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[Home](#)
[Need Help?](#)
[About the Office](#)
[Current Issues](#)
[Info for Public](#)
[Info for Providers](#)
[Info for Counselors](#)
[Info for Researchers](#)

[Site Map](#)

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Addiction Medicine[Addiction Medicine Home](#)[Educational Series](#)[Recommendations](#)[Drugs of Abuse](#)[Addiction Medications](#)[Medical Consequences of
Addictive Disorders](#)[Other Websites](#)**AMPHETAMINES and METHAMPHETAMINES**

According to the National Household Survey on Drug Abuse, an estimated 14 million Americans used an illicit drug in 2000. The Survey found that an estimated 8.8 million people (4% of the population) have tried methamphetamine at some time in their lives. With the exception of cannabis, methamphetamine/ amphetamines are the most widely abused illicit drugs worldwide. Methamphetamine abuse was more prevalent on the West Coast of the United States where English - speaking Caucasians were the predominant users. Now its use is becoming popular among Latinos, Asians and gay males in the East.

In the 1980's, manufacturers produced D-methamphetamine, the most potent form of methamphetamine. D-methamphetamine has become the dominant methamphetamine illicitly manufactured in the United States. L - methamphetamine can be found in certain over-the-counter nasal inhalers. It should be noted that a person can test positive for amphetamines if using these nasal inhalers. The lab can be asked to specify which amphetamine was found in the urine.

Under the Federal Control Substance Act (1970), stimulants such as methamphetamine were categorized as a schedule II medication, which indicates that methamphetamine is acceptable for use as a medicine but has a high potential for abuse. A tolerance to the stimulant properties of methamphetamine can develop after a few weeks. To compensate, users engage in a spiral pattern of ever - increasing dosages which can result in a greater risk of overdose, coma and death.

There are medical diagnoses for which methamphetamine/ amphetamine is used, such as narcolepsy (sleep disorder), attention - deficit disorder and short - term use for obesity.

Frequently used as a stimulant to lose weight and to reduce fatigue, methamphetamine was developed in the early 1900's from amphetamine. It is a white, odorless, bitter - tasting crystalline powder. Amphetamine and methamphetamine act on the norepinephrine, dopamine and serotonin systems. MDMA, chemically known methylenedioxymethamphetamine and commonly known as Ecstasy, is also related to this drug group.

On the street, methamphetamine is known as Crystal, Tina, Christina, Crank, Ice, Speed, Glass, Meth or Chalk. It can be sniffed, swallowed, injected, smoked or dissolved in liquids such as water or alcohol. Methamphetamine pills can be taken orally or crushed and snorted. Tablets can be stirred with water and injected intravenously.

HOW IT WORKS

Amphetamine and methamphetamine cause the release of high levels of dopamine into the pleasure/reward center and block dopamine reuptake into the nerve terminal. This results in a higher level of dopamine being available to stimulate the nerve ending. There is a great potential for abuse because of the quick 'high' from the its rapid onset. Snorting these drugs produces a high within 3 to 5 minutes. Oral ingestion produces a high within 15 to 30 minutes. However, neither snorting nor oral ingestion produces a rush as intense and brief as that associated with crack. Intravenous users and smokers of methamphetamine experience an initial rush that lasts from 5 to 30 minutes, compared to the 2 to 5 minute rush experienced from crack.

In its pure form, methamphetamine resembles crystals (looks like rock salt) and can be smoked. One form of methamphetamine that is smoked is called "Ice." The use of Ice is largely restricted to Hawaii and the West Coast. Recently, several street contacts in New York reported that they smoked a form of methamphetamine called "glass."

Smoking methamphetamine produces a high that is reported to last from 7 to 24 hours. The purity and rapid onset of the high makes it difficult for the smoker to monitor his or her use of this illicit drug, contributing to its potential for overdose. Methamphetamine is smoked in a special glass pipe. Although users have been known to inhale methamphetamine heated on aluminum foil, this practice has lost favor because users have begun to think that the use of the foil could contribute to Alzheimer Disease.

SHORT - TERM and LONG-TERM EFFECTS OF METHAMPHETAMINE

Initially, methamphetamine users are attracted to the sensations of invulnerability and elation they feel after using this drug. Initially, they may also experience increased energy, alertness, self-confidence, heightened endurance and sexual arousal. Physiologically,

methamphetamine dilates the pupils, increases the heart rate, raises blood pressure, lowers appetite, and causes palpitations, dizziness, tremors, sweating, restlessness, headaches, diarrhea and dry mouth.

Long-term use can lead to severe psychological dependence and physical dependence. As one user noted, "Once you use it a few times, you continue to think about it long after you stop." Other psychological effects include irritability, insomnia, hyperactivity, impaired social judgments, and auditory and perceptual hallucinations. Tolerance to the stimulant properties of methamphetamine develops after a few weeks. To compensate, users engage in a spiral pattern of increasing dosages that can result in a greater risk of overdose, coma and death.

It appears that methamphetamine users are slower to experience severe complications of addiction as compared to cocaine abusers. Prolonged abusers become irritable and unstable. They may experience impotence and changes in libido. They tend to show signs of social, emotional and intellectual deterioration; some experience suicidal tendencies. In extreme cases, prolonged use may lead to a psychosis indistinguishable from schizophrenia.

Discontinuing the use of methamphetamine results in extreme fatigue, the "crash effect." The person may sleep for continuously for one or two days. This individual may also experience depression, paranoia, heightened hostility and aggressiveness.

Up to 50% of all dopamine - producing cells in the brain can be damaged. The damage also appears to occur at serotonin - containing neurons, primarily at the nerve endings or terminals, where they are reduced and re - growth is limited.

As with all drugs that can be injected, all the complications of IV drug injection are a risk (Hepatitis B, Hepatitis C, HIV, etc.) Lead poisoning can occur as lead acetate can be used as a reagent in the manufacturing process. Neonatal behavioral problems have been noted in the babies of pregnant methamphetamine users.

MOTIVATION FOR USE

According to Mayrhauser et al in the 2002 issue of *the Journal of Addictive Diseases*, abusers of methamphetamine gave the following perceptions as reason for their use of this drug:

1. Methamphetamine is a substitute for another stimulant, but better, cheaper, safer and more satisfying.
2. Methamphetamine helped people with mental illness or past trauma to feel "normal" and "balanced".
3. Methamphetamine helped people stay awake longer.
4. Methamphetamine enhanced sexual experiences and performance.
5. Methamphetamine was effective for weight loss.

METHAMPHETAMINE USE AND OTHER DRUGS

The use of methamphetamine typically begins with recreational use at rave parties and bars. Some users say that "speed" fuels the rave scene. Methamphetamine can be found at these scenes, along with LSD, MDMA (ecstasy), GHB (gamma-hydroxybutyrate), ketamine and marijuana. Recently, law enforcement reports that users are taking methamphetamine and OxyContin (oxycodone hydrochloride, an opiate agonist typically prescribed for severe pain relief) simultaneously to achieve a "speedball effect." This combination is often fatal, particularly for stimulant abusers who do not have a strong tolerance for narcotic depressants.

Street sources report that some cocaine dealers are diluting cocaine with methamphetamine because methamphetamine is less expensive, it increases the potency of the cocaine and gives a longer-lasting high. Researchers report many users have difficulty distinguishing between cocaine and methamphetamine.

Methamphetamine users are predominantly young adult males under 30. The use of methamphetamine is becoming popular at meeting places in the gay community and with Hispanic and African-Americans involved in the dance club scene and college students. Most methamphetamine users live in suburban or rural areas and tend to use this drug in social group settings.

BUYING AND MANUFACTURING METHAMPHETAMINE

In New York City, methamphetamine is not sold in the street like other drugs (e.g., heroin, crack) or in locations that specialize in selling tranquilizers, muscle relaxants and narcotic analgesics. Methamphetamine is sold in, or near, club locations, or special in-house connections, which usually requires an introduction from a known buyer. Law enforcement sources report methamphetamine availability has increased or remained stable and that the methamphetamine produced in the U.S. is slightly more available and purer than methamphetamine produced in Mexico. (DEA)

Unlike cocaine, methamphetamine can be made with easily obtainable materials such as anhydrous ammonia and red phosphorus which are available at farm supply stores. Unfortunately, recipes are easily available on the Internet.

Methamphetamine is called the "trailer-park drug" because it can be prepared easily and cheaply and, therefore, has an extremely high profit margin. For example, with an investment of \$500 and some basic knowledge of chemistry, one can produce a pound of pure, uncut methamphetamine worth \$20,000 - \$30,000 on the street. Highly mobile, clandestine laboratories, called "box labs," have sprouted up in remote areas all across the country to produce this drug. Manufacturers produce about 200 pounds of illicit

methamphetamine in a single batch. Methamphetamine prices range from \$2,000 to 21,000 per pound, \$350 to \$3,000 per ounce and \$20 to \$200 per gram. According to the DEA, the average purity of methamphetamine in 2000 was 35.3%, down significantly from a high of 71.9% in 1994.

Although the manufacturing process is fairly simple, it can be dangerous. Many chemists have died from the toxic fumes, chemical explosions or fires. The illicit manufacture of methamphetamine also poses a serious environmental hazard, since most of the toxic substances are not properly disposed.

Originally, motorcycle gangs, such as Hells Angels, dominated the manufacturing and distribution of methamphetamine. Today, independent organizations, including some based in Mexico, make and distribute methamphetamine across the country.

In an effort to dissuade the manufacturing of methamphetamine, the DEA tried to control access to Phenyl-2-propanone (P2P), an immediate precursor of methamphetamine. But clandestine manufacturers shifted to ephedrine, an ingredient common in over-the-counter cold medication. Subsequent DEA regulatory efforts forced manufacturers to switch to pseudoephedrine (PSE) tablets, now the most common precursor in the production of methamphetamine. But, in reality, denying access to these precursors is extremely difficult given they can be bought in Canada (where they are not controlled) or non-controlled products in the United States in convenience stores, liquor stores, home improvement stores, gas stations and pharmacies.

TREATMENT AND POLICY APPROACHES

Treatment approaches have included cognitive behavioral therapies and 12-Step programs specific for methamphetamine. The Matrix Model (integration of relapse prevention, motivational interviewing, psychoeducation, family therapy and 12-step involvement), delivered in a 24-week intervention treatment period has been used since 1985. This model appears to be associated with significant reduction in stimulant use, though prior studies have not included randomized clinical trials. NIDA is funding a research project to evaluate clinical efficacy. Similar to cocaine, pharmacotherapies have had very limited success, except in treating the co-occurring medical and psychiatric disorders, if present.

The gay community in New York City is sponsoring several Methamphetamine Anonymous groups weekly because methamphetamine use has reached alarming numbers in the gay community, according to National Harm Reduction reports. The gay community reports concerns about increases in HIV infection because of unprotected sex associated with the use of methamphetamine. Methamphetamine could become an increasingly dangerous "East Coast" drug problem.

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Comments or Questions? Send us an email:
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