

Methamphetamine

Methamphetamine is a very addictive stimulant drug that activates certain systems in the brain. It is chemically related to amphetamine but, at comparable doses, the effects of methamphetamine are much more potent, longer lasting, and more harmful to the central nervous system (CNS).

Methamphetamine 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. It can be made in small, illegal laboratories, where its production endangers the people in the labs, neighbors, and the environment. Street methamphetamine is referred to by many names, such as "speed," "meth," and "chalk."

Methamphetamine hydrochloride, clear chunky crystals resembling ice, which can be inhaled by smoking, is referred to as "ice," "crystal," "glass," and "tina."¹

Methamphetamine is taken orally, intranasally (snorting the powder), by needle injection, or by smoking. Abusers may become addicted quickly, needing higher doses and more often. At this time, the most effective treatments for methamphetamine addiction are behavioral therapies such as cognitive behavioral and contingency management interventions.

Health Hazards ———

Methamphetamine increases the release of very high levels of the neurotransmitter dopamine, which stimulates brain cells, enhancing mood and body movement. Chronic methamphetamine abuse significantly changes how the brain functions. Animal research going back more than 30 years shows that high doses of methamphetamine damage neuron cell endings. Dopamine- and serotonin-containing neurons do not die after methamphetamine use, but their nerve endings ("terminals") are cut back, and regrowth appears to be limited. Noninvasive human brain imaging studies have shown alterations in the activity of the dopamine system. These alterations are associated with reduced motor speed and impaired verbal learning. Recent studies in chronic methamphetamine abusers have also revealed severe structural and functional changes in areas of the brain associated with emotion and memory, which may account for many of the emotional and cognitive problems observed in chronic methamphetamine abusers.

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

rapid heart rate, irregular heartbeat, increased blood pressure, and hyperthermia. Other effects of methamphetamine abuse may include irritability, anxiety, insomnia, confusion, tremors, convulsions, and cardiovascular collapse and death. Long-term effects may include paranoia, aggressiveness, extreme anorexia, memory loss, visual and auditory hallucinations, delusions, and severe dental problems.

Also, transmission of HIV and hepatitis B and C can be a consequence of methamphetamine abuse. Among abusers who inject the drug, infection with HIV and other infectious diseases is spread mainly through the re-use of contaminated syringes, needles, and other injection equipment by more than one person. The intoxicating effects of methamphetamine, however, whether it is injected or taken other ways, can alter judgment and inhibition and lead people to engage in unsafe behaviors. Methamphetamine abuse actually may worsen the progression of HIV and its consequences; studies with methamphetamine abusers who have HIV indicate that the HIV causes greater neuronal injury and cognitive impairment compared with HIV-positive people who do not use drugs.

Extent of Use —————

Monitoring the Future (MTF) Study

These data are from the 2005 MTF, 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.

Data from the 2005 MTF study indicate that, compared to the 2004 data:

- there were no statistically significant increases in methamphetamine abuse among 8th-, 10th-, and 12th-graders in 2005;
- methamphetamine abuse among 8th-graders remained stable and was lower than for 10th- and 12th-graders;
- 10th- and 12th-graders reported significant decreases in lifetime² methamphetamine abuse; and
- 12th-graders reported significant declines in annual and 30-day abuse.

Methamphetamine Prevalence of Abuse among 12th-Graders Monitoring the Future Survey, 2003-2005

	2003	2004	2005
Lifetime	6.2%	6.2%	4.5%
Annual	3.2%	3.4%	2.5%
30-day	1.7%	1.4%	0.9%

Community Epidemiology Work Group (CEWG)

CEWG is a NIDA-sponsored network of researchers from 21 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the latest epidemiology of drug abuse. CEWG's most recent reports are available at <http://www.drugabuse.gov/about/organization/cewg/pubs.html>.

From 2004 to 2005, methamphetamine abuse did not decrease in any of the 21 CEWG areas; increased in 9 CEWG areas (8 of which had high levels of methamphetamine abuse—Atlanta, Denver, Honolulu, Los Angeles, Phoenix, San Diego, Seattle, and Texas); and was reported as a growing problem in St. Louis, where a 15-percent increase occurred in methamphetamine treatment admissions from 2004 to 2005.

Also, it was reported that methamphetamine has been replacing crack as a drug of choice in some areas of Texas; remained stable or mixed in Minneapolis/St. Paul and San Francisco; and remained at low levels in nine areas located in the Northeast and Midwest.

Sharp decreases were reported in small methamphetamine clandestine incidents (e.g., laboratories, dumpsites, chemical/glass/equipment) located in and/or around most CEWG areas, according to the Drug Enforcement Administration's El Paso Intelligence Center (2006 data). Despite these decreases in the number of incidents, as well as in the number of seizures, the drug was readily available and generally of higher purity than in

prior years. Most CEWG areas reported increases in the amounts and purity of methamphetamine smuggled into the United States from Mexico.

National Survey on Drug Use and Health (NSDUH)

NSDUH (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.

According to the 2005 NSDUH, 10.4 million Americans age 12 and older had tried methamphetamine at least once in their lifetimes. The rates for annual and 30-day methamphetamine abuse did not change between 2004 and 2005, but the lifetime rate declined from 4.9 to 4.3 percent. From 2002 to 2005, decreases were seen in lifetime (5.3 to 4.3 percent) and annual (0.7 to 0.5 percent) use, but not 30-day use (0.3 percent in 2002 vs. 0.2 percent in 2005).

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.

¹ Street names for drugs of abuse can be found at www.whitehousedrugpolicy.gov/streetterms/default.asp.

² "Lifetime" refers to use at least once during a respondent's lifetime. "Annual" refers to use at least once during the year preceding an individual's response to the survey. "30-day" refers to use at least once during the 30 days preceding an individual's response to the survey.