

# **Methamphetamine**

Methamphetamine is an addictive stimulant drug that strongly activates certain systems in the brain. Methamphetamine is closely related chemically to amphetamine, but the central nervous system effects of methamphetamine are greater. Both drugs have some medical uses, primarily in the treatment of obesity, but their therapeutic use is limited.

Methamphetamine is made in illegal laboratories and has a high potential for abuse and dependence. 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," and "glass."

## **Health Hazards**

Methamphetamine releases high levels of the neurotransmitter dopamine, which stimulates brain cells, enhancing mood and body movement. It also appears to have a neurotoxic effect, damaging brain cells that contain dopamine and serotonin, another neurotransmitter. Over time, methamphetamine appears to cause reduced levels of dopamine, which can result in symptoms like those of Parkinson's disease, a severe movement disorder.

Methamphetamine is taken orally or intranasally (snorting the powder), by intravenous injection, and by smoking. Immediately after smoking or intravenous injection, the methamphetamine user experiences an intense sensation, called a "rush" or "flash," that lasts only a few minutes and is described as extremely pleasurable. Oral or intranasal use produces euphoria - a high, but not a rush. Users may become addicted quickly, and use it with increasing frequency and in increasing doses.

Animal research going back more than 20 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 re-growth appears to be limited.

The central nervous system (CNS) actions that result from taking even small amounts of methamphetamine include increased wakefulness, increased physical activity, decreased appetite, increased respiration, hyperthermia, and euphoria. Other CNS effects include irritability, insomnia, confusion, tremors, convulsions, anxiety, paranoia, and aggressiveness. Hyperthermia and convulsions can result in death.

Methamphetamine causes increased heart rate and blood pressure and can cause irreversible damage to blood vessels in the brain, producing strokes. Other effects of methamphetamine include respiratory problems, irregular heartbeat, and extreme anorexia. Its use can result in cardiovascular collapse and death.

A study in Seattle confirmed that methamphetamine use was widespread among the city's homosexual and bisexual populations. Of these groups, members using methamphetamine reported they practice sexual and needle-use behaviors that place them at risk of contracting and transmitting HIV and AIDS.

## **Extent of Use**

### ***Monitoring the Future Study (MTF)\****

MTF assesses the extent of drug use among adolescents (8th-, 10th-, and 12th-graders) and young adults across the country. Recent data from the survey:

- In 1997, 4.4 percent of high school seniors had used crystal methamphetamine at least once in their lifetimes - an increase from 2.7 percent in 1990.
- Data show that 2.3 percent of seniors reported past year use of crystal methamphetamine in 1997 - an increase from 1.3 percent in 1990.

### ***Community Epidemiology Work Group (CEWG)\*\****

Methamphetamine is the dominant illicit drug problem in San Diego. San Francisco and Honolulu also have substantial methamphetamine-using populations. Patterns of increasing use have been seen in Denver, Los Angeles, Minneapolis, Phoenix, Seattle, and Tucson. New trafficking patterns have increased availability of the drug in Missouri, Nebraska, and Iowa.

### ***National Household Survey on Drug Abuse (NHSDA)t***

According to the 1996 NHSDA, 4.9 million people (aged 12 and older) had tried methamphetamine at least once in their lifetimes (2.3 percent of population). This is not a statistically significant increase from 4.7 million people (2.2 percent) who reported using methamphetamine at least once in their lifetime in the 1995 NHSDA.

\*See References