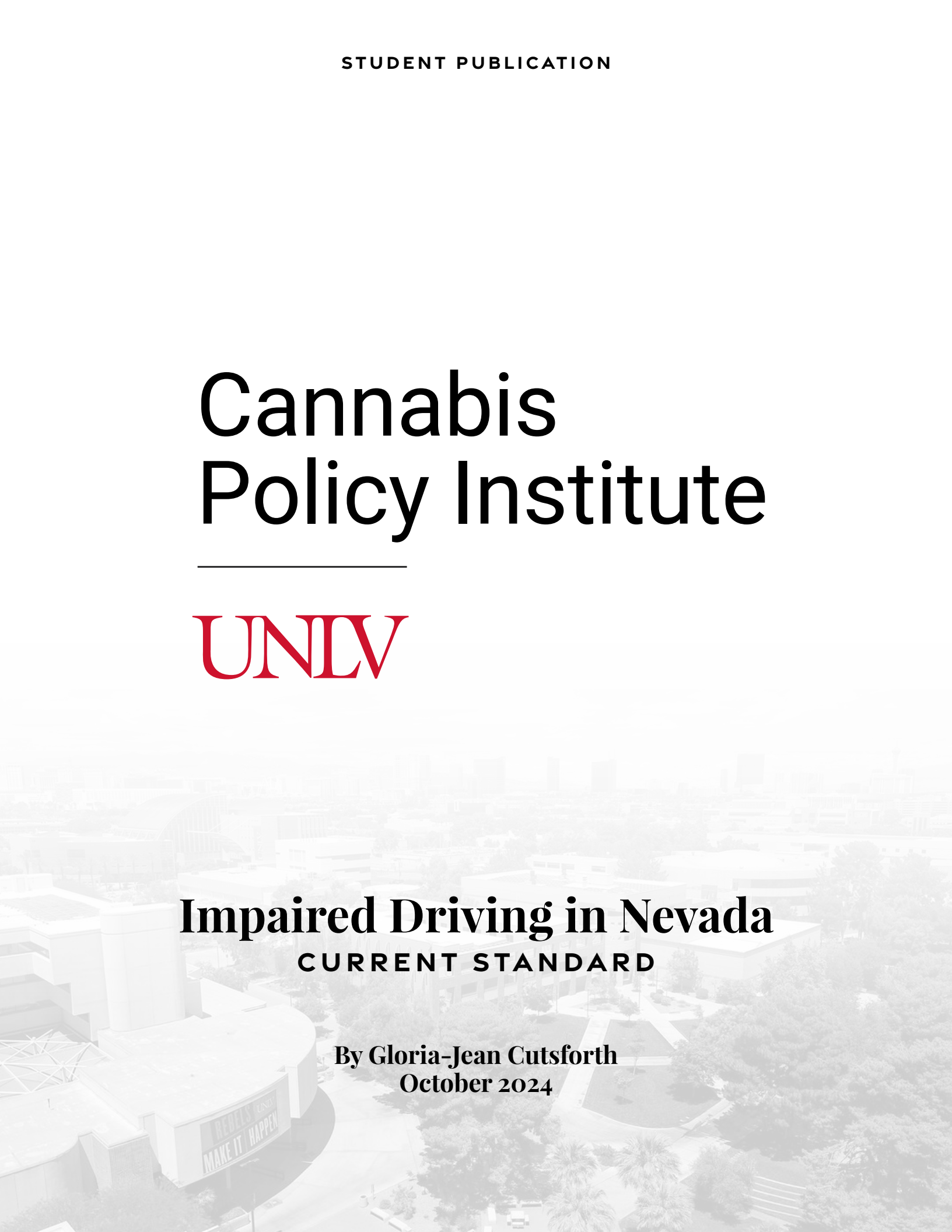

Impaired Driving in Nevada

CURRENT STANDARD

By Gloria-Jean Cutsforth

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About the CPI

The Cannabis Policy Institute at the University of Nevada, Las Vegas is dedicated to the development and advancement of cannabis research, policy, and education. Our mission is to provide leadership by fostering a comprehensive understanding of the complex issues surrounding cannabis legalization while being mindful of the disparate impacts of past practices and the importance of social equity and justice going forward.

The institute will engage with a range of stakeholders and community partners to develop effective approaches to cannabis policy, expand and coordinate educational opportunities, and support and promote medical and policy research. Through education and outreach efforts to lawmakers, industry leaders, and the public, the institute will be an invaluable resource for local, state, and national communities.

Student Author Biography

GLORIA-JEAN CUTSFORTH

Gloria-Jean Cutsforth is a senior studying criminal justice at the University of Nevada, Las Vegas. Her interests focus on the intersection of cannabis policy, public health, and social justice. She has gained experience through her internship with the National Organization for the Reform of Marijuana Laws (NORML), where she assisted with cannabis research and policy initiatives. Gloria-Jean aims to advocate for evidence-based approaches to cannabis regulation.

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As cannabis policies progress and legalization becomes more common, it is important to reflect on current cannabis impairment research and how it may be used to improve DUI laws. Current studies suggest that common DUI policies and testing methods may not be precise in determining cannabis impairment. This report begins with a discussion on current policy standards and recommendations for driving under the influence of cannabis, followed by a literature review of current studies to conclude the report.

Impaired Driving in Nevada — Current Standard

Nevada cannabis impairment laws have changed in recent years in response to data regarding cannabis impairment and testing methods. Analysis of cannabis impairment is crucial to determine cannabis impairment and DUI convictions. Impaired driving in Nevada includes driving under the influence of alcohol, cannabis, and other substances, each with different testing limits.[1]

For understanding how impairment testing has historically been administered, alcohol impairment testing sets the precedent.[2] The Nevada blood alcohol content (BAC) limit guideline is .08 for non-commercial drivers and .04 for commercial drivers. This level is determined by a breathalyzer device or by blood tests. If law enforcement establishes that one is under the influence of other substances, a driver can be convicted for a DUI for testing at a BAC lower than the limit.

Currently, cannabis impairment is measured by field sobriety tests and blood tests. Field sobriety tests, such as walking in a straight line, are conducted to establish probable cause that a driver is impaired. A per se (presumed illegal) standard is used to determine the presence of cannabis and cannabis metabolites in a driver's system when they are arrested for a DUI. Biofluid testing is conducted at local testing labs to determine if the driver is impaired. This standard considers the driver to have committed an offense if their blood contains 2 nanograms per milliliter (ng/mL) of THC, or 5 ng/mL of 11-hydroxy-THC. However, in 2021 Assembly Bill 400 (AB400) made it so that the law on impaired driving, Nevada Revised Statutes (NRS 484C.110), only applies to felony DUI violations.

Blood alcohol levels accurately determine impairment, as the amount of alcohol in one's blood has a direct relationship to impairment. Cannabis does not show the same direct correlation to impairment because cannabis impairment presents more in the body than in the blood.

2017 — Touro University

In 2017, Nevada Assemblyman Steve Yeager sponsored Assembly Bill 135 (AB135),[3] which revised the means of testing for cannabis DUIs. Through research of methods used to establish cannabis impairment, two Touro University medical students determined that urine testing for the presence of cannabis is not accurate

1 Nevada Department of Motor Vehicles. (October 2018). DUI Laws. https://dmv.nv.gov/pdfforms/qtdui.pdf

2 Nevada State Police Office of Traffic Safety. (2021). Nevada Committee On Testing for Intoxication. https://ots.nv.gov/Programs/NCOTT/TestingForIntoxication/

3 Assembly Bill 135. Nevada Assembly 79th Session (2017). https://www.leg.state.nv.us/App/NELIS/REL/79th2017/Bill/4881/Text

and should be replaced with blood tests.[4] These findings informed AB135, which was passed and signed into law. The bill removed urine measurement thresholds from NRS 484C.110, leaving only blood measurements to be used when determining cannabis impairment while driving. This change in the law ensures higher accuracy when determining DUIs.

2019

Assembly Concurrent Resolution 7 (ACR 7) initiated the creation of the Committee to Conduct an Interim Study of Issues Relating to Driving Under the Influence of Marijuana.5 ACR 7 directed the Legislative Commission to appoint a committee to study issues involved with driving while impaired by cannabis.

2021 — California Highway Patrol Task Force Recommendations[6]

The California Highway Patrol Impaired Driving Task Force is an appointed group who create recommendations for impaired driving policies. DUIs include impairment caused by alcohol, cannabis, prescriptions, and other substances. Final recommendations include specific policies regarding data collection, research, toxicology, education, and law enforcement.

Tracking DUI data points like arrest outcomes, toxicology, and crash reports.

The recommendations in 2017 approach the issue of cannabis DUI from a variety of important viewpoints. First, annual DUI research projects that address many aspects of impairment and testing should be published in a statewide report for education and policy purposes. Research funding should be allocated for government laboratories to conduct forensic toxicology with effective equipment and updated standards and, due to lack of scientific support, a per se limit for drugs should not be established. Instead, research should continue advancing in order to find accurate methods of evaluating impairment.

Second, to prevent impaired driving, age appropriate education measures should be made readily available, encouraged, and required in some scenarios, such as traffic schools. Responsible sales and consumption training should be required for those working in the cannabis industry, and retailers and advertisers should provide consumers with educational messaging including warnings and safe practices. Specialized training regarding impaired driving should be required in law enforcement academies and for traffic enforcement personnel.

Lastly, recording systems should be used by law enforcement to capture impairment related accidents and investigations. The best available roadside drug testing technologies should be used and studies should continue to support possible viable technologies.

4 Touro University Nevada. (2017, June 7). Touro University Nevada Medical Students Pave Way for Improved Marijuana DUI Testing. https://tun.touro.edu/about-us/news-and-stories/2017/june/touro-university-nevada-medical-students-pave-way-for-improved-marijuana-dui-testing.php

5 Legislative Counsel Bureau. (September 2020). Committee to Conduct an Interim Study of Issues Relating to Driving Under the Influence of Marijuana; ACR 7 [File 48, Statutes of Nevada 2019]); Bulletin 21-4. Research Division of the Legislative Counsel Bureau. https://www.leg.state.nv.us/Division/Research/Documents/Bulletin_21_4.pdf (last visited August 29, 2024)

6 "Report to the Legislature: Senate Bill No. 94," Impaired Driving Task Force, California Highway Patrol, January 2021, https://www.canorml.org/wp-content/uploads/2021/03/Senate-Bill-94-2017-CHP-Report-to-the-Legislature-Impaired-Driving-Task-Force-Report.pdf (last visited August 19, 2024)

Literature Review

1. Driving Performance and Cannabis Users' Perception of Safety

Authors: Thomas D. Marcotte; Anya Umlauf; David J. Grelotti; et al.

Published: JAMA Psychiatry 2022

Summary: This study analyzed the differences in participants' driving scores using a double-blind, placebo-controlled parallel randomized clinical trial. In addition to driving score, self-perception of impairment, cannabis use history, and blood THC concentrations measures were taken. Participants' driving performance did decrease within the hours after smoking and then returned to non-impaired scores around 4.5 hours after smoking.

Key Findings: While initially feeling too impaired to drive, after about 90 minutes, those in the THC group reported themselves as safe to drive. Data from the simulated driving showed otherwise and indicated progressive reductions in driving performance. No correlation was found between impairment and THC blood levels.

Implications: This study shows how much variability there is in relation to cannabis use and impairment. It is not possible for drivers to safely and accurately determine whether they are able to drive safely, based on self-reports, blood tests, or THC concentrations. This variability in determining impairment poses a risk as there are a lack of methods to accurately measure impairment like there are for alcohol impairment.

2. Evaluation of Field Sobriety Tests for Identifying Drivers Under the Influence of Cannabis

Authors: Thomas D. Marcotte; Anya Umlauf; David J. Grelotti; et al.

Published: JAMA Psychiatry 2023

Summary: This study observed a placebo group and THC group to see how accurately field sobriety tests are in determining THC impairment. Various field sobriety tests were performed by highly trained law enforcement officers who then classified participants based on whether the officer believed them to be THC impaired. Individuals also participated in a driving simulation that officers did not observe, to avoid any confirmation bias.

Key Findings: Officers identified 81% of participants in the THC group and 49.2% of participants in the placebo group as THC impaired. There was a correlation between poor simulation performance and poor sobriety test performance.

Implications: Field sobriety tests can be useful in identifying impairment in people, but are not reliable as the sole means of showing evidence of THC impairment due to risks of false-positives and the subjectivity of law enforcement. Options need to be developed for law enforcement to accurately identify when a driver is THC impaired.

3. Driving Under the Influence of Cannabis: Impact of Combining Toxicology Testing with Field Sobriety Tests

Authors: Robert Fitzgerald; Thomas Marcotte; et al.

Published: Clinical Chemistry 2023

Summary: To study the effects of THC impairment on driving, multiple measures were taken of participants in both THC and placebo groups. Blood, oral fluid, breath samples, driving performance, and field sobriety tests conducted by law enforcement were used to determine any correlations.

Key Findings: When comparing THC measurements from blood, oral fluid, or breath to driving performance, no relationship was found. Field sobriety tests did show a significant relationship between poor scores and those in the THC group, but some participants from the placebo group were also identified as impaired based on the field sobriety tests. When results of oral fluid measurements were combined with field sobriety test findings, there were no participants from the placebo group that were identified as impaired.

Implications: Biofluid THC measurements cannot accurately identify levels of impairment and field sobriety tests are not always accurate. While neither method of identifying impairment are optimal means of measurement alone, oral fluid may be more reliable than blood to test for impairment. Oral fluid, in addition to field sobriety tests, could result in less false-positives.

4. Cannabis Effects on Driving Performance: Clinical Considerations

Authors: Brianna Costales; Shanna L. Babalonis; et al.

Published: Medical Cannabis and Cannabinoids 2023

Summary: Participants completed road driving tests at multiple timepoints after receiving a dose of cannabis.

Key Findings: Participants who received doses of THC-dominant and THC/CBD-equivalent cannabis had a significant increase in standard deviation of lateral position, which measures horizontal lane weaving, at 40-240 minutes after consumption. Those who received CBD-dominant cannabis and the placebo did not. After 240 minutes, all groups had no impairment detected.

Implications: Education regarding the safety risks of driving while under the influence of cannabis (at least five hours after use) is important and should be shared with consumers.

5. Cannabis Use and Reported Effects on Driving Among Adults in Iowa

Authors: Timothy Brown; Rose Schmitt; et al.

Published: Traffic Injury Prevention 2021

Summary: Conducted over the course of eight months, an online survey asked Iowa (where cannabis is not legal) residents questions regarding their cannabis use. The survey was

based on a similar survey conducted in Colorado and asked questions focused on participants' usage of cannabis as well as personal ideas surrounding driving under the influence.

Key Findings: Those who consume cannabis more frequently are more likely to drive within two hours of consuming cannabis than those who consume less often. Frequent consumption also correlated to reports of perceiving no change or improvement to their driving. Least frequent consumers are much more likely to not consume cannabis if they plan on driving afterward than the most frequent consumers.

Implications: Driving under the influence of cannabis is more closely related to the frequency habits of cannabis consumers than to the legality of cannabis. This may imply that legalization may not be a direct cause of DUIC occurrences and accidents.

6. Simulated Driving Performance among Daily and Occasional Cannabis Users

Authors: Ashley Brooks-Russell, PhD, MPH; Tim Brown, PhD; et al.

Published: Accident Analysis & Prevention 2021

Summary: Occasional, daily, and non consumers of cannabis used a driving simulator to analyze driving performance after smoking cannabis. THC concentrations were calculated from blood samples taken after smoking.

Key Findings: Lower driving performance scores were only statistically significant for occasional users after smoking cannabis. Compared to occasional and non users, daily consumers drove slower after consumption. This study was not conclusive enough to determine that driving impairment affects occasional consumers more than daily consumers.
Implications: Cannabis smoking does impact driving performance based on standard deviation of lateral placement (SDLP).

7. Drug Recognition Expert (DRE) examination characteristics of cannabis impairment

Authors: Rebecca L. Hartman; Jack E. Richman; et al.

Published: Accident Analysis & Prevention 2016

Summary: 302 toxicologically-confirmed cannabis-only Drug Evaluation and Classification Program (DECP) cases were evaluated and physiological measurements were taken to determine intoxication.

Key Findings: Elevated pulse, dilated pupils, LOC, and rebound dilation are the most reliable forms of impairment indicators.

Implications: Accurate measures of THC concentration in blood diminish quickly and should be collected as quickly as possible.

8. Effects of High-Potency Cannabis on Psychomotor Performance in Frequent Cannabis Users

Authors: Hollis C Karoly; Michael A Milburn; et al.

Published: Cannabis Cannabinoid Res. 2022

Summary: Using the DRUID mobile app, psychomotor impairment-related effects were observed from frequent cannabis consumers both immediately and one hour after smoking.

Key Findings: Psychomotor impairment is seen immediately after smoking cannabis, including small amounts for frequent consumers. This impairment decreases starting at one hour after use.

Implications: While more research is needed, measurable psychomotor effects and the DRUID app may be used to determine cannabis impairment.

9. Biomarkers of Recent Cannabis Use in Blood, Oral Fluid and Breath

Authors: J A Hubbard; M A Hoffman; et al.

Published: Journal of Analytical Toxicology 2021

Summary: To find practical biomarkers of cannabis intoxication, the study analyzed THC levels in oral fluid, blood, and breath from frequent and occasional consumers. Biomarker measurements were taken prior to smoking and up to six hours after smoking.

Key Findings: Oral fluid with a 10 ng/mL THC cutoff was the best biomarker to identify use within three hours. Breath was a viable biomarker for 40 minutes when cannabis was no longer detectable from samples.

Implications: Oral fluid THC measures may be helpful for identifying recent cannabis consumption but cannot solely determine impairment.

10. Blood and Oral Fluid Cannabinoid Profiles of Frequent and Occasional Cannabis Smokers

Authors: Melissa A Hoffman; Jacqueline A Hubbard; et al.

Published: Journal of Analytical Toxicology 2021

Summary: Over an eight hour period, including before and after smoking, blood and oral fluid samples were taken from the participants who were organized as either frequent or occasional cannabis consumers. Four driving simulation assessments also occurred. Participants were assigned to smoke a 5.9%, 13.4%, or placebo THC cigarette.

Key Findings: In both blood and oral fluid, THC was measurable longer in samples from frequent consumers compared to occasional consumers. Blood THC concentrations lowered below 5 ng/mL after 74.5 min. for 5.9% and 58.0 min. for 13.4% THC occasional users and 116 min. for 5.9% and 108 min. for 13.4% THC frequent users. THC was still detectable in 65% of participants between hours five and six. Oral fluid concentrations went below <5 ng/mL after 171 min. for 5.9% and 99 min for 13.4% (occasional), and 219 min. for 5.9% and 206 min for 13.4% (frequent). Excluding placebo participants, 87.5% of participants still had detectable THC concentrations by the end of the study.

Implications: Frequent and occasional consumption of cannabis can impact the detectability of impairment and use. It is important to know this and apply towards law.

11. Cannabis legalization and driving under the influence of cannabis in a national U.S. Sample

Authors: Lauren M. Dutra; Matthew Farrelly; et al.

Published: Preventative Medicine Reports 2022

Summary: Self-reported data was collected to identify a relationship between frequency of driving under the influence of cannabis (DUIC) and legalization in states.

Key Findings: Recreational and medical cannabis states had lower rates of DUIC than states without legalization. Frequent consumers in medical states did not differ from frequent consumers in states without legal cannabis.

Implications: States without cannabis legalization may need more educational and awareness efforts than legal states. It is suggested that medical patients receive education through medical dispensaries.

12. THC in breath aerosols collected with an impaction filter device before and after legal-market product inhalation—a pilot study

Authors: Kavita M Jeerage1, Cheryle N Beuning1, Adam J Friss, L Cinnamon Bidwell, and Tara M Lovestead

Published: IOP Publishing May 2023

Summary: 15 minutes before and 60 minutes after participants consumed cannabis in their own residence, breath extracts were taken to then be analyzed to find THC measurements. An impaction filter was used to collect breath aerosols and liquid chromatography was used for analysis.

Key Findings: Using breathalyzer measurements to determine recent cannabis use is not supported based on the findings of this study.
Implications: More and larger studies are crucial and will be beneficial to developing future technologies that can be used to accurately determine recent cannabis use.

Additional Resources

Legislative Counsel Bureau Research Division: Driving Under the influence in Nevada

NSCL: Drugged Driving | Marijuana-Impaired Driving

The Defenders: Nevada Marijuana DUI.