

Chapter 2

Club Drugs



To live is the rarest thing in the world. Most people exist,
that is all.

-Oscar Wilde

Club drug is a vague term that refers to a wide variety of drugs. Uncertainties about the drug sources, pharmacological agents, chemicals used to manufacture them, and possible contaminants make it difficult to determine toxicity, consequences, and symptoms that might be expected in a particular community.

No club drug is benign. The 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. Chronic abuse of MDMA, for example, appears to produce long-term damage to serotonin-containing neurons in the brain. Given the important role that the neurotransmitter serotonin plays in regulating emotion, memory, sleep, pain, and higher order cognitive processes, it is likely that MDMA use can cause a variety of behavioral and cognitive consequences as well as impairing memory.

Because some club drugs are colorless, tasteless, and odorless, they can be added unobtrusively to beverages by individuals who want to intoxicate or sedate others. In recent years, there has been an increase in reports of club drugs used to commit sexual assaults.

Ecstasy

Ecstasy, also known as *X*, *Adam*, *hug*, *beans*, *love drug*, and *MDMA* is a synthetic, psychoactive drug with both stimulant (amphetamine-like) and hallucinogenic (LSD-like) properties. MDMA usually is taken in pill form, but some users snort it, inject it, or use it in suppository form. Young people may use Ecstasy to improve their moods or get energy to keep dancing; however, chronic abuse of Ecstasy appears to damage the brain's ability to think and regulate emotion, memory, sleep, and pain.

Ecstasy is one of the most dangerous drugs threatening young people today. Called MDMA (3,4-Methylenedioxymethamphetamine) by scientists, it is a synthetic chemical that can be derived from an essential oil of the sassafras tree. Ecstasy speeds up the nervous system and acts as a mood enhancer. Also referred to as *the love drug*, Ecstasy often makes the user feel good, happy and relaxed - at least at first. Contrary to rumors, Ecstasy is not an aphrodisiac and can actually inhibit sexual performance.

MDMA is also one of the easiest illegal drugs to obtain. Distributed almost anywhere, it has become very popular at social events like raves, hip hop parties, concerts, etc. frequented by both adults and youth. While not all event attendees use Ecstasy, the drug often makes the circuit of these parties and can set up dangerous circum-

stances that can affect everyone there.

MDMA use is increasing in most metropolitan areas of the United States. In Boston and New York City, it appears to be spreading beyond the club scene to the streets. Content of the MDMA pills also varies widely, and may include caffeine, dextromethorphan, heroin, and mescaline. In some areas of the country, the MDMA-like substance paramethoxyamphetamine (PMA) has been involved in the deaths of people who mistakenly thought they were taking true MDMA. The deaths were due to complications from hyperthermia.

The taking of any drug affects people differently. Depending on size, weight, health, dosage and other drugs being used, the reaction can be mild or very severe. Anyone suffering from hypertension, heart disease, diabetes, epilepsy, mental illness or panic should avoid taking Ecstasy.

Brain imaging research in humans indicates that MDMA causes injury to the brain, affecting neurons that use the chemical serotonin to communicate with other neurons. The serotonin system plays a direct role in regulating mood, aggression, sexual activity, sleep, and sensitivity to pain. Many of the risks users face with MDMA use are similar to those found with the use of cocaine and amphetamines.

- Psychological difficulties, including confusion, depression, sleep problems, drug craving, severe anxiety, and paranoia - during and sometimes weeks after taking MDMA.
- Physical symptoms such as muscle tension, involuntary teeth clenching, nausea, blurred vision, rapid eye movement, faintness, and chills or sweating.
- Increases in heart rate and blood pressure, a special risk for people with circulatory or heart disease.
- Recent research also links MDMA use to long-term damage to those parts of the brain critical to thought, memory, and pleasure.
- Also, there is evidence that people who develop a rash that looks like acne after using MDMA may be risking severe side effects, including liver damage, if they continue to use the drug.

MDA, the parent drug of MDMA, is an amphetamine-like drug that has also been abused and is similar in chemical structure to MDMA. Research shows that MDA also destroys serotonin-producing neurons in the brain.

MDMA also is related in its structure and effects to methamphetamine, which has been shown to cause degeneration of neurons con-

taining the neurotransmitter dopamine. Damage to these neurons is the underlying cause of the motor disturbances seen in Parkinson's disease. Symptoms of this disease begin with lack of coordination and tremors and can eventually result in a form of paralysis.

Overdose

- Taking too much Ecstasy can result in:
- Extremely high body temperatures
- High blood pressure
- Hallucinations
- Fast Heartbeat
- Breathing problems
- Death

Death often results from harmful overheating (hyperthermia), or from drinking too much at one time (hyponatremia). Hyponatremia is a condition where excess fluid intake swells the brain resulting in coma. A third cause of death is stimulation. Over stimulation of the nervous system can result in heart attack or brain hemorrhage.

Warning Signs of Overdose

- Feeling hot or unwell
- Becoming confused, not able to talk properly
- Headache
- Vomiting
- Not Sweating
- Racing heart or pulse when resting
- Fainting or collapsing
- Loss of control over body movements
- Tremors
- Problems Urinating

Duration of Effects

An Ecstasy high can last from six to 24 hours but usually averages three to four hours. Some reactions have been reported to persist from one to 14 days after use.

Short-term Effects

Short-term effects include psychological difficulties (confusion, depression, sleep problems, craving, severe anxiety, and paranoia). These effects occur during use and can continue even weeks after

use. Physical problems that can occur are muscle tension, involuntary teeth clenching, nausea, blurred vision, rapid eye movement, fever, chills or sweating.

Long-Term Effects

Recent findings connect use of Ecstasy to memory loss. Use of Ecstasy depletes serotonin, a very important chemical in the brain which regulates mood, sleeping and eating habits, as well as, the thinking and behavior process, sexual function, and sensitivity to pain.

Summary

- Methylenedioxyamphetamine (MDA) and methylenedioxyethylamphetamine (MDEA) are drugs chemically similar to MDMA.
- MDMA is taken orally, usually in a tablet or a capsule. MDMA's effects last approximately 3 to 6 hours, though confusion, depression, sleep problems, anxiety, and paranoia have been reported to occur even weeks after the drug is taken.
- MDMA can produce a significant increase in heart rate and blood pressure and a sense of alertness like that associated with amphetamine use.
- The stimulant effects of MDMA, which enable users to dance for extended periods, may also lead to dehydration, hypertension, and heart or kidney failure.
- MDMA can be extremely dangerous in high doses. It can cause a marked increase in body temperature (malignant hyperthermia) leading to the muscle breakdown and kidney and cardiovascular system failure reported in some fatal cases at raves. MDMA use may also lead to heart attacks, strokes, and seizures in some users.

Gamma Hydroxy Butyrate or GHB

Gamma Hydroxy Butyrate or GHB also known as, *G*, *Liquid Ecstasy*, *Georgia Home Boy*, or *Gamma-hydroxybutyrate* may be made in homes by using recipes with common ingredients. At lower doses, GHB can relax the user, but, as the dose increases, the sedative effects may result in sleep and eventual coma or death.

GHB is a central nervous system depressant. Because very small amounts of GHB are found in the human body, GHB is often billed as a *natural* supplement, or as an anabolic steroid that helps build muscle mass (this claim was never proven). In actuality, GHB is

made from a substance called GBL (which, when ingested, turns into GHB in the body and has the same effects), which is a solvent found in nail polish and floor cleaning products. BD also converts to GHB in the body. It is illegal to manufacture or distribute any of these three substances for human consumption.

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 dangerous. GHB has been increasingly involved in poisonings, overdoses, date rapes, and fatalities. The drug is used predominantly by adolescents and young adults, often when they attend nightclubs and raves. GHB is often manufactured in homes with recipes and ingredients found and purchased on the Internet.

GHB takes effect within 10-20 minutes, but doesn't peak for almost an hour. The feeling one gets from consuming GHB is, first, a feeling of intoxication similar to alcohol (the user feels relaxed, sociable, affectionate and playful, and disinhibited), followed by a feeling of drowsiness. Higher doses can lead to a sleep from which the user cannot be woken. The effects can last from 4-24 hours.

Since about 1990, GHB (gamma hydroxybutyrate) has been abused in the U.S. for euphoric, sedative, and anabolic (body building) effects. It is a central nervous system depressant that was widely available over-the-counter in health food stores during the 1980s and until 1992. It was purchased largely by body builders to aid fat reduction and muscle building. Street names include *Liquid Ecstasy*, *Soap*, *Easy Lay*, and *Georgia Home Boy*. Even though GHB may be difficult to distinguish from water, it has appeared in law enforcement indicators, including seizures of large amounts in Minneapolis/St. Paul and Phoenix.

Coma and seizures can occur following abuse of GHB and, when combined with methamphetamine, there appears to be an increased risk of seizure. Combining use with other drugs such as alcohol can result in nausea and difficulty breathing. GHB may also produce withdrawal effects, including insomnia, anxiety, tremors, and sweating.

GHB and two of its precursors, gamma butyrolactone (GBL) and butanediol (BD) have been involved in poisonings, overdoses, date rapes, and deaths. These products, obtainable over the internet and sometimes still sold in health food stores, are also available at some gyms, raves, nightclubs, gay male parties, college campuses, and the street. They are commonly mixed with alcohol (which may cause unconsciousness), have a short duration of action, and are not easily detectable on routine hospital toxicology screens.

GHB presents a serious overdose threat. Since GHB is a depressant, GHB can be fatal when mixed with alcohol. With GHB, another problem is the fact that it takes a while for the peak effects of the drug to take effect—people often take another dose thinking they haven't taken enough (and GHB can be fatal on its own). GHB is also tricky because it's manufactured by individuals, and the strength can vary from batch to batch. Symptoms of overdose can include intense drowsiness, unconsciousness, or coma, muscle spasms, disorientation, vomiting, and slowed or stopped breathing (fatalities usually occur from respiratory failure).

Right now, the long-term effects of GHB use are not known. However, since it is made from industrial chemicals, there is a risk of severe burns to the mouth, throat, and stomach from GHB that has been improperly produced.

Summary

- GHB is usually abused either for its intoxicating/sedative/euphoriant properties or for its growth hormone-releasing effects, which can build muscles.
- Some individuals are synthesizing GHB in home laboratories. Ingredients in GHB, gamma-butyrolactone (GBL) and 1,4-butanediol, can also be converted by the body into GHB. These ingredients are found in a number of dietary supplements available in health food stores and gymnasiums to induce sleep, build muscles, and enhance sexual performance.
- GHB is a central nervous system depressant that can relax or sedate the body. At higher doses it can slow breathing and heart rate to dangerous levels.
- GHB's 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 lower doses, GHB can relieve anxiety and produce relaxation; however, as the dose increases, the sedative effects may result in sleep and eventual coma or death.
- Overdose of GHB can occur rather quickly, and the signs are similar to those of other sedatives: drowsiness, nausea, vomiting, headache, loss of consciousness, loss of reflexes, impaired breathing, and ultimately death.
- GHB is cleared from the body relatively quickly, so it is sometimes difficult to detect in emergency rooms and other treatment facilities.

Rohypnol

Rohypnol, also known as *Roofie* or *Roche* is tasteless and odorless. It mixes easily in carbonated beverages. Rohypnol may cause individuals under the influence of the drug to forget what happened. Other effects include low blood pressure, drowsiness, dizziness, confusion, and stomach upset.

Rohypnol, a trade name for flunitrazepam, has been of particular concern for the last few years because of its abuse in date rape. It belongs to a class of drugs known as benzodiazepines and, as such, is in the same drug family as Valium, Halcyon, and Xanax, but is ten times as strong. When mixed with alcohol, Rohypnol can incapacitate victims and prevent them from resisting sexual assault. It can produce *anterograde amnesia*, which means individuals may not remember events they experienced while under the effects of the drugs. Also, Rohypnol may be lethal when mixed with alcohol and/or other depressants.

Rohypnol comes as a pill, in 1 and 2 milligram doses, that is taken orally, or dissolved in a liquid. The tablets are white and have a line across one side, and a number 1 or 2 inside a circle with the name *Roche* above it on the other. It is frequently used in combination with alcohol, and sometimes with other drugs such as marijuana, cocaine, and heroin (to either accentuate or help the user come down from the typical high of these drugs).

People may unknowingly be given the drug which, when mixed with alcohol, can incapacitate a victim and prevent them from resisting sexual assault. Also, Rohypnol may be lethal when mixed with alcohol and/or other depressants.

The effects of Rohypnol begin within a half-hour, but doesn't peak for almost two hours. Rohypnol produces sedative-hypnotic effects including muscle relaxation and amnesia; it can also produce physical and psychological dependence. In Miami, one of the first sites of Rohypnol abuse, poison control centers report an increase in withdrawal seizures among people addicted to Rohypnol.

Rohypnol is both physically and psychologically addictive. Withdrawal symptoms peak 3-5 days after last use, and include extreme anxiety, muscle pain, headache, hallucinations, and seizures. **Some withdrawal symptoms, including cardiovascular collapse, can be fatal.**

Summary

- Rohypnol (flunitrazepam) belongs to the class of drugs known as benzodiazepines.
- 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 victim 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.
- Rohypnol is the forget-me pill and it has been reportedly used in sexual assaults.
- Other adverse effects associated with Rohypnol include decreased blood pressure, drowsiness, visual disturbances, dizziness, confusion, gastrointestinal disturbances, and urinary retention.

Ketamine

Ketamine, also known as *Special K*, *vitamin K* or *K* is an anesthetic. Ketamine is an anesthetic that has been approved for both human and animal use in medical settings since 1970; about 90 percent of the ketamine legally sold is intended for veterinary use. It can be injected or snorted. Use of a small amount of ketamine results in loss of attention span, learning ability, and memory. At higher doses, ketamine can cause delirium, amnesia, high blood pressure, depression, and severe breathing problems.

Certain doses of ketamine can cause dream-like states and hallucinations, and it has become common in club and rave scenes and has been used as a date rape drug.

At high doses, ketamine can cause delirium, amnesia, impaired motor function, high blood pressure, depression, and potentially fatal respiratory problems.

Emergency room mentions of ketamine rose from 19 in 1994 to 396 in 1999. Recent use has been reported more frequently among white youth in many cities, including Atlanta, Baltimore, Boston, Chicago, Minneapolis/St. Paul, Newark, New York City, Phoenix, San Diego, Texas, and Washington, DC.

Summary

- Ketamine is an injectable anesthetic that has been approved for both human and animal use in medical settings since 1970. About 90 percent of the ketamine legally sold today is intended for veterinary use.
- Ketamine gained popularity for abuse in the 1980s, when it was realized that large doses cause reactions similar to those associated with use of phencyclidine (PCP), such as dream-like states and 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 is reportedly being injected intramuscularly.
- At higher doses, ketamine can cause delirium, amnesia, impaired motor function, high blood pressure, depression, and potentially fatal respiratory problems.
- Low-dose intoxication from ketamine results in impaired attention, learning ability, and memory.

Methamphetamine

Methamphetamine, also known as *Speed*, *Ice*, *Chalk*, or *Meth* is often made in home laboratories. Methamphetamine use can cause serious health concerns, including memory loss, aggression, violence, psychotic behavior, and heart problems. Methamphetamine is a toxic, addictive stimulant that affects many areas of the central nervous system.

The following information about methamphetamine was provided by The American Council For Drug Education. Methamphetamine is a drug with immense abuse potential, is a central nervous system stimulant of the amphetamine family. Like cocaine, it is a powerful upper that produces alertness and elation, along with a variety of adverse reactions. The effects of methamphetamine, however, are much longer lasting than the effects of cocaine, yet the cost is much the same. For that reason, methamphetamine is sometimes called the poor man's cocaine.

Developed by a Japanese chemist in 1919, methamphetamine was used during World War II to help soldiers stay alert and to energize factory workers. Although it is prescribed with great caution today, it is legally available in the United States for the treatment of attention deficit disorder and obesity.

Meth in the United States

Amphetamines first came to this country at the start of the 1930's, and abuse of amphetamine sulfate (Benzedrine) and dextroamphetamine (Dexedrine) pills became widespread during the 1950's and 60's. These pills were commonly prescribed by physicians, most often for weight loss, and massively diverted to the illicit market. Methamphetamine was also traded on the street, mostly as a powder that could be snorted or made into an injectable solution.

Injection of amphetamines dates from the 60's, when some users began shooting the drug into their veins to achieve a more intense high. High-intensity users, who became known as speed freaks, would often inject amphetamine for days, until overcome by exhaustion or psychosis. The aggressive behavior of these users, their volatile temper, physical depletion, and profound weight loss gave rise to the once-familiar warning that speed kills.

By the end of the 60's, amphetamine abuse began to wane. Illicit sales dwindled after the federal government tightened controls on amphetamine production in 1970, and the Drug Enforcement Administration and medical licensing boards cracked down on script doctors who freely handed out amphetamine prescriptions.

A modest amount of illicit methamphetamine, however, remained available from clandestine labs in the U.S. The labs were often run by outlaw motorcycle gangs. Production concentrated in clandestine labs throughout the Western and Southwestern United States, and disputes over control of the illegal methamphetamine market became responsible for the kind of gang-related violence once restricted to the cocaine trade. Although domestic suppliers still operate, organized crime groups in Mexico appear responsible for a surge in methamphetamine production on both sides of the border during the 1990's.

How Is It Taken?

Methamphetamine can be swallowed, smoked, snorted, or injected. Sold as a powder, it can be mixed with water for injection or sprinkled on tobacco or marijuana and smoked. Chunks of clear, high-purity methamphetamine (*ice*, *crystal*, *glass*), which resemble rock candy, are smoked in a small pipe, much as *crack* cocaine is smoked. Some users exploit the rapid vaporization of methamphetamine, spreading the powdered drug on aluminum foil, heating the foil, and inhaling the fumes that are released. Others *speedball* by combining methamphetamine and heroin.

Meth tends to be taken differently in different locales and by different age groups. In San Francisco, for example, injection is the preferred route; in Honolulu, it's smoking. In Phoenix, younger users choose pills, while older users snort. Snorting the drug, however, irritates the nose, and smoking is hard on the throat and lungs. But it is smoking, along with injection, that are the fastest ways to deliver the drug to the brain. By either route of administration, users get very high very rapidly and want to recapture the feeling as soon as it begins to fade.

How Does It Affect You?

At lower doses, methamphetamine makes the user feel energetic, alert, self-confident—even powerful. With continued use these pleasurable feelings typically diminish, and most users report the need for increasingly higher doses to achieve euphoria. Under the influence of the drug, users often become agitated and feel wired. Their behavior becomes unpredictable. They may be friendly and calm one moment, angry and terrified the next. Some feel compelled to repeat meaningless tasks, such as taking apart and reassembling bits of machinery. Others may pick at imaginary bugs on their skin.

After a number of days on methamphetamine, during which time they barely sleep or eat, users become too tired to continue or have no meth left and begin to crash. Initially, the crash is marked by agitated depression, sometimes accompanied by an urge for more methamphetamine. But these feelings soon give way to lethargy, followed by a long deep sleep. The depression returns, however, once the user awakens, and may last for days—a time when the potential for suicide is high.

With prolonged high-dose use or long binges, stimulant psychosis may develop. The psychotic user may feel intensely paranoid, hear voices, and experience bizarre delusions, believing, for example, that other people are talking about him or following him. Methamphetamine-induced panic and psychosis can be extremely dangerous and may result in incidents of extreme violence.

It is not unusual for psychosis to persist for days after the last dose of methamphetamine. Indeed, there are many reports of users remaining paranoid, delusional, apathetic, and socially withdrawn for weeks. Occasionally, methamphetamine-related psychosis lasts for years. But, in these cases, experts believe the drug has probably triggered symptoms of a pre-existing mental disorder.

Dangers and Consequences of Meth Use:

- Sleeplessness
- Loss of appetite and weight loss
- Nausea, vomiting, diarrhea
- Elevated body temperature
- Skin ulceration and infection, the result of picking at imaginary bugs
- Paranoia
- Depression
- Irritability
- Anxiety
- Increased blood pressure, due to the constriction of blood vessels, that may produce headaches, chest pain, or irregular heartbeat and lead to stroke or heart attack
- Seizures
- Permanent damage to brain cells caused by injury to small blood vessels serving the brain
- For pregnant women—premature labor, detachment of the placenta, and low birth weight babies with possible neurological damage, poor feeding, and lethargy
- For intravenous (IV) users—AIDS, hepatitis, infections and sores at the injection site, and infection of the heart lining and valves (endocarditis)

Meth vs. Cocaine?

Methamphetamine is generally cheaper than cocaine and—because the body metabolizes it more slowly—much longer lasting. Methamphetamine's effects may last as much as ten times longer than a cocaine high. With its long-lasting effects, methamphetamine binges may last up to a week, while cocaine binges rarely continue for more than 72 hours. When heavy cocaine users experience paranoia, it almost always disappears once the binge ends. For methamphetamine users, however, severe disturbance of mood and thought may be sustained well beyond the binge. Not infrequently, they persist for days, sometimes weeks. Similarly, the methamphetamine crash is more prolonged, and the drug-related depression some users experience upon awakening can be more severe than any experienced by cocaine users.

Summary

- Methamphetamine is a white, odorless, bitter-tasting crystalline powder that easily dissolves in beverages.
- Methamphetamine is not sold in the same way as many other illicit drugs; it is typically sold through networks, not on the street.
- Methamphetamine use is associated with serious health consequences, including memory loss, aggression, violence, psychotic behavior, and potential cardiac and neurological damage.
- Methamphetamine abusers typically display signs of agitation, excited speech, decreased appetite, and increased physical activity levels.
- Methamphetamine is neurotoxic. Methamphetamine abusers may have significant reductions in dopamine transporters.
- Methamphetamine use can contribute to higher rates of transmission of infectious diseases, especially hepatitis and HIV/AIDS.

Lysergic Acid Diethylamide or LSD

Lysergic Acid Diethylamide, also known as *LSD* or *Acid* may cause unpredictable behavior depending on the amount taken, where the drug is used, and on the user's personality. A user might feel the following effects: numbness, weakness, nausea, increased heart rate, sweating, lack of appetite, *flashbacks*, and sleeplessness.

- LSD is a hallucinogen. It induces 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 in 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, higher body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth, and tremors.
- LSD users report numbness, weakness, or trembling, and nausea is common.
- There are two long-term disorders associated with LSD, persistent psychosis and hallucinogen persisting perception disorder (which used to be called flashbacks).

Where Can I Get Further Scientific Information About Club Drugs?

To learn more about club drugs and other drugs of abuse, contact the National Clearinghouse for Alcohol and Drug Information (NCADI) at 1-800-729-6686. Information specialists are available to help you locate information and resources.

Fact sheets on the health effects of inhalants and other abused drugs and other drug abuse topics can be ordered free of charge, in English and Spanish, from NIDA Infobox at 1-888-NIH-NIDA (1-888-644-6432) or, for deaf persons, 1-888-TTY-NIDA (1-888-889-6432).

Information is available also on the NIDA Web site www.drugabuse.gov or the NCADI Web site www.health.org.