

Drivers who test positive for drugs have triple the risk of a fatal car crash

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Drugged driving has been a safety issue of increasing public concern in the United States and many other countries but its role in motor vehicle crashes had not been adequately examined. In a new study conducted at Columbia University's Mailman School of Public Health, researchers assessed the association of driver drug use, as well as the combination of drugs and alcohol, with the risk of fatal crash. They found that drug use is associated with a significantly increased risk of fatal crash involvement, particularly when used in combination with alcohol. The study provides critical data for understanding the joint effect of alcohol and drugs on driving safety.

Data for the study came from two national information systems sources sponsored by the National Highway Traffic Safety Administration: the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers and the Fatality Analysis Reporting System (FARS), a repository of investigation data for all crashes that resulted in at least one fatality within 30 days of the crash and that occurred on a public road. This second data source also contains detailed information about the crash circumstances as well as individuals and vehicles involved in the crash. This is the first study to use both data sources to quantify relative risks of fatal crash involvement associated with different drugs.

Results of the Mailman School study led by Guohua Li, MD, DrPH, professor of Epidemiology and director of the Center for Injury Epidemiology and Prevention, show that 31.9% of the drivers involved in fatal car crashes (cases) and 13.7% of the drivers interviewed at the

roadside survey (controls) tested positive for at least one non-alcohol [drug](#). Overall, drivers testing positive for drugs were three times as likely as those testing negative to be involved in a fatal crash. Among the drugs studied, depressants conferred the highest risk, followed by stimulants, narcotics, and marijuana.

Elevated blood alcohol levels were found in 57.0% of the cases and 8.8% of the controls; and the risk of fatal crash involvement increased exponentially as these levels rose. About one-fifth (20.5%) of the cases tested positive for alcohol and one or more drugs, compared with 2.2% of the controls. Relative to drivers who tested positive for neither alcohol nor drugs, the odds of fatal crash involvement increased by more than 13 times for those who were alcohol-positive but drug-negative, more than two-fold for those who were alcohol-negative but drug-positive, and 23 times for those who were positive for both alcohol and drugs.

While heightened risk of fatal crash involvement associated with driver drug use was comparable across demographic groups and geographic regions, Dr. Li cautions that findings need to be carefully interpreted. First, a positive test indicates that the driver had used the drug detected but does not necessarily mean that the driver was impaired by the drug at the time of crash or survey. Secondly, variations in individual tolerance and pharmacological characteristics of different drugs make it difficult to determine drug impairment. Also, there is no uniformly accepted definition of impairment for different drugs.

"The possible interaction of drugs in combination with alcohol on driving safety has long been a concern," said Dr. Li, who is also professor of Anesthesiology at Columbia. "While [alcohol](#)-impaired driving remains the greatest threat to traffic safety, these findings about drugged driving are particularly salient in light of the increases in the availability of prescription stimulants and opioids over the past decade."

Provided by Columbia University's Mailman School of Public Health

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