

## NIDA Community Drug Alert Bulletin - Club Drugs

Dear Colleague;

In recent years, a number of our Nation's best monitoring mechanisms have detected alarming increases in the popularity of some dangerous substances known collectively as "club drugs." These drugs are often used by young adults at all-night dance parties, such as "raves" or "trances," dance clubs, and bars. But in the past few years, these drugs have been found increasingly in more mainstream settings.

"Club drug" is a vague term that refers to a wide variety of drugs including MDMA (Ecstasy), GHB, Rohypnol, ketamine, methamphetamine, and LSD. Uncertainties about the drug sources, pharmacological agents, chemicals used to manufacture them, and possible contaminants make it difficult to determine toxicity, consequences, and symptoms. However, the information in this bulletin is based on scientifically sound data regarding the use of these drugs.

Data on students reported through the NIDA-sponsored 2003 Monitoring the Future (MTF) study showed declines in use of MDMA and LSD. The use of methamphetamine, Rohypnol, ketamine, and GHB remained unchanged and these drugs continue to present a threat to our communities. NIDA-supported research has shown that use of club drugs can cause serious health problems and, in some cases, even death. Used in combination with alcohol, these drugs can be even more dangerous. In recent years, there has been an increase in reports of club drugs used to commit sexual assaults - yet another reason NIDA is alerting you to these trends. Thus, we are issuing this updated alert to aid communities in their information gathering activities.

What follows is an overview of the scientific data on several of the most prevalent club drugs. Because many of the drug use trends are still emerging, some of the data presented here are preliminary. However, we feel obliged to share what we know now to help you and your community as you anticipate or respond to club drug-related problems. We also will increase our research efforts on the effects of club drugs and will facilitate the development of treatment and prevention strategies targeted to the populations that abuse club drugs.

As new research emerges, NIDA will continue to disseminate findings to you quickly. To this end, we have established a Web site to provide scientific information about club drugs - [www.clubdrugs.gov](http://www.clubdrugs.gov). We hope this information will be helpful as you combat drug use in your own community.

Sincerely,

Nora D. Volkow, M.D.  
Director

### **Some Facts About Club Drugs**

#### **Methylenedioxymethamphetamine (MDMA)**

Slang or Street Names: **Ecstasy, XTC, X, Adam, Clarity, Lover's Speed**

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#### **Facts About Club Drugs**

- [MDMA \(Ecstasy\)](#)
- [GHB](#)
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- [Rohypnol](#)
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#### **[More information on Club Drugs](#)**

[clubdrugs.gov Web Site](#)

***Uncertainties about the sources, chemicals, and possible contaminants used to manufacture many club drugs, make it extremely difficult to determine toxicity and resulting medical consequences.***

<http://archives.drugabuse.gov/ClubAlert/clubdrugalert.html>

Chemically, MDMA is similar to the stimulant amphetamine and the hallucinogen mescaline. MDMA can produce both stimulant and mild sensory-altering effects.

- Methylenedioxyamphetamine (MDA), methylenedioxyethylamphetamine (MDEA), and paramethoxyamphetamine (PMA) are chemically similar to MDMA, are sometimes found in ecstasy tablets, and can produce deleterious health effects.
- MDMA is usually taken orally, via a tablet or capsule. Its effects last approximately 3 to 6 hours, though depression, sleep problems, and anxiety have been reported for days to weeks afterwards.
- MDMA can produce a significant increase in heart rate and blood pressure and a sense of alertness similar to that associated with amphetamine use.
- MDMA can cause a marked increase in body temperature (hyperthermia), which may further be exacerbated by hot and crowded conditions characteristic of the rave environment. Hyperthermia can lead to liver, kidney, and cardiovascular system failure. MDMA can interfere with its own metabolism (breakdown), so repeated use over a short interval of time can lead to especially harmful levels in the body.
- MDMA users can become dehydrated, prompting increased water consumption. In some cases, this has led to the problem of "water intoxication" or hyponatremia, a potentially fatal condition in which excessive water consumption causes a dramatic decrease in electrolytes. MDMA can affect the hormone that regulates the amount of sodium in the blood, which can also cause hyponatremia.
- In animal studies, repeated administration of MDMA was found to produce long-lasting, perhaps permanent, damage to the neurons that release serotonin. In humans, chronic use of MDMA has been associated with memory impairment, which may indicate damage to the parts of the brain involved in memory processing.
- Recent animal studies have shown that binge use of MDMA is toxic to the heart. Health effects observed included arrhythmia, heart muscle damage, and reductions in heart rate and blood pressure. (Initially, MDMA increases heart rate and blood pressure, but following repeated use, this effect is reversed.)
- Newborn rats exposed to MDMA develop impairments of spatial learning and memory that are seen when the rats become young adults. The newborn stage of rodent brain development is analogous to late third trimester in humans.
- NIDA's 2003 Monitoring the Future (MTF) study reported that 2.1 percent of 8th-graders, 3.0 percent of 10th-graders, and 4.5 percent of 12th-graders had used MDMA in the 12 months prior to the survey. This is a decrease from 2001 peak rates of 3.5, 6.2, and 9.2 percent, respectively.

\*MDMA abuse has been reported across the country, including most of the 21 areas that are monitored by NIDA's Community Epidemiology Work Group (CEWG), a network of researchers that provide ongoing community-level surveillance of drug abuse. CEWG cities in which MDMA use has been reported include: Chicago, Denver, Miami, Atlanta, New Orleans, San Francisco, Austin, Seattle, Boston, Detroit, New York, St. Louis, Dallas, Baltimore, Los Angeles, Minneapolis/St. Paul, Newark, Philadelphia, and Washington, DC.

## **Gamma-hydroxybutyrate (GHB)**

Slang or Street Names: ***Grievous Bodily Harm, G, Liquid Ecstasy, Georgia Home Boy***

GHB can be produced in clear liquid, white powder, tablet, and capsule forms, and it is often used in combination with alcohol, making it even more hazardous. GHB has been increasingly involved in poisonings, overdoses, drug-facilitated sexual assaults (such as "date rapes"), and fatalities. The drug is used predominantly by adolescents and young adults - often when they attend nightclubs and raves - and is prominent in many gay male communities.

- GHB is usually abused either for its intoxicating/sedating/euphoria-inducing properties or for its growth hormone-releasing effects.
- Chemicals that can be converted by the body into GHB include gamma-butyrolactone (GBL) and 1,4- butanediol (BD), which are found in a number of products that are labeled as cleaning agents and are often sold over the Internet and in retail stores.

- GHB is a central nervous system depressant and its intoxicating effects begin 10 to 20 minutes after the drug is taken. The effects typically last up to 4 hours, depending on the dosage. At higher doses, GHB's sedative effects may result in sleep, coma, or death.
- GHB is cleared from the body relatively quickly (in approximately 2 hours). There are no GHB detection tests for use in emergency rooms and many clinicians are unfamiliar with it, so many GHB incidents go undetected.
- In July 2002, the Food and Drug Administration approved the medically supervised use of GHB for the treatment of cataplexy (episodes in which muscles suddenly go limp) associated with narcolepsy.

\*CEWG cities in which GHB abuse has been reported include: Detroit, Phoenix, Honolulu, Miami, New York, Atlanta, Minneapolis/St. Paul, Dallas, Seattle, San Francisco, San Diego, New Orleans, Newark, Los Angeles, Baltimore, Boston, and Denver.

## Ketamine

Slang or Street Names: ***Special K, K, Vitamin K, Cat Valium***

Ketamine is an anesthetic that can be injected, snorted, or smoked. It has been approved for both human and animal use in medical settings since 1970. About 90 percent of the ketamine sold legally today is intended for veterinary use.

- Large doses cause reactions similar to those associated with use of phencyclidine (PCP), such as dream-like states and altered perceptions or hallucinations.
- Ketamine is produced in liquid form or as a white powder that is often snorted or smoked with marijuana or tobacco products. In some cities (Boston, New Orleans, and Minneapolis/St. Paul, for example), ketamine has been reported to be injected intramuscularly.
- Low-dose intoxication from ketamine results in impaired attention, learning ability, and memory.
- At higher doses, ketamine can cause delirium, amnesia, impaired motor function, high blood pressure, depression, and potentially fatal respiratory problems.

\*CEWG cities in which ketamine abuse has been reported include: Seattle, Miami, New York, Chicago, Minneapolis/St. Paul, Newark, Boston, Detroit, New Orleans, and San Diego.

## Rohypnol

Slang or Street Names: ***Roofies, Rophies, Roche, Forget-me Pill***

Rohypnol (flunitrazepam) belongs to the class of drugs known as benzodiazepines (which include Valium, Halcion, Xanax, and Versed). It is not approved for prescription use in the United States, although it is used in many countries as a treatment for insomnia, as a sedative, and as a presurgery anesthetic.

- Rohypnol is tasteless and odorless, and it dissolves easily in carbonated beverages. The sedative and toxic effects of Rohypnol are aggravated by concurrent use of alcohol. Even without alcohol, a dose of Rohypnol as small as 1 mg can impair a user for 8 to 12 hours.
- Rohypnol is usually taken orally, although there are reports that it can be ground up and snorted.
- The drug can cause profound "anterograde amnesia;" that is, individuals may not remember events they experienced while under the effects of the drug. Reportedly, it has been used in sexual assaults.
- Other adverse effects associated with Rohypnol include decreased blood pressure, drowsiness, visual disturbances, dizziness, confusion, gastrointestinal disturbances, and urinary retention.

\*CEWG areas in which Rohypnol abuse has been reported include: Miami, Houston, and sites along the Texas-Mexico border.

## Methamphetamine

Slang or Street Names: **Speed, Ice, Chalk, Meth, Crystal, Crank, Fire, Glass**

Methamphetamine is a toxic, addictive stimulant that affects many areas of the central nervous system. The drug is often made in clandestine laboratories from relatively inexpensive over-the-counter ingredients. It is used by diverse groups, including clubgoers, in some areas of the country. Methamphetamine has been available in western and southwestern regions of the country for several years, but appears to be increasingly available in other regions.

- Methamphetamine can be smoked, snorted, injected, or ingested orally. It is a white, odorless, bitter-tasting crystalline powder that dissolves easily in beverages.
- Methamphetamine is typically sold through networks; not on the street like many other illicit drugs.
- Methamphetamine abuse is associated with serious health consequences, including memory loss, aggression, violence, psychotic behavior, and cardiac and neurological damage.
- Methamphetamine abusers typically display signs of agitation, excited speech, decreased appetite, and increased physical activity levels.
- Methamphetamine is neurotoxic. Abusers may suffer significant reductions in dopamine transporters and receptors.
- Methamphetamine abuse can contribute to higher rates of infectious disease transmission, especially hepatitis and HIV/AIDS.
- NIDA's 2003 MTF study found that 3.2 percent of 12th-graders, 3.3 percent of 10th-graders, and 2.5 percent of 8th-graders had used methamphetamine within the past year.

\*CEWG cities in which methamphetamine abuse has been reported include: San Diego, San Francisco, Phoenix, Atlanta, St. Louis, Denver, Honolulu, Los Angeles, Minneapolis/St. Paul, Philadelphia, Boston, Seattle, and Dallas. Methamphetamine abuse has also been reported in many rural areas of the country.

## Lysergic Acid Diethylamide (LSD)

Slang or Street Names: **Acid, Boomers, Yellow Sunshines**

LSD is a hallucinogen, inducing abnormalities in sensory perceptions. The effects of LSD are unpredictable depending on the amount taken, on the surroundings in which the drug is used, and on the user's personality, mood, and expectations.

- LSD is typically taken by mouth. It is sold in tablet, capsule, and liquid forms, as well as on pieces of blotter paper that have absorbed the drug.
- Typically, an LSD user feels the effects of the drug 30 to 90 minutes after taking it. The physical effects include dilated pupils, elevated body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth, and tremors.
- LSD users frequently report numbness, weakness, trembling, and nausea.
- There are two long-term disorders associated with LSD?persistent psychosis and hallucinogen persisting perception disorder (which used to be called "flashbacks").
- NIDA's MTF survey data found that LSD use has decreased significantly among 10th- and 12thgraders over the past few years. In 2003, past year use reached the lowest levels in the history of the survey: 1.3 percent of 8th-graders, 1.7 percent of 10th-graders, and 1.9 percent of 12th-graders reported past year use of LSD.

\*CEWG cities in which LSD abuse has been reported include: Boston, Detroit, Seattle, Chicago, Denver, New Orleans, San Francisco, Atlanta, and Phoenix.

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\* Information from [NIDA's Community Epidemiology Work Group \(CEWG\)](#), a network of epidemiologists and researchers from 21 U.S. metropolitan areas who monitor drug

use trends.

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