

Methamphetamine

Methamphetamine is a very addictive stimulant drug that affects the central nervous system. It is a Schedule II stimulant, which means it has a high potential for abuse and is available only through a prescription that cannot be refilled. However, its medical uses are limited and the doses prescribed are much lower than those typically abused. Most of the methamphetamine abused in this country comes from foreign or domestic superlabs, although it can also be made in small, illegal laboratories, where its production endangers the people in the labs, neighbors, and the environment.

How is Methamphetamine Abused?

Methamphetamine is a white, odorless, bitter-tasting crystalline powder that easily dissolves in water or alcohol and is taken orally, intranasally (snorting the powder), by needle injection, or by smoking.

How Does Methamphetamine Affect the Brain?

Methamphetamine increases the release of very high levels of the brain chemical dopamine, which is involved in motivation, the experience of pleasure, and motor function, and is a common mechanism of action for most drugs of abuse.

Chronic methamphetamine abuse significantly changes how the brain functions. Noninvasive human brain imaging studies have shown alterations in the activity of the dopamine system that are associated with reduced motor performance and impaired verbal learning.¹ Recent studies in chronic methamphetamine abusers have also revealed severe structural and functional changes in areas of the brain associated with emotion and memory,^{2,3} which may account for many of the emotional and cognitive problems observed in chronic methamphetamine abusers.

Long-term methamphetamine abuse can also lead to addiction—a chronic, relapsing disease, characterized by compulsive drug seeking and use, and accompanied by chemical and molecular changes in the brain. Some of these changes persist long after methamphetamine abuse is stopped, and some reverse after sustained periods of abstinence (e.g., 2 years).⁴

What Other Adverse Effects Does Methamphetamine Have on Health?

Taking even small amounts of methamphetamine can result in increased wakefulness, increased physical activity, decreased appetite, increased respira-

tion, rapid heart rate, irregular heart-beat, increased blood pressure, and hyperthermia.

Long-term methamphetamine abuse has many negative consequences, including extreme weight loss, severe dental problems, anxiety, confusion, insomnia, mood disturbances, and violent behavior. Chronic methamphetamine abusers can also display a number of psychotic features, including paranoia, visual and auditory hallucinations, and delusions (for example, the sensation of insects creeping under the skin).

Also, transmission of HIV and hepatitis B and C can be consequences of methamphetamine abuse. Among abusers who inject the drug, HIV and other infectious diseases can be spread through contaminated needles, syringes, and other injection equipment that is used by more than one person. The intoxicating effects of methamphetamine, regardless of how it is taken, can also alter judgment and inhibition and lead people to engage in unsafe behaviors. Methamphetamine abuse may also worsen the progression of HIV and its consequences. Studies of methamphetamine abusers who are HIV positive indicate that the HIV causes greater neuronal injury and cognitive impairment compared with HIV-positive people who do not use the drug.^{5,6}

What Treatment Options Exist?

Currently, the most effective treatments are behavioral. For example, the Matrix

Model, a comprehensive behavioral treatment approach that combines behavioral therapy, family education, individual counseling, 12-Step support, drug testing, and encouragement for nondrug-related activities, has been shown to be effective in reducing methamphetamine abuse.⁷ Contingency management interventions, which provide tangible incentives in exchange for engaging in treatment and maintaining abstinence, have also been shown to be effective.⁸ There are no medications at this time approved to treat methamphetamine addiction; however, this is an active area of research for NIDA.

How Widespread is Methamphetamine Abuse?

Monitoring the Future Survey[†]

According to the 2007 Monitoring the Future Survey—a national survey of 8th, 10th, and 12th graders, methamphetamine abuse among students has been declining in recent years; however, it remains a concern. Survey results show that 1.8 percent of 8th graders, 2.8 percent of 10th graders, and 3.0 percent of 12th graders have tried methamphetamine. In addition, 0.6 percent of 8th graders, 0.4 percent of 10th graders, and 0.6 percent of 12th graders were current (past-month) methamphetamine abusers in 2007. Decreases in past-year abuse of methamphetamine were seen for 8th (from 1.8 percent to 1.1 percent) and 12th graders (from 2.5 percent to 1.7 percent) from 2006 to 2007.

Methamphetamine Prevalence of Abuse Monitoring the Future Survey, 2007			
	8th Grade	10th Grade	12th Grade
Lifetime	1.8%	2.8%	3.0%
Past Year	1.1	1.6	1.7
Past Month	0.6	0.4	0.6

National Survey on Drug Use and Health^{††}

In 2006, there were an estimated 731,000 current users of methamphetamine aged 12 or older (0.3 percent of the population). Of the 259,000 people who used methamphetamine for the first time in 2006, the mean age at first use was 22.2 years, which is up considerably from the mean age of 18.6 in 2005. From 2005 to 2006, lifetime methamphetamine abuse increased among those 26 and older, particularly among those 26–34 years of age.

Rates of past-year methamphetamine use among persons aged 12 years or older were the highest in the Western United States (1.6 percent), followed by the South (0.7 percent), Midwest (0.5 percent), and Northeast (0.3 percent) regions of the country.

Other Information Resources

For more information on the effects of methamphetamine abuse and addiction, visit www.drugabuse.gov/drugpages/methamphetamine.html.

To find publicly funded treatment facilities by state, visit www.findtreatment.samhsa.gov.

For street terms searchable by drug name, street term, cost and quantities, drug trade, and drug use, visit: www.whitehousedrugpolicy.gov/streetterms/default.asp.

Data Sources

[†] These data are from the 2007 Monitoring the Future survey funded by the National Institute on Drug Abuse, National Institutes of Health, DHHS, and conducted by the University of Michigan’s Institute for Social Research. The study has tracked 12th graders’ illicit drug abuse and related attitudes since 1975; in 1991, 8th and 10th graders were added to the study. The latest data are online at www.drugabuse.gov.

^{††} The National Survey on Drug Use and Health (formerly known as the National Household Survey on Drug Abuse) is an annual survey conducted by the Substance Abuse and Mental Health Services Administration. Findings from the latest survey are available at www.samhsa.gov.

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