

Commentary

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New Study Shows Heavy Use of Marijuana Negatively Impacts Neurocognitive Performance After 28 Day Abstinence

Implications for Drugged Driving Enforcement and Policy

Drugs were present more than 7 times as frequently as alcohol in a random sample of weekend nighttime drivers according to a newly released study from the United States Department of Transportation's 2007 National Roadside Survey (NRS) of alcohol and drug use by drivers.ⁱ This is an important finding. The NRS confirms the high level of illegal drug use among drivers in the U.S. today. It is also a call-to-action to reduce drugged driving, a major threat to highway safety.

Curiously the NHTSA NRS research report blunted the impact of the study by cautioning that positive drug test results may not indicate present impairment. The report suggested this is because of long persistence of drugs and their metabolites, particularly marijuana, in the body when a person may no longer be impaired. This is an argument that is commonly used to frustrate efforts to reduce drugged driving.

The issue of prolonged positive drug tests after use has stopped is complicated in the NRS study because of the use of blood and oral fluids tests for which there is virtually no problem of drug persistence. For these tests, the tissue levels of drugs of abuse fall rapidly after drug use stops. In contrast, urine drug screens can pick up metabolites long after drug use stops. The problem of long persistence is mostly limited to urine tests for marijuana and then only for people who are very heavy marijuana users. Most occasional marijuana users test negative for marijuana within 24 hours of smoking even on urine tests. Almost all test negative within a few days of stopping use. Because very few of the heavy users are likely to have stopped marijuana use prior to a driving-related drug test, the persistence of marijuana and its metabolites, even in urine, is seldom relevant in a highway setting.

When considering the question of long persistence of marijuana in heavy marijuana users after they stop using, the important driving-related question becomes, "how long does marijuana-induced impairment last after marijuana use stops for heavy users?" A new study in the journal, *Neurology*,ⁱⁱ shows that for a group of heavy marijuana users, cognitive impairment persisted for at least 28 days after use stopped. This study lays a solid foundation for drug-related public safety policies because it shows the long-lasting negative effects of heavy marijuana use on brain function.

In this study researchers conducted a battery of 35 neurocognitive tests on 22 heavy marijuana users who abstained from use for a period of 28 days. As the average number of marijuana joints

smoked per week prior to the study increased among participants, performance decreased on these tests which measured executive functioning, psychomotor speed and manual dexterity. While duration of use had little impact on neurocognitive performance, the rate of marijuana use had an effect. Heavy marijuana users, who reported using 78 to 117 joints per week, performed significantly lower than light users (2 to 14 joints per week) on 5 of the tested measures.

While no definitive statements about causality can be made from this *Neurology* study, it provides powerful new evidence that impairment lasts long after heavy marijuana use has stopped. These data also provide support for the *per se* drugged driving standard which has been used successfully by the U.S. Department of Transportation for 12 million commercial drivers for more than two decades. It is the standard used by 16 U.S. states today and it is the standard used in Western Europe and Australia. Any identified use of an illegal drug, including marijuana, by a driver is a violation of drugged driving laws. Reducing drugged driving is a national imperative and the *per se* standard is an important step toward making our nation's roads and highways safer.

For more information about drugged driving and about what to do to reduce it, visit: www.StopDruggedDriving.org and www.ibhinc.org.

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ⁱ Richard Compton, & Amy Berning, Results of the 2007 National Survey of Alcohol and Drug Use By Drivers. National Highway Traffic Safety Facts. Washington, DC: NHTSA's National Center for Statistics and Analysis (July 2009) DOT HS 811 175

ⁱⁱ K.I. Bolla, K. Brown, D. Eldreth, K. Tate and J.L. Cadet. Dose-related neurocognitive effects of marijuana use. *Neurology* 2002; 59; 1337-1343.