



MDMA (Ecstasy or Molly)

Street names: Adam, E, XTC

EXPAND ALL

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What is MDMA (Ecstasy or Molly)?



Also known as: Adam, Beans, Clarity, E, Ecstasy, Hug, Love drug, Lover's speed, Molly, X, and XTC

MDMA, short for *3,4-methylenedioxymethamphetamine*, is most commonly known as Ecstasy or Molly. It is a man-made drug that produces energizing effects similar to the stimulants called [amphetamines](#), as well as psychedelic effects, similar to the hallucinogens mescaline and LSD. MDMA is known as a “club drug” because of its popularity in the nightclub scene, at “raves” (all-night dance parties), and music festivals or concerts. MDMA’s effects generally last from 3 to 6 hours.

MDMA is a Schedule I substance, which means that the U.S. Government has determined that it has no medical benefit and a high potential for abuse. Researchers, however, continue to investigate the possible medical benefits, for example, with patients that have post-traumatic stress disorder (PTSD) and terminal cancer patients with anxiety. However, those patients are under strict medical supervision.

How MDMA (Ecstasy/Molly) is Used

Most people who use MDMA take it in a pill, tablet, or capsule. The pills can be different colors and sometimes have cartoon-like images on them. Some people take more than one pill at a time, called “bumping.” The popular term “Molly” (slang for molecular) refers to the [pure crystalline powder form of MDMA](#), usually sold in capsules. But this is mostly a marketing gimmick—testing on “Molly” seized by police shows a variety of other ingredients.

In fact, researchers and law enforcement have found that much of the Ecstasy sold today contains other harmful and possibly deadly drugs in addition to MDMA. In some recent cases, drugs sold as MDMA actually contain no MDMA at all. Frequently, MDMA is mixed with or replaced by *synthetic cathinones*, the chemicals in “bath salts. Some MDMA pills, tablets, and capsules have also been found to contain caffeine, dextromethorphan (found in some cough syrups), amphetamines, PCP, or cocaine.

What happens to your brain when you use MDMA (Ecstasy or Molly)?

Once an MDMA pill or capsule is swallowed, it takes about 15 minutes for the drug to enter the bloodstream and reach the brain. MDMA produces its effects by increasing the activity of three neurotransmitters (the chemical messengers of brain cells): *serotonin*, *dopamine*, and *norepinephrine*. Let's take a look at the importance of these chemicals:

- [Serotonin](#)—plays a role in controlling our mood, aggression, sexual activity, sleep, and feelings of pain. The extra serotonin that is released by MDMA likely causes mood-lifting effects in users. People who use MDMA might feel very alert, or “hyper,” at first. Some experience altered sense of time and other changes in perception, such as a more intense sense of touch. Serotonin also triggers the release of the hormones oxytocin and vasopressin, which play a role in feelings of love, sexual arousal, and trust. This may be why users report feeling a heightened sense of emotional closeness and empathy.
- [Dopamine](#)—helps to control movement, motivation, emotions, and sensations like pleasure. The extra dopamine causes a surge of feelings of joy and increased energy
- Norepinephrine—increases heart rate and blood pressure, which are particularly risky for people who have problems with their heart and blood circulation

Because MDMA increases the activity of these chemicals, some users experience negative effects. They may become anxious and agitated, become sweaty, have chills, or feel faint or dizzy.

Even those who don't feel negative effects during use can experience negative after-effects. These are caused by the brain no longer having enough serotonin after the surge that was triggered by using MDMA. Days or even weeks after use, people can experience confusion, depression, sleep problems, drug craving, and anxiety, because the surge of serotonin caused by MDMA reduces the brain's supply of this important chemical.

Effects of Long-Term Use

Researchers are not sure if MDMA causes long-term brain changes or if such effects are reversible when someone stops using the drug. However, studies have shown that some heavy MDMA users experience problems that are long lasting, including confusion, depression, and problems with memory and attention.

Learn more about [how the brain works and what happens when a person uses drugs](#). And, check out how the brain responds to natural rewards and to drugs.

The Reward Circuit: How the Brain Responds to Nat...

What happens to your body when you use MDMA (Ecstasy or Molly)?

The changes that take place in the brain with MDMA use affect the user in other ways as well. These include:

- increases in heart rate and blood pressure
- muscle tension

- teeth clenching
- nausea (feeling sick) and possible vomiting
- blurred vision
- faintness
- chills or sweating
- higher body temperature (can lead to serious heart, liver, or kidney problems)
- increased risk for unsafe sex

Because MDMA does not always break down in the body, it can interfere with its own metabolism. This can cause harmful levels of the drug to build up in the body if it is taken repeatedly within short periods of time. High levels of the drug in the bloodstream can increase the risk for seizures and affect the heart's ability to beat normally.

Can you overdose or die if you use MDMA use (Ecstasy or Molly)?

Yes, you can [die from MDMA use](#). MDMA can cause problems with the body's ability to control temperature, especially when it is used in active, hot settings (like dance parties or concerts). On rare occasions, this can lead to a sharp rise in body temperature (known as hyperthermia), which can cause liver, kidney, or heart failure or even death.

Is MDMA (Ecstasy or Molly) addictive?

Researchers don't yet know. What is known is that MDMA targets the same neurotransmitters that are targeted by other addictive drugs. Researchers are still working to understand MDMA's addictive properties. But, some users experience unpleasant *withdrawal* symptoms after regular (daily or almost daily) use of the drug is reduced or stopped, such as:

- fatigue
- loss of appetite
- depression
- trouble concentrating

How many teens use MDMA (Ecstasy or Molly)?

Below is a chart showing the percentage of teens who use MDMA.

Monitoring the Future Study: Trends in Prevalence of MDMA for 8th Graders, 10th Graders, and 12th Graders; 2016 (in percent)*

Drug	Time Period	8th Graders	10th Graders	12th Graders
MDMA	Lifetime	[1.70]	[2.80]	[4.90]
	Past Year	[1.00]	[1.80]	[2.70]
	Past Month	0.30	[0.50]	0.90

* Data in brackets indicate statistically significant change from the previous year.

For more statistics on teen drug use, see [NIDA's Monitoring the Future study](#).

What should I do if someone I know needs help?

If you see or hear about someone misusing opioids, talk to a coach, teacher, or other trusted adult.

If you, or a friend, are in crisis and need to speak with someone now, please call:

- **National Suicide Prevention Lifeline at 1-800-273-TALK** (they don't just talk about suicide—they cover a lot of issues and will help put you in touch with someone close by).

If you need information on treatment and where you can find it, you can call:

- **Substance Abuse Treatment Facility Locator at 1-800-662-HELP** or visit www.findtreatment.samhsa.gov.

For more information on how to help a friend or loved one, visit our [Have a Drug Problem, Need Help? page](#).

Where can I get more information?

Drug Facts

NIDA:

- [Commonly Abused Drugs Chart](#)
- [DrugFacts: MDMA \(Ecstasy or Molly\)](#)
- [NIDA Notes Articles: MDMA \(Ecstasy\)](#)
- [Research Report Series: MDMA \(Ecstasy\) Abuse](#)

Statistics and Trends

NIDA:

- [DrugFacts: High School and Youth Trends](#)

Centers for Disease Control and Prevention

- [Youth Risk Behavior Surveillance System](#) (YRBSS)

Monitoring the Future (University of Michigan):

- [Monitoring the Future](#)

Substance Abuse and Mental Health Services Administration:

- [National Survey on Drug Use and Health](#)

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