

Meth users face substantially higher risk for getting Parkinson's disease

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Immunohistochemistry for alpha-synuclein showing positive staining (brown) of an intraneuronal Lewy-body in the Substantia nigra in Parkinson's disease. Credit: Wikipedia

In addition to incurring serious dental problems, memory loss and other

physical and mental issues, methamphetamine users are three times more at risk for getting Parkinson's disease than non-illicit drug users, new research from the University of Utah and Intermountain Healthcare shows.

The researchers also observed that women who use methamphetamine may be nearly five times more likely to get Parkinson's disease compared to women who don't use drugs. Although findings suggest the risk in women may be higher than that in men, additional studies are needed to corroborate a gender difference.

"Typically, fewer females use meth than males do," says Glen R. Hanson, D.D.S., Ph.D., a nationally recognized expert in drug addiction, professor and interim dean of the University of Utah School of Dentistry and professor of pharmacology and toxicology, the study's senior author. "Even though women are less likely to use it, there appears to be a gender bias toward women in the association between meth use and Parkinson's."

Published Dec. 11, 2014, in *Drug and Alcohol Dependence*, the study looked at more than 40,000 records in the Utah Population Database (UPDB), a unique compilation of genealogical, medical, and government-provided information on Utah families that is managed by the Huntsman Cancer Institute at the University of Utah. Karen Curtin, Ph.D., research assistant professor of medicine at the University and associate director of the UPDB, is the study's first author. Records from University of Utah Health Care and Intermountain Healthcare also provided unidentified patient data that was essential for getting a statewide perspective on the research.

The study confirms an earlier one that looked at nearly 250,000 California hospital discharge records and found a similar risk for Parkinson's among meth users. That study, however, did not report risks

based on gender and looked only at records of hospital inpatients. Hanson and Curtin's study included both Utah inpatient and outpatient clinic records, capturing a wider segment of the population.

Parkinson's disease is a progressive movement disorder, with onset typically at age 60 or older, that affects nerve cells in the brain. Its symptoms include tremor, or shaking, often starting in a hand or fingers; slowed movement, such as walking; rigid muscles; loss of automatic movements-blinking or smiling, for example-and speech changes. There is no cure for Parkinson's, but medications and surgery can alleviate symptoms. It is estimated that 4 million to 6 million people worldwide have the condition.

Hanson, Curtin and their colleagues examined medical records, dating from 1996 through 2011, separated into three groups: those of nearly 5,000 people whose health records indicated they had used meth (including amphetamines), more than 1,800 records indicating cocaine use, and records of a control group of more than 34,000 people selected at random whose health and other records showed no use of [illicit drugs](#). The control group was matched to the meth and [cocaine users](#) according to age and sex. The researchers made sure that the group of meth users did not have a medical history of taking other illicit drugs or abusing alcohol, which might have influenced the risk for Parkinson's.

Cocaine users, who provided a non-meth illicit drug comparison, were not at increased risk for Parkinson's. "We feel comfortable that it's just the meth causing the risk for Parkinson's, and not other drugs or a combination of meth and other drugs," Hanson says.

All identifying information was removed from the records, so people counted in the study remained anonymous.

The reason female meth users are more at risk for Parkinson's is not

clear. Symptoms of the disease appeared in both female and male meth users in their 50s or later, indicating that the effects of meth may manifest years after initial use. "Oftentimes, we think about what drugs do in the short term, but we don't tend to give much thought to long-term consequences," Hanson says.

Meth has become in some ways the drug of choice in the West, where it's used more commonly than in other parts of the country. In Utah, the trend toward meth use is particularly pronounced in women their late 20s and older who start taking the drug because of pressure from a partner or spouse.

"Female users in Utah may also get involved with meth because it's seen as a relatively cheap and effective way to lose weight and have more energy," Curtin says. Previous studies show that when women begin using drugs, they take smaller amounts than men, but escalate more rapidly to addiction and are at greater risk for relapse. "Normally, women develop Parkinson's less often than men; however, women may not achieve the same improvement in symptoms from medications or surgery. "If meth addiction leads to sharply increased incidence of Parkinson's disease in women, we should all be concerned."

Provided by University of Utah Health Sciences

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