



Research In Progress

Examine the Effects of Inhaled Cannabis on Driving Performance

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NHTSA oversaw the development of the world's most advanced driving simulator, the National Advanced Driving Simulator (NADS), located at the University of Iowa. Previously, the NADS research team and driving simulator were employed to study participants under the influence of alcohol and many Central Nervous System active medications. To date, this simulator has never been utilized for evaluating driving impairment following ingestion of an illicit drug. The mixed results from previous cannabis-dosed driving studies have demonstrated that its effects on driving can be more difficult to detect than the effects of alcohol. The NADS, a more sensitive data collection tool, is capable of detecting the more subtle changes in the driving behavior of cannabis-dosed participants. Concurrent ingestion of cannabis and alcohol is common among impaired drivers; therefore, including this combination enhances the external validity of the study. Thus, the current project requires an advanced human motor vehicle driving simulator with validated performance characteristics and a research team able to conduct studies of individuals under the influence of psychoactive substances such as alcohol and cannabis.

NIDA and NHTSA will work cooperatively to conduct the first of its kind study of the effects of inhaled Cannabis on Driving Performance. In the study, the effects of a placebo, low (approximately 3.5% THC), or high dose (approximately 6.5% THC) of inhaled cannabinoids paired with a placebo or low dose (0.05g/dL) of alcohol on driving performance, decision-making, psychomotor control, risk-taking, and divided attention tasks will be assessed in the NADS facility. The Chemistry and Drug Metabolism (CDM) Section of the National Institute on Drug Abuse's Intramural Research Program has a long and productive program in conducting controlled drug administration studies; evaluating the pharmacodynamic effects of drugs; and evaluating the disposition of drugs and metabolites in multiple biological matrices, including blood and oral fluid. They have been conducting cannabis dosing studies for more than 20 years, including fMRI specific brain activity research and the first studies of the CB-1 cannabinoid receptor antagonism of smoked cannabinoids. These studies are unique in that they combine the pharmacodynamics and pharmacokinetics of drug exposure providing a scientific database for interpreting drug test results in light of ongoing physiological, subjective and behavioral effects.

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