Higher Education

As more marijuana users get behind the wheel, researchers study the relationship between the drug and driving

BY JIM BENNING ▪ ILLUSTRATION BY LONNIE BUSCH

In the leafy Hillcrest neighborhood of San Diego, men and women are lighting joints, getting high, and then climbing behind the wheel. It's just the kind of scenario that safety advocates feared when California voters approved the recreational use of marijuana last November. Except in this case, the wheel isn't connected to a car, but to a driving simulator.

These individuals are taking part in a three-year, state-funded $1.8 million study on the impact of marijuana on driving ability. Researchers at the University of California at San Diego's Center for Medicinal Cannabis Research hope to answer a few key questions: Exactly how does marijuana affect a person's ability to drive? How can officers most accurately measure levels of THC (marijuana's active ingredient) in motorists and whether these drivers are impaired?

With more states approving recreational marijuana use, these questions are more pressing than ever. Studies examining the impact of legalization on crash rates have yielded varied results.

In Washington state, where voters legalized marijuana in 2012, the percentage of fatal crashes in which drivers had recently used marijuana more than doubled from 2013 to 2014, according to a study by the AAA Foundation for Traffic Safety. And the Highway Loss Data Institute found a nearly 3 percent increase in collision claims in Washington, Colorado, and Oregon, where recreational marijuana is permitted, compared with nearby states where it is not. But another study published in the American Journal of Public Health found no significant link between legalization and changes in crash fatality rates in Washington or Colorado in the first few years following legalization.

Meanwhile, officials working to keep marijuana-impaired drivers off the road don't agree on the best approach. Some states have set legal limits for THC in drivers' blood, but THC levels don't predict impairment with the same accuracy as alcohol levels. (California has not set such a "per se" limit for marijuana.) What's more, although THC levels can drop by the time a blood test is administered, the drug can remain present in the brain's fatty tissues, where it disrupts concentration, coordination, movement, and memory abilities.

"That's one of the biggest hurdles we're facing now with impairment," says California Highway Patrol Sergeant Glen Glaser Jr., who supervises the CHP's Drug Evaluation and Classification Program. "Just because it's not in the blood doesn't mean it's not in the body."

A limited number of studies are under way to understand the relationship between marijuana use and driving. UC San Diego's research began this year, when the first of 180 participants smoked government-grown marijuana or placebo marijuana and then sat down at a driving simulator—a kind of souped-up arcade game that measures reaction times for such scenarios as pedestrians entering traffic or traffic signals changing. Over the next seven or so hours, the participants underwent blood, breath, and saliva tests to measure THC levels, and then repeated the driving exam.

"One goal is to look more specifically at the relationship between time of consumption, concentration of THC, and driving impairment, at least on a simulator," says Igor Grant, director of the UC San Diego cannabis center. Another goal, he says, is to determine whether a saliva or expired-air test (such as a Breathalyzer) can accurately measure recent marijuana use that correlates to driving impairment.

Until there is a stronger correlation between drug test results and impairment, AAA believes a two-step system should be required to convict a person of marijuana-impaired driving. This must include both a positive test for recent use and behavioral evidence. Toward that end, researchers are experimenting with a test that police officers could administer on a tablet such as an iPad that requires drivers to track the movement of an object on the screen. In addition, police officers around the country are being specially trained to recognize drug impairment.

"Right now, some officers are adapting roadside testing that was based on alcohol," Grant says. "But alcohol and marijuana are not the same. They have different physiological actions. Could we have a tablet-enabled roadside test that would be more accurate? Is there a better behavioral measure that doesn't involve just walking in a straight line?" Sergeant Glaser says identifying such a test is critical: "I think the study is the first block in building that foundation."

Jim Benning is a features editor of Westways.