American Psychiatric Association
ADVISORY ON "ECSTASY"

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What is "Ecstasy"?

"Ecstasy" is the common name for methylenedioxymethamphetamine (MDMA). It is also known by other street names such as "E," "X" and "XTC." MDMA is sometimes referred to as a "club drug" because it is often sold and/or taken at dances or nightclubs.

MDMA is a synthetic drug, related to amphetamine. It is illegal in the U.S. and has no accepted medical use. Most of the MDMA sold in the United States is manufactured in unsupervised, illicit laboratories abroad and smuggled into the country.

Why is there concern about MDMA?

Although first synthesized in Germany in 1914, MDMA was not widely used in the United States until the 1980s. Since the 1990s there has been an upswing in both use and availability. Part of the reason for the increase in use has been MDMA's reputation as a "safe drug" among many adolescents and young adults. Although this reputation is unwarranted, many users and potential users are unaware of the dangers of MDMA use.

What are the effects of MDMA?

As the drug became more popular, physicians have learned more about it through research and clinical experience. Current research indicates that MDMA's effects are primarily related to changes in serotonin, an important chemical (neurotransmitter) that facilitates communication between nerve cells in the brain. Other neurotransmitters, such as dopamine, are also affected. Animal experiments show that MDMA damages serotonin-containing cells and it is thought to do the same in humans. Human studies show depletion of serotonin in MDMA users.

Although MDMA is taken to induce pleasurable changes in mood, it also produces changes in the ability to think and function, and at times causes physical symptoms such as restlessness, sweating, increased pulse and blood pressure, loss of appetite, shaking, "goose pimples" and difficulty with temperature regulation. The impairment in temperature regulation, especially if combined with vigorous exercise and decreased fluid intake, can lead to cardiac arrhythmia and even death.

Use of the drug may be followed by aftereffects ("hangover") including sleepiness, headache, depression and decreased energy that can last for a number of days.

In some people MDMA has caused convulsions, delirium, severe changes in blood pressure, blood clotting and body temperature, and organ failure resulting in death. In others, MDMA has triggered severe depression or anxiety states.
Although these reactions are uncommon, it is not possible to make accurate predictions about who will be affected.

Both animal studies and human experience show that MDMA produces significant reinforcement (the tendency toward repetition of drug-taking). Thus using MDMA may motivate repeated drug-taking, although daily use is not common because of the aftereffects described above.

What are the dangers of MDMA?

There are three categories of danger:

1. Contents of tablets sold as "Ecstasy": Because they are manufactured in illegal laboratories, the composition of tablets marketed as MDMA varies greatly. They may contain varying amounts of MDMA, or none at all. They may be contaminated with other substances and/or other drugs, some of which are extremely toxic. Deaths have occurred from use of such adulterated tablets.
2. Acute effects: As noted above, MDMA causes acute physical and psychological changes, while producing acute toxicity in some users. Hangovers may be problematic. The drug may also interact with other illicit drugs, prescription or over-the-counter medications taken by the individual.
3. Effects of chronic use: Continued use may lead to psychological dependence. It may also cause depletion of serotonin and damage to serotonin-producing cells, leading to depression, unstable mood and memory problems. More research is needed to determine the long-term effects of MDMA.

In addition, because MDMA is an illegal drug, possession and use may result in arrest and criminal charges.

In summary:

MDMA's reputation as a drug with few side effects and little danger is not justified. Research and clinical experience continue to demonstrate that use of MDMA involves significant health risk.

References:

McDowell DM. MDMA, Ketamine, GHB and the "Club Drug" Scene, Chapter 6 in: Galanter M and Kleber HD (eds), Textbook of Substance Abuse Treatment, 2nd edition, American Psychiatric Press, Washington DC, 1999

Grob CS and Poland RE. MDMA, Chapter 24 in: Lowenstein JH, Ruiz P, Millman RB, and Langrod JG (eds), Substance Abuse: A Comprehensive Textbook, 3rd edition, Williams and Wilkins, Baltimore, MD, 1997

Carroll ME and Comer SD. Phencyclidine and the Hallucinogens, Section II, chapter 7 in: Miller NS (ed), Principles of Addiction Medicine, American Society of Addiction Medicine, Chevy Chase MD, 1994

Gouzoulis-Mayfranc E, Daumann J, Tuchtenhagen S et al. Impaired Cognitive Performance in Drug Free Users of Recreational Ecstasy (MDMA), Journal of Neurology, Neurosurgery, and Psychiatry 68:719-725, 2000

Jansen KLR. Ecstasy (MDMA) Dependence, Drug and Alcohol Dependence 53:121-124, 1999