

Why drunk drivers may get behind the wheel

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A new study shows the impact of alcohol intoxication on reasoning and problem-solving abilities and may explain why some people feel they have recovered enough to drive after drinking. The research, led by Peter J. Snyder, PhD, vice president of research for Lifespan, is the first to explore how these cognitive abilities are impacted during both rising and declining blood alcohol concentrations, at matched blood alcohol level concentrations, and how self-evaluation of recovery differs from actual recovery from impairment.

Alcohol-related [motor vehicle accidents](#) claim 17,000 American lives each year -- the equivalent of one death every 30 minutes. An increase of blood alcohol concentration (BAC) of 0.02 percent doubles the relative risk of a motor vehicle crash among 16- to 20-year old males, and that risk increases to nearly 52 times when the BAC is between 0.08 percent and 0.10 percent, the legal limits in many states.

Until now, there has been little research to provide a better understanding of the extent to which perception of drunkenness and [cognitive abilities](#) are impacted on both the rising and declining limbs of the BAC curve. In this study, Snyder and his colleagues developed a test that could look at rising and declining levels of BAC and study its impacts on functions that would be required for driving. Through a placebo-controlled controlled study of a group of college students, the researchers were able to compare the subjective feelings of drunkenness and their ability to navigate a hidden maze learning task as their BAC both rose and fell over an 8-hour period.

Snyder, who is also professor of neurology at The Warren Alpert Medical School of Brown University, says, "While our study supports past research, the real new piece of information that we have from this study is that unlike basic functions that are commonly studied in alcohol research such as motor speed and information processing speed, executive functions don't recover as quickly." Snyder continues, "The subjective feeling that you are drunk does recover more quickly. This explains why so many individuals feel subjectively that they are able to get into a car and be able to drive and feel safe. But that subjective impression does not mesh with the actual recovery in terms of higher order executive functions."

In this study, individuals were asked to consume alcoholic drinks over an 8-hour period to bring their BAC up to 0.10 percent and then to return to a normal BAC. Throughout the ascending and descending limbs of the BAC curve they were asked to perform a hidden maze learning test on a touch-screen computer. Under normal conditions without alcohol, healthy young individuals normally would make very few mistakes in the maze -- the mistakes are indicative of a failure to follow simple rules that they are taught. The researchers noted that these errors increased dramatically with rising BAC levels, and their level of propensity to break the simple rules of the test did not decline as rapidly as the subjective feeling of drunkenness.

Snyder says, "It's important to know that most healthy normal young adults show one or none of these "rule break" errors at all. As people become increasingly drunk, we see a very dramatic increase in these errors on the test, and the recovery of the underlying cognitive impairments that lead to these errors is slower, and more closely tied to the actual [blood alcohol](#) concentration, than the more rapid reduction in participants' subjective feeling of drunkenness." This type of cognitive functioning is important for driving skills and making judgments in terms of traveling through intersections or changing lanes when driving.

Snyder and the researchers conclude that because the subjective feeling of recovery is more rapid than the actual recovery, this constitutes a partial explanation for why many people drive drunk, and the concept can be used in the context of education and prevention strategies. Snyder concludes, "Allowing individuals to see that their subjective reports of the intensity of intoxication do not correlate with their observed cognitive performance might underscore the real risk with respect to the decision to drive when alcohol impaired. The bottom line is that subjective perception of intoxication is a poor indicator of sobriety and the ability to operate a motor vehicle."

The study is published in the August 2010 issue of *Experimental and Clinical Psychopharmacology*, a publication by the American Psychological Association.

Provided by Lifespan

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