MARIJUANA AND DRIVING: Going to Pot on the Highway

By Jim Porter, MA, NCACII, LAC

Jim Porter, MA, NCACII, LAC is an internationally recognized trainer and clinician. He is the co-owner and Specialty Programs Director for Creative Treatment Options in Arvada, Lakewood and Westminster, Colorado and the co-owner and EAP/SAP specialist for the Center for Transportation Safety in Commerce City, Colorado. Mr. Porter has developed a specialized treatment program for marijuana-dependent clients and is a nationally published author on the subject.

Driving is probably the most complex psychomotor task undertaken by everyday people on a routine basis. Many people actually believe that they operate a motor vehicle safely and efficiently when driving under the influence of marijuana. A number of new studies have been conducted to determine marijuana's effect on driving performance using state-of-the-art driving simulators, laboratory investigations and highway courses, both closed and open.

A current literature search that includes outcomes from valid medical marijuana studies reveals that marijuana can damage short term memory, distort perceptions, and impair judgment and complex motor skills while altering heart rate. Marijuana intoxication can also cause anxiety attacks, paranoia and lethargy, which can seriously affect driving skills (Zweben & O'Connell, 1992; Shalala, 1995; Wickelgren, 1997; Solowij, 1998; Porter, 1999; Stephens, 1999; Joy et al, 2000).

The Institute of Medicine's (IOM) medical marijuana study team contends in their federally published report that "For most people, the primary adverse effect of acute marijuana use is diminished psychomotor performance. It is therefore inadvisable to operate any vehicle or potentially dangerous equipment while under the influence of marijuana, THC-Δ9 or any cannabinoid drug with comparable effects" (Joy et al, 1999).

In research using a driving simulator, marijuana use before driving has seriously impacted the skills necessary to operate a vehicle safely. Roadside alertness is severely diminished as is concentration, motor coordination and the ability to react quickly. Research subjects found it difficult to judge distance and react appropriately to roadside signals and sounds after smoking marijuana. These effects were still present in the research subjects 24 hours later, demonstrating that the impairment continued long after the "high" was gone (Liguori, Gatto & Robinson, 1998).

In a laboratory study at the National Institute on Drug Abuse (NIDA) Addiction Research Center, study subjects were asked to smoke a marijuana cigarette, wait 10 minutes, and then smoke another cigarette. Both cigarettes contained either, 0, 1.8, or 3.6 percent THC-Δ9, the main psychoactive compound in cannabis. Twenty minutes after smoking the cigarettes, the subjects were given a standard roadside sobriety test similar to those used to test drivers suspected of using alcohol. The outcomes showed that marijuana significantly impaired their ability to stand on one leg for 30 seconds or touch their finger to their nose. As the dose of THC-Δ9 increased, the subjects swayed more, raised their arms or put their feet down in an attempt to maintain their balance. Subjects also committed 2.5 times more errors when they attempted to touch their finger to their nose (NIDA, 1996).

This writer takes note that in all of the driver simulator studies and closed course research that I have reviewed over the last decade, test subjects are given marijuana cigarettes that have between 1.5 to 4 percent tetrahydrocannabinol, Delta 9 (THC-Δ9). THC-Δ9 is the main psychoactive compound found in *Cannabis sativa, Cannabis indica* and related hybrid plants that are cultivated for their intoxicating properties. In my investigative inquiries with police forces, drug testing labs and chronic marijuana users that I meet in treatment, I am told that the marijuana of today (Kind Bud, CBC, Neiterwiet, Skunk Weed, White Widow, etc.) is testing out at 8 to 25 percent THC-Δ9. The reality of these findings mean that test subjects in these current studies are demonstrating impairment with marijuana that is 2 to 15 times less potentiated than what people are actually consuming in today's illicit-drug marketplace.

Contrary to popular belief, **marijuana has been found to play a significant role in car accidents across the United States** with as much as 33 percent of drivers arrested at the scene of the accident being positive for marijuana and another 12 percent testing positive for both marijuana and cocaine (Brookoff, Cook & Mann, 1994; Sonderstrom, Dischinger, Kerns & Trillis, 1995). Every year, 28 percent of all drivers in the United States will attempt to drive within two hours after ingesting alcohol or illicit drugs. Marijuana is the illicit drug used most often (70%) by drivers who drove after drug use and is a major factor why motor vehicle crashes are the leading cause of death for American young people (NHTSA, 2000).

In an intergovernmental contact between the United States National Highway Traffic Safety Administration (NHTSA) and the Dutch Ministry of Transport, two studies were conducted on real roads in normal traffic to objectively measure both marijuana and alcohol effects, separate and combined, on actual driving performance. The test vehicles were outfitted with redundant driving controls that were managed by a licensed driving instructor who monitored and rated the subjects driving abilities. The investigators concluded that the effects of THC-Δ9 alone on driving performance were of sufficient magnitude to warrant concern due to the subjects' level of impairment and inability to facilitate evasive action if necessary. The investigators also reported that THC-Δ9 impaired drivers were more likely to fall asleep during prolonged vehicle operation. Both studies found that marijuana and low doses of alcohol (.04 BAC, less than two drinks in an hour) interact additively to produce greater impairment for drivers than the sum of changes that each drug produces separately. Both studies concluded that **THC-Δ9 and alcohol use in combination** creates a serious threat to highway safety as many of the test subjects would have been involved in collisions were it not for the interventions of the driving instructor that was monitoring them (NHTSA, 1999; NHTSA, 2000).

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