

Standing Outside: An Essay on the Synthetic Amphetamine MDMA

I feel absolutely clean inside, and there is nothing but pure euphoria. I have never felt so great, or believed this to be possible.

-Dr. Alexander Shulgin

[Erowid Note: one of the better high school reports on MDMA we have had submitted. No corrections were made to the essay as it was submitted to us, but a handful of inline comments about the text are included in red.]

The drug MDMA known by its infamous street name, “ecstasy,” is a synthetic hallucinogen, which over the past 20 years has swept over the world introducing mainstream culture to the sub-culture of the rave and techno music. At the same time it has been followed at every turn by controversy and fear. To those who have used the drug the name seems especially appropriate. Users use words such as “euphoria” and “peaceful” in their explanation of the drug’s profound effects upon the body and mind. Critics of the drug more plainly call it a killer. Both groups have their reason for or against it. Those who are against the drug do have reason to be. There were an estimated 132 deaths attributed to MDMA pills between the years 1994 to 2000 in the US, yet these statistics have given rise to the death rate among users which is around two in every 100,000 users, while alcohol claims 50 in 100,000 (Drug Enforcement) [Erowid Note: This agency should be referred to as either “the DEA” or the “Drug Enforcement Administration”]. Also, it is key to cite the actual document and not merely the publisher.] So where is the line drawn? Is ecstasy to be denounced as being a life taker on anti-drug commercials when it doesn’t take nearly the lives of alcohol, Americas official “it’s not really a drug” drug (Drug Enforcement)? Then so the question remains

of whether or not ecstasy deserves its image of a killer, or can it be a resource in the treatment of psychologically damaged patients, and even as a safe source of entertainment.

MDMA (short for methylenedioxyamphetamine) was first developed by the German pharmaceutical company Merck in 1912, and then patented in 1914. It did not however begin to be available on the streets until the late 1970's, where at the time it also acquired the street name ecstasy or X for short. The ecstasy comes from the Greek word *existanai* which means to "stand outside". The 70's were also a time when many therapists started to use the drug for its effects on the emotions of patients in their clinics. These effects that let the patients talk about things were viewed as big breakthroughs, especially with people suffering from very traumatic events such as rape. However the increasing amount of MDMA being sold and consumed illegally outside of a clinical setting led to its scheduling in 1985 by the DEA (Drug Enforcement Agency). It became a Schedule I illicit substance with the likes of heroin, marijuana, and LSD. Schedule I substances are those that have a high potential of abuse, has no accepted medical use in the United States, and lacks an accepted safety for use of the drug under medical supervision. It was however taken off of this scheduling due to improper procedure, but was put back into Schedule I in 1988 permanently. Since its scheduling in 1988 there has been next to no clinical studies done to test long term and short term effects of its use. This has left a large question mark when it comes to a lot of information pertaining to its long term effects on the brain. However as recently as early 2004 the DEA has given the private foundation MAPS permission to go ahead with an FDA-approved clinical study of MDMA and its therapeutic potentials (Erowid: Investigating).

To better understand MDMA as a drug, the neuropharmacology must be taken into account. MDMA is a serotonergic drug, meaning that it for the most part just affects serotonin (5-HT), a major neurotransmitter in the brain, although it does also increase the amount of dopamine that is released into the brain. Serotonin is the transmitter that affects mood, memory, and learning. MDMA works by passing through the cell wall of serotonin holding brain cells, forcing the cell to secrete serotonin out of its vesicles into the synapse between itself and another brain cell; this in turn fires another cell and so on in a huge chain. This happens all over the brain causing a flood of serotonin to be released all at once, which gives the user his feeling of euphoria, and emotional openness. Eventually the brain runs out of serotonin, and has to start remaking it in the cells. This deficit of serotonin is what gives the bad after effects of the drug, or what users call the “crash” which usually occurs the next day.

Ecstasy is very often called the “love drug” which becomes understandable when one is confronted with its multitude of psychological effects. Users usually take around one dose of MDMA, with a standard dose containing between 80-120mg of MDMA in it. Although pills tested over the past ten years have contained drugs chemically similar to MDMA such as MDA, MDE, PMA, and even a combination of LSD and speed. Users have been known to take up to as many as 20 doses in a single session with the drug. This is especially common in places where pills containing the drug are cheaper such as in Europe. The two most common methods of administration are orally, insufflations (crushing up the pill and snorting it). When administered orally, effects usually take between 30-45 minutes with insufflations taking less time. The effects of the come up are usually described as a combination of anxiety, and warm waves throughout the body. The

onset is very drastic usually taking only a couple of minutes and can be unnerving for some people, but soon ends when the drugs effects take full effect in the peak. The peak for the most part lasts around 3-4 hours, but is accompanied by a period of around 2-6 hours marked by an inability to sleep and just a general difference in reality. The high for a user is very often described as a feeling that everything is right in the world.

Entactogenesis (“touching within”) is an effect of MDMA that makes everyday objects seem abnormally beautiful. This is demonstrated in a selection in Dr. Alexander Shulgin’s book PiHKal:

The woodpile is so beautiful, about all the joy and beauty that I can stand. I am afraid to turn around and face the mountains, for fear they will overpower me. But I did look, and I am astounded. (Shulgin)

This effect is demonstrated easily, Dr. Shulgin who lived by these mountains and who probably saw them everyday would never usually be so profoundly stunned by their beauty. This idea goes even further with his commentary on a simple woodpile that he observed. Another common effect of MDMA is that of empathogenesis, or the feeling of extreme emotional closeness with everyone. This closeness is due to the fact that users find themselves at ease to share their feelings and memories with people they aren’t necessarily close to. This gives way to people becoming close to everyone around them.

An anonymous user expressed just that in his quote:

Its like a filter between what you want to express and what comes out of your mouth that you didn’t even know existed is stripped away(Erowid MDMA)

This effect is the main one that is being sought after by therapists, because what advances could be made in therapy especially with those who have suffered such traumatic events. Breakthroughs would be much easier with patients if they where able to speak more easily about their problems. Coupled with these effects is the heightening (even

distortion) of the senses. Nearly all the senses including proprioception are enhanced; this can make hearing very sensitive which is why music is almost always associated with ecstasy use. Touch is also heightened to an extreme level, so much so that the touch of another person can be extremely pleasurable. Sight is affected in the form of a few prominent open and closed eye visuals, and sometimes the phenomenon of lights streaking when moving past the eyes of the user. A lot of the visual effects can be contributed to nystagmus (wiggling of the eyes). Along with the mental effects of the drug come physical effects which can include dry mouth due to dehydration, which is the most dangerous aspect of the drug. Dehydration can lead to hyperthermia, which can result in death. Jaw clenching, teeth grinding, sweating, and sometimes nausea are also sometimes associated with the high. When the high is done there is a period of time when the brain has an abnormally low level of serotonin. This is usually called the crash. The crash doesn't usually last long but can last up to a week in heavy users. It however doesn't happen to all people, but is not uncommon. For most people the crash is just a time of mental fatigue, and can be even depressing for some people due to the lack of serotonin.

These profoundly unique mental and physical effects have given way to the sub-culture of the rave. Raves have become a household word in the past ten years; due to their wide spread media coverage as drug infested dance parties. The most prominent drug at these raves has most always been ecstasy, although other drugs such as Ketamine, LSD, and 5-Meo-DiPT are also staple "club drugs." Raves usually take place in large open areas away from the spot light. Places such as open fields, and abandoned warehouses are popular settings for these house parties. Another characteristic of raves is

the music; dance, house, trance and most well-known techno music usually dominate at these events. Nowadays DJs such as DJ Tiesto and DJ Sammy are becoming mainstream artist along with other pop artists with their music. Along with the fast beat music is the use of glow sticks, and other objects that play tricks on the eyes. With all of these characteristics a rave can be a most enjoyable event for people on ecstasy as well as other club drugs, which is why raves have attracted so many users. This has given way to raves being given a bad name along with the drugs they attract. With the explosion of raves along with ecstasy use legislation trying to contain drug use at these raves has come to the for front, like this bill aimed at fining people who gain from the distribution of ecstasy and other club drugs at organized raves:

Whoever profits monetarily from a rave or similar electronic dance event, knowing or having reason to know that the unlawful use or distribution of a controlled substance occurs at the rave or similar event, shall be fined not more than \$500,000 or imprisoned not more than 20 years, or both. If the defendant is an organization, the fine imposable for the offense is not more than \$2,000,000.(DanceSafe)

This kind of legislation will probably become a lot more prevalent as the death count goes up in the future. On the other side of the fence are sites such as DanceSafe.org that over the past couple have years have made it their mission to promote safe ecstasy use as well as sponsor safe raves.

Anti-drug commercials over the past couple of years have tried to put a lid on the explosive increase of use among Americans, but has this anti-drug offensive worked? The statistics would say “no” to that question. Ecstasy’s use more than doubled from

1996 to 2000, while the death rate from 1996 was a mere 8 compared to 2000's 63 deaths (SAMHSA). This spike in death rates as compared to the overall usage can be explained by the fact that newer and younger users are trying the drug, which can result in mistakes on the part of the user. Although even the death rate is not what it appears, whenever a person dies of any kind of drug intoxication (including drunk driving accidents) if MDMA is in the system the death is usually contributed to MDMA. According to the TheDEA.org a study done on recent deaths in the UK reported that of 81 deaths contributed to MDMA only 6 of the deaths were from MDMA intoxication only, while most were from mixing it with other drugs such as alcohol, cocaine, and opiates.

[Erowid Note: Always cite the original source study, not the website that describes it. In this case, it may be appropriate to cite the original study and also indicate the website where the study was found or summarized.]

So who are the people who are using this drug? A 2001 survey of 12th graders (Drug Enforcement) showed that Hispanics had the highest usage (13.1%) with Caucasians being a little less likely to do it (12.4%). Both of these statistics are huge compared to the small number of African Americans who have tried the drug (3.1%). The study also showed that males were more likely to have tried it over females, and that major cities had ~60% more past-year use when compared to small towns. Educational background of the parents also seemed to not play a role in usage; children with the least educated parents were less likely to have tried it. What these statistics seem to show is that ecstasy is no longer a niche drug like it was in the late 80s early 90s, but has become a prominent drug on the streets whose usage isn't restricted to a specific age group, ethnic group or area, while growing with each passing year.

With the increasing popularity of the drug, 10-12 million Americans have tried it in their life (Drug Enforcement), the real question remains: is it safe? Most talk about ecstasy dangers is contributed to deaths from MDMA toxicity. But how does neurotoxicity work with MDMA, [\[Erowid Note: the following is one of several speculative theories for the mechanism of neurotoxicity. The one described is a simplification of the Nichols DE theory for toxicity and it is important to note that it is still unknown exactly how the toxicity in rats and non-human primates works.\]](#) when the user is coming down off of his high, a part of the brain cell bring that is used to bring back serotonin molecules are left empty from a lack of serotonin. In the meantime extra dopamine that is floating around attaches themselves to these transporters and goes up into the serotonin cell. Dopamine is toxic to serotonin cells alone, but is then broken down by the MAO in the brain into hydrogen peroxide which then oxidizes parts of the cell. This is the current theory on the neurotoxic effects of MDMA, but according to some scientists an easy way to keep this from happening is to simply take anti-oxidants. Anti-oxidants are vitamins such as Vitamin C and E. These can stop the oxidizing of the serotonin cells making the neurotoxic effects nearly non-existent. Other dangers beside long-term damage due to neurotoxicity are present however. Heatstroke although very preventable is the leading cause of death among users when using MDMA. When the body is on ecstasy it usually heats up above normal body temperature. This is why it is a regular sight to see users carrying around water bottles to keep hydrated. An even more seldom occurring event is hyponatremia, or “water intoxication”, this can happen when a new user gets spooked about how warm they are, and their dry mouth and begin to drink water at a dangerous rate. An even less common cause of death related to MDMA is due

to underlying health problems (heart problems, high blood pressure, and ext). The most uncontrollable danger of ecstasy is the amount of un-pure pills available; more often than not one ecstasy pill will include other drugs along with the MDMA. Drugs such as DXM (dextromethorphan), speed and caffeine are sometimes used to bind the pill together. Pills have also been tested that contain no MDMA at all, but rather a chemically similar drug called PMA. PMA is known world wide for killing dozens of people over the past 5 years in both the US and Europe. PMA is similar to MDMA in its effects, but takes more of the drug to achieve these results. Along with this negative characteristic, PMA also tends to raise blood pressure and heart rates much more rapidly than normal MDMA and MDA.

The increasing growth in usage, coupled with the small yet growing death rate, has made the government take on a firm anti-ecstasy campaign. Ads showing teens killed by the drug are aired everyday on popular networks yet these commercials usually showcase extreme cases and do not show all the facts. Even NIDA (National Institute on Drug Abuse) does not share the conclusive condemnation of ecstasy apparent in these anti-drug ads; this can be seen in a segment of text from their website:

Research in animals indicates that MDMA is neurotoxic; whether or not this is also true in humans is currently an area of intense investigation. MDMA can also be dangerous to health and, on rare occasions, lethal.
(NIDA)

No where in their overview of MDMA is anything mentioned about it being a killer. For the most part it is a question mark when it comes to neurotoxicity, and can be lethal. But as stated before alcohol can also be lethal, and is much more often then ecstasy. Another problem about ecstasy is that there have not been many long term studies done on the drug, and all the current studies have been done by pro-government research firms. This has given rise to biased reports on the drugs effects on a long term basis. One agency

called MAPS however has started as of January 2004 to research MDMA with the aims of making it an FDA-approved drug. MAPS current research is blowing away much of the old assumptions of the drugs destructive nature. Some of their new findings can be seen on their website including this advance:

March 30, 2004. A new study of MDMA self-administration in monkeys found MDMA to be far less toxic than assumed from previous studies. Study findings suggest that when monkeys take doses of MDMA similar to those used by Ecstasy-using humans, there are no signs of harm to serotonin or dopamine cells. Study findings also suggest that monkeys, like humans, may slowly lose interest in taking MDMA over time, and that this change of heart is not a sign of brain toxicity. (MAPS)

These new reports will have to become more common in order to find out MDMA's true nature as a drug, whether it is bad or good.

Ecstasy has swept the world in the last 10 years emerging as one of the most used and controversial drugs. It has also gained a reputation as a very dangerous drug that kills its users more often than it does. Yet most of the problems related to the use of MDMA are preventable with the right precautions and foreknowledge. So is this reputation based on facts or just fear? Should the government change its stance on the drug and start a more educational ad program, or stay with their anti-ecstasy campaign? For most experts it is way too early to make a decision of that magnitude concerning the drug. The current knowledge on the drug would say that it is based on fear rather than on raw facts, but there is no way to rid the public of that fear without more projects such as those being undertaken by groups such as MAPS. What is the future of the "hug drug." Like most other things about it, its future remains a question mark.

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