Erowid Extracts

A Psychoactive Plants and Chemicals Newsletter

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Erowid.org is a member supported organization working to provide free, reliable and accurate information about psychoactive plants and chemicals.

The information on the site is a compilation of the experiences, words, and efforts of hundreds of individuals including users, parents, health professionals, doctors, therapists, chemists, researchers, teachers, and lawyers. Erowid acts as a publisher of new information as well as a library for the collection of documents published elsewhere, spanning the spectrum from solid peer reviewed research to creative writing and fiction.

IN THIS ISSUE . . .

The last six months have been busy at Erowid. In May , we spoke at the Mind States II conference in Berkeley, California. It was our first public speaking engagement and we're glad to have it behind us. :) W e were pleased to gain more than 120 new members in May, by far our best month ever.

Though the added income wasn't enough to cover a salary, we used the opportunity to try to meet our 2001 goal of hiring a third person part-time. A friend with experience working for psychoactive information organizations happened to be available and Sophie started work in July.

Sophie is directing the development of several new site areas including a Guiding and Sitting Vault (with information about the use of skilled guides/sitters during intense psychospiritual experiences) and the upcoming Families and Psychoactives Vault (where we'll collect descriptions of modern and traditional parent/child interactions around psychoactives). We're still learning how to best integrate another person into the growing entity known as Erowid.

We continue to struggle with deciding where our energies should be focused. With enough work for a full-time crew of 10 (divided between three and a handful of volunteers), there's never enough time to do everything that needs doing. We try to split our time between adding new content every day; supporting volunteers as they work on their various projects; keeping up with the most important of the flood of emails requesting information, help, or providing valuable feedback; continuing to revise, correct, and perfect existing documents; making progress on lar ge collabrative information projects (see pg. 23); and a long list of necessary tasks such as systems administration, site security, membership processing, and random office crap.

Over the past five years, we have focused primarily on developing and editing content, with a single major overhaul of the site design and structure in the summer of 1999. It has finally come time for another complete overhaul in both back-end software and front end interface design. In the coming months, we will be focusing heavily on implementing some of the designs and software we've worked out over the last year . It is a hard choice for us to make each day as we stand and watch the almost limitless river of data flow by, but it has become painfully clear that in order to better keep up with the data in the future, the site structure needs to be revised now.

The first casualty of war is truth..
— Rudyard Kipling

Some of the most important changes we're working on implementing are a new and more robust navigation interface; improved search ability; better integration, connection, and linking between various areas of the site; a new process for managing external links; and a completely new document integrity and review system. We're excited by the coming upgrades and hope to implement many of these new features before the next newsletter . The future of robust, reliable, and freely available information on psychoactive plants and chemicals looks bright.

Although this issue of the newsletter ended up longer than expected, it allowed us to finally put in writing some ideas which have been sitting on the shelf for too long. We hope you enjoy *Erowid Extracts* and find it useful. Please send comments, criticisms, and suggestions for future issues to extracts@erowid.org.

Earth & Fire

Reflections on the Passing of

by David Jay Brown

Three Great Psychedelic Pioneers

Elizabeth Gips, John Lilly, and Oscar Janigar

These past few months have been a time of grieving for many. In addition to the tragic global conflicts, three great psychedelic pioneers have left us for the Great Beyond: Elizabeth Gips, John C. Lilly , and Oscar Janiger. These remarkable individuals devoted their lives to the study and transformation of human consciousness, and they believed strongly in the beneficial power of LSD and other psychedelics. Their passing marks the end of an era. Although they will be deeply missed, their spirits live on, continuing to inspire our minds and warm our hearts.

[This article was completed before the death of Ken Kesey, whose remembrance appears on page 18 of this issue. — Editor]

Elizabeth Gips

May 5,1922—May 27, 2001

Born half-paralyzed and dictating poetry four years later, Elizabeth Gips is well-known for her lively interviews with virtually every major personality in the alternative culture. Her radio show *Changes*, which aired in northern California for over twenty-five years, inspired countless individuals to explore new realms of heightened awareness. She interviewed hundreds of unconventional scientists, explorers, artists, philosophers, political activists, and spiritual teachers. She also spoke often about psychedelics and their relationship to spirituality , politics, and science on her shows.

Elizabeth attended Mills College in 1939-40, where she studied English and "discovered beat poetry and marijuana". In 1964 her son turned her on to peyote, and she metamorphosed into an "errant hippie". She then traveled around America with Stephen Gaskin, and spent time with him on the Farm, the successful commune in Tennessee that Gaskin founded.

In 1971 Elizabeth left the Farm and began hosting a radio show at her son' s station, KDNA in St. Louis. She began her Northern California radio show *Changes* in 1975, and soon started writing for alternative culture magazines. Her book *Scrapbook of a Haight-Ashbury Pilgrim* is a valuable historical document—prose, poetry, wisdom and drawings inspired in San Francisco during the late sixties.

Elizabeth's home was decorated with psychedelic art and exotic religious artifacts from around the world, reflecting her philosophy, which incorporated many religions. Until the day she died, Elizabeth was very much at the forefront of cultural evolution. Even as she was dying from emphysema, Elizabeth continued to carry on with her radio show and develop her web site (www.changes.org). It was simply impossible to keep Elizabeth quiet. W ith barely enough strength to breathe at times, she managed to devote an enormous amount of energy towards helping others. Youthful optimism and vibrant enthusiasm streamed from Elizabeth's spirit. She was filled with curiosity, got very excited when she was talking, and she laughed a lot.

Elizabeth died at the age of 79. Three weeks after her death, her partner of 17 years, Paddy Long, died in his sleep at the age of 74. They were deeply in love, and one has to wonder if, perhaps, their synchronized departure from this world of smiles and tears wasn't a well-timed romantic gesture.

Neither water nor fire will embrace me in the end
but I will sail softly down
like the golden leaf of the apple tree
that feels, at last, the warm caress of earth

I will turn slowly sere and brown and blend
with the elements

My small and errant love will be
released into the Love that touches its worth
so rarely in our consciousness

All inhumanity
will change and sweeten

This death is birth
as every dying cell surrenders in delight
to that Illumination existing beyond light
— Elizabeth Gips (1966)

John C. Lilly, M.D.

January 6, 1915—September 30, 2001

John Lilly is perhaps best known as the man whose work inspired the films *Altered States* and *The Day of the Dolphin*. Educated at CalTech, Dartmouth Medical School, and the University of Pennsylvania, John went on to do much of his early neuroscience research at the National Institute of Mental Health. At NIMH he pioneered many of the original studies into electrical brain stimulation, and began mapping the pleasure and pain pathways in the brain. In 1954, John invented the isolation tank and researched the psychological effects of sensory deprivation. He also learned about the powerful ef fects of LSD at NIMH, and began to experiment on himself with the substance.

John left NIMH in 1958, and built a research lab in the V irgin Islands, where he established the first interspecies communication research with dolphins and whales. Unlike his colleagues, John was convinced that these marine mammals possessed unusually high levels of intelligence. He left the conventional academic world partially because of his interest in dolphins, and partially because of his desire to pursue higher states of consciousness.

When John was introduced to the psychedelic anesthetic ketamine, he fell in love. Initially, he adhered to the scientific tradition as he systematically explored the states of consciousness produced by LSD and ketamine while in the isolation tank. His

records, maps and theories about these experiences are extremely valuable contributions to our understanding of psychedelic mind states. However, John later fell into what he called "the repeated use trap", and began a dangerous addictive relationship with ketamine that almost cost him his life several times. Miraculously, he survived numerous close calls, largely because he had so many friends who watched over him.

John had an extremely unusual perspective on the world, and with it, a very keen sense of humor. He had unshakable confidence, and really didn't seem to care what other people thought about him. Even though he appeared grumpy and cranky a lot of the time, everyone agreed how totally lovable he was. John just couldn't take himself seriously, and he always made people laugh. It was simply impossible to predict what he would do next, and he was fond of telling others to "expect the unexpected".

John died at the age of 86. His ten books include *Man and Dolphin*, *The Scientist*, *The Center of the Cyclone*, *Programming and Metaprogramming the Human Biocomputer*, *The Deep Self*, and *Simulations of God*.

"The explanatory principle will save you from the fear of the unknown. I prefer the unknown..."

— John Lilly

Oscar Janiger, M.D.

February 8, 1918—August 14, 2001

Oscar (Oz) Janiger was educated at Columbia University, and the UC Irvine School of Medicine, where he served on the faculty in their Psychiatry Department for over twenty years. As a researcher, Oz established the relationship between hormonal cycling and pre-menstrual depression in women, and he discovered blood proteins which appeared to be specific to male homosexuality. His studies of the Huichol Indians in Mexico revealed that centuries of peyote use do not cause any type of chromosomal damage. But Oz is perhaps best known for establishing the relationship between LSD and creativity in a study of hundreds of artists.

Oz also maintained a long-standing private psychiatric practice, which he established in 1950, and continued until three weeks before his death. In the late fifties and early sixties, when LSD was still legal, Oz incorporated the psychedelic agent into some of his therapy. He gave LSD in psychotherapeutic settings to many well-known literary figures and Hollywood celebrities, including Anaïs Nin, Aldous Huxley, Jack Nicholson, and Cary Grant. Between 1954 and 1962, Oz administered 3,000 doses of LSD to 1,000 volunteers.

Oz's life-long interest in psychedelics led him to co-found the Albert Hofmann Foundation, which was established to archive medical and cultural information on psychedelics and consciousness. Oz studied dolphins in their natural environment later in his life with a group of Olympic swimmers. He was always an avid swimmer himself; he won a race from Santa Monica to Venice pier when he was in his 60s. He was also the author of *A Different Kind of Healing*, which is about how Western doctors view alternative medicine—a long-standing interest of Oz's. In the 1970s he was research director for the Homes Center, an organization that granted money to alternative medical research.

Oz loved to tell stories, and he had some great ones. He had an extraordinary memory for details, and could recite poems that he had learned fifty years earlier. He was an extremely warm, highly energetic man. As a physician, Oz was unusually devoted to his patients. There was a heartfelt sincerity to his manner. He closed his eyes when he was thinking deeply about something, and he chuckled a lot. When he put his arm around your shoulder you felt instantly comfortable around him. Oz died at the age of 83. ●

In-depth interviews with these three extraordinary individuals, as well as many others, can be found on David Jay Brown's web site: http://www.levity.com/mavericks

Additional information can be found at: http://erowid.org/extracts/v1/2-pioneers.shtml

Etymology of Erowid

We are frequently asked where the name 'Erowid' comes from. In 1995, as we were laying the foundation for the Erowid website, we needed a name that would encompass the work we wanted to do and be unique and recognizable.

We wanted a name that was positive, and hopeful, while also invoking the grounding forces of human knowledge. It took us months of active work to come up with a name which seemed to fit the bill.

Erowid is a linguistic construction of roots taken from Proto-Indo-European. Indo-European is a grouping of languages which share a large number of common words and features and are thought to share a single parent. This grouping includes most European languages, Sanskrit, Persian, and others. 'Proto' Indo-European is a theoretical language made up of a collection of the roots and words which are shared between many of the real languages.

Er (*ert*, *erd*) comes from the root for Earth, with the alternate meanings of ground/dirt and the world. *Er* is also the root of Old English 'to be' or 'exist' still evident in the word 'are'. Less obviously, *Er* is an ancient precursor for 'arise' / 'be born' in such words as origin and arise.

Wid (*wit, weid, wis*, *vis*) comes from the root for Knowledge / Wisdom and 'to see'. This root can be seen in words like wisdom, wit, and the Sanskrit *vedah*. *Wid* is also the root for words like review, vision, idea, and druid ('tree-knower').

The 'O' holds the two roots together, making the word more melifluous, while also suggesting the Greek spirit *Eros*, who was associated with love, desire, and life.

The simplest 'translation' of Erowid is 'Earth Wisdom' or 'Knowledge of Existence', but the word is intended to evoke a number of related ideas and connotations. Erowid alludes to a sense of living knowledge which is inherent to the world: a sort of universal birthright. It suggests wisdom which arises out of the fabric of existence and love of knowledge and learning.

Know Your Source. ●

PSYCHOSIS

AN EXPERIENCE WITH CANNABIS

by luna

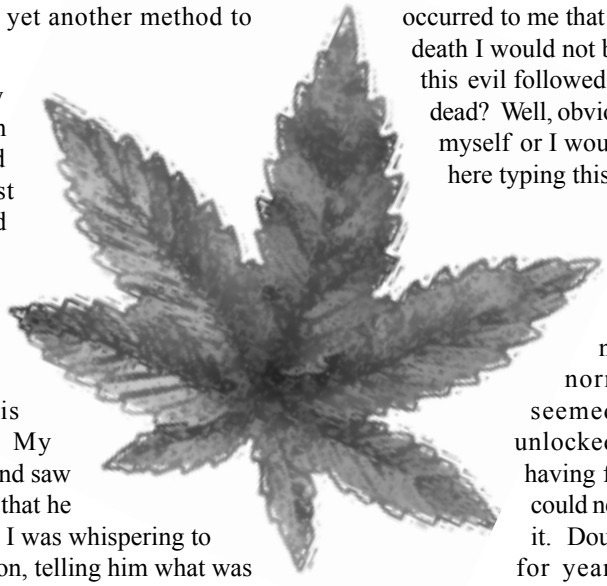
The first time I got high I was 14. I'm 26 now. It started out really cool. I was with some veteran smokers, but they did not foresee what was going to happen. At first it was an elating experience. I was having laughing fits. EVERYTHING was hysterical. I finally understood what the appeal of weed was all about. I remember one of the guys talking about hypnosis. He was telling me a funny story about how he had hypnotized his sister. He demonstrated by waving his finger back and forth. Then he showed me how her eyes had followed his finger, by moving his own eyes back and forth, back and forth. Then, laughing, he said she was so fucked up she actually started swaying her body back and forth. He demonstrated it.

I was watching him numbly as he swayed back and forth, back and forth. And very suddenly, everything changed. I jumped up in panic and told him I knew what he was doing. He was trying to hypnotize ME by tricking me into thinking he was just telling a story. His body's back-and-forth movements were how he was hypnotizing me! I was in sheer terror.

It was like uncovering the secret of the universe. All the knowledge of the world was revealed in that instant. The panic was overwhelming. The world was not what I had thought it was for my entire life. It was brutally clear to me that I was not just another person in the web of a biological universe. This "universe" was mine. Not that I owned it. I was caught in a personal hell. Every character in my supposed existence was merely an actor with a well-written script. I wasn't sure why "they" wanted to control me and torment me, but I was sure that it was happening. I was onto them. I realized that this drug, this marijuana, opened a part of my brain that allowed me to see through their deceit.

In the midst of my panic, they were telling me to calm down—that it was just the effects of the drug, that I was experiencing paranoia. But I knew the truth. I wasn't paranoid. I was finally aware. Yet it was not comforting to know. I was trapped in a hellish existence and didn't know how to get out. I couldn't trust anyone. The more they tried to calm me down the more I knew they were trying to hypnotize me. I watched their every movement. I saw them exchange glances at each other that conveyed 'She knows.'

And how were they going to contain me? How were they going to put me back into my calm sleep of unawareness and ignorance? This thought frightened me even more and I fought with all my strength to study their every move. One would wring his hands—that meant something, but what? I told him, "I know what you're doing!" One would tap his feet—somehow this movement was yet another method to hypnotize me.



I guess they must have gotten scared that I had pretty much lost my mind, and decided to call my brother. An emergency room is what I really needed—but hey, pot is illegal, right? My brother arrived and saw me act in a way that he had never seen. I was whispering to him in desperation, telling him what was going on. He was pretty tense, to put it lightly. Then it occurred to me that he was probably one of them. I could not handle this idea. I begged him to not move a muscle. He obeyed, half-heartedly. But his eyes were still moving. "Don't move your eyes either!" I was scared shitless. There was no escape.

And yet I had to keep moving. I had noticed that when any part of my body was too still, an invisible plaster cast would form around me and harden. A sudden movement would shatter it, only for another one to begin forming right after. So I paced, wiggling my fingers in constant desperation. They were whispering to each other, exchanging knowing glances, all the while telling me to calm down. It hit me that I had to convince them I was okay. It was my only hope for escape. I remember sitting on the couch and them handing me pieces of bread and a glass of water. They told me I needed to eat so that the food would absorb the chemicals. I accepted the bread and pretended to eat it and when they weren't looking I stuffed it under the couch cushion.

I told them I was feeling better and needed to go to the bathroom. My plan was to lock the bathroom door, find a razor blade, and slash my wrists. It was the only way to escape from this life of horror. I found what I was looking for and it suddenly occurred to me that perhaps even in death I would not be free. What if this evil followed me after I was dead? Well, obviously I didn't kill myself or I wouldn't be sitting here typing this story.

As time passed I did eventually calm down. But I never felt quite normal again. It seemed like I had unlocked a secret, and having found the truth I could never forget about it. Doubt followed me for years. What if it wasn't just a drug-induced psychosis? What if that drug had simply enabled me to see the world as it really was? I went to doctors and counselors and nobody ever really explained what had happened to me. Nobody understood the gravity of that experience. As years passed, I got over it for the most part.

And then when I was 21 I did a very stupid thing. I got high again. I figured that the incident when I was 14 was just a fluke. Why couldn't I get high and just mellow out and have a good time like everyone else? Well, this time it started out pretty normal too. Then

I felt myself starting to get nervous and decided to go into another room to be alone and try to calm down. I was sitting on the floor, telling myself that I was just high and that the feeling would pass. I could hear the whir of the air conditioner in the upper corner of the room. Suddenly , the sound became overwhelming. It was as if there was a volume control on it and that someone was manually turning it up. One, two, three, it got louder and louder. I flew into a panic. I thought it would never end. That it would keep getting louder and louder until I couldn't take it anymore.

Well, this was just the beginning of another psychotic episode. I pled with God to please end this unbearable feeling. I swore I would never touch pot again. I won' t go into all the details of this particular instance, but let me just say I went through an internal battle of religious fears of heaven and hell. At one point I thought I had died and that someone had pulled a sheet over my head. Everything that everyone said to me had an alternate meaning which I had to search for. I switched back and forth between God testing me and Satan trying to trick me. Physically, I was having some sort of seizure. The left side of my body was convulsing while the right side was numb. One pupil was huge, the other was a pinpoint. I was slipping in and out of consciousness. I remember sitting in one room but seeing myself in another room, etc., etc.

As time passed I got better But again, I could not achieve a totally normal feeling. As weeks went by I became obsessed with schizophrenia. I knew something was wrong with me. At any moment I expected to start hearing voices. I had panic attacks. I thought I was going crazy . I thought I had some sort of neurological disorder . Panic attacks drove me to the hospital on occasion. I thought I had something severely physically wrong with me, but doctors found nothing.

A few years went by of struggling with panic attacks, obsessing about schizophrenia, and having strange attacks of derealization in which I was overwhelmed with fear of being "conscious". Let's just say I was a total mess. Finally, after a doozie of a panic attack that lasted for hours, I checked myself into the looney bin. I told them that I was certain I was in the early stages of schizophrenia and I was terrified. I spent three weeks in that hospital, having numerous panic attacks every day. It had been years since I smoked pot, but I was just as terrified as before. Guess what? I was diagnosed with Obsessive Compulsive Disorder and Panic Disorder. I was put on the appropriate medications and slowly got better. It's been well over a year since I've been in the hospital and I'm proud to say I am truly well. I feel great. No more panic attacks. I'm calm, cool, and collected, and I'm not crazy.

I don't know why I had such terrible reactions to marijuana, but if anyone has any answers I'd love to hear them. I know this has been a long story but I wanted to be able to share it with people who have gone through similar experiences. You are not alone. This has happened to others. And you really can get better I know what hell is, I've been there. But I'm fine now and I'm stronger for it. Listen, if you're one of the tiny percentage of people who doesn't react well to pot, don' t smoke it. And if you feel like you can't get over the trauma, go to a good psychiatrist. I promise there is help. I welcome any comments, questions, or stories. Please email me at dawncrosbie@hotmail.com.

Erowid.org/experiences/exp.php?ID=6577 ●

Benzos & Panic Attacks

A standard treatment in emer gency rooms for individuals under going acute panic attacks, bad trips, and other severe emotional crises is the administration of benzodiazepines such as Xanax (alprazolam), Valium (diazepam), or Ativan (lorazepam).

These medications are not only extremely effective at offering relief to the person experiencing the crisis and reducing stress for caregivers, but the acute administration of benzodiazepines (single dose during the crisis, not as a recurring daily treatment) may actually ease post-crisis side effects in the following days and weeks.

While they can be dangerous if combined with other depressants, the short-acting benzodiazepines are very well tolerated and most report that they can dampen anxiety and fear in a pleasant and gentle way.

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Know Your Body
Know Your Mind
Know Your Substance
Know Your Source

Do Antioxidants Protect Against MDMA Hangover, Tolerance, and Neurotoxicity?

by Earth Erowid

Vitamin C, Vitamin E, Selenium, Beta Carotene (Vitamin A), Lutein, Lycopene, Melatonin, Coenzyme Q10, Green Tea Flavinoids, Alpha Lipoic Acid, 5-HTP.

Some very interesting research has been published in the last few years showing that common, over-the-counter antioxidants such as vitamin C, vitamin E, beta carotene, and selenium, can not only substantially reduce or entirely block MDMA neurotoxicity in rats, but can actually reduce tolerance between doses.[1]

While the controversy around MDMA neurotoxicity is too complex to be covered here, it is well established that MDMA causes long lasting changes in the serotonin system of rats at dosages and frequencies similar to those used recreationally by some people. Furthermore, there is strong evidence that some high-dose and/or frequent users of MDMA also show signs of these reductions. There is also concerning, but still controversial, data showing subtle memory disruptions in heavy users as well as some indications of long term pharmacological blunting of physiological response to MDMA (loss of magic).

For more detailed information about MDMA neurotoxicity, please see http://erowid.org/extracts/v1/2-antiox_1.shtml

Although many people are jaded to the continual barrage of cautionary and negative information about ecstasy's future impact on their lives, there have been some significant advances in research into methods of reducing the risk of long term serotoner gic damage, reducing hangover ef fects, and decreasing tolerance. Over the last 15 years, research has explored several dif ferent methods for reducing the neurotoxic effects of MDMA, but some of them (like the use of fluoxetine / Prozac) can also reduce the therapeutic effects and are difficult to come by. More recent research has shown that common antioxidants may prevent neurotoxicity without blocking the primary therapeutic effects of MDMA. This article is an introduction to the possibility of antioxidants being used to prevent MDMA related neurotoxicity and side effects.

The Mechanisms of Neurotoxicity

In the mid-1980s, it was discovered that some amphetamines damage dopamine neurons through a process called "oxidative stress". The research also showed that administering antioxidants blocked or reduced this dopamine neuron damage in the brains of rats.[2] In the late 1980s, MDMA was found to be neurotoxic, although it causes reductions in serotonin (5-HT) rather than dopamine (DA). Over the next ten years, a great deal was learned about the mechanism by which MDMA damages serotonin cells. It was discovered that serotonin reuptake transporters are key to the long-term damage[3] and that dopamine may also be involved in the process.[4] But the most important discovery has been that high levels of oxidative radicals are formed in the hours after administration of MDMA to rats [5] and that antioxidants given to rats before or with MDMA administration reduce or eliminate the long term damage. [6,7] While there are competing theories for the exact metabolic process which creates these oxidative radicals, it is now widely accepted that oxidative stress is a primary component of MDMA's neurotoxicity.

What is Oxidative Stress?

Oxidation is a normal metabolic chemical process in the body. As cells transfer and use energy, metabolize proteins and nutritive chemicals, break up lar ger molecules into smaller molecules with enzymes, and go about their general functioning, by-products called "oxidative radicals" (also called "free radicals" or "reactive oxygen species") are created. Oxidative radicals are highly reactive molecules which have unpaired electrons. They pull strongly on the electrons of other molecules, causing damage by destabilizing the molecule's electrical balance. This destabilization can cause molecules to break apart, sometimes initiating chain-reactions of oxidative radical formation, thus a single hydroxyl radical can damage several other molecules.[8]

"The MDMA-induced depletion of brain 5-HT and the functional consequences thereof appear to involve the induction of oxidative stress resulting from an increased generation of free radicals and diminished antioxidant capacity of the brain." — Shankaran *et al.* 2001

Under normal conditions, cells balance the ongoing creation of oxidative radicals with reserves of "antioxidant" molecules present in cell fluids and walls. Antioxidants, sometimes called "free radical scavengers", are chemicals having "extra", weakly-attached electrons which they can donate to a free radical without themselves becoming unstable. Oxidative stress begins to cause problems when free radicals become too plentiful, overwhelming the ability of the system to keep up with them and the cell runs out of antioxidant reserves. As oxidative stress increases, it can damage cell walls, reduce the flexibility of blood vessels, destroy necessary enzymes, and damage many other proteins and molecules.

"The role of the hydroxyl radical is analogous to a 'spark' that starts a fire." — McKersie 1996

MDMA and Oxidative Stress

In the case of MDMA, reseach has shown that MDMA causes oxidation of certain enzymes and increases levels of certain oxidative radicals.[26,5,1,6,9] Researchers Shankaran[1] and Colado[6,9] have directly measured a steep increase in oxidative radicals in the first few hours after MDMA is given which slowly returns to normal as MDMA is cleared from the body (taking about 24-36 hours). Initially, the body's resources are able to handle the increased oxidative load, but the data suggest that within a few hours, antioxidant reserves become depleted and damage to the serotonin axons begins. With a metabolic half-life of around 9 hours in human, MDMA can continue causing oxidative stress for more than 24 hours after a single dose.

The oxidative stress caused by MDMA may also affect other systems, even at levels far below those necessary to cause detectable neurotoxicity. One of the essential enzymes in the production of serotonin is Tryptophan Hydroxylase (TPH) which converts Tryptophan to 5-HTP. Since MDMA causes a huge release of serotonin (and much of this serotonin is metabolized and excreted), TPH is important to replenishing the brain's serotonin reserves after use. Both serotonin and TPH levels are much lower than normal after MDMA administration and it is speculated that some of the day-after effects of MDMA are the result of these lower levels of serotonin.

TPH is the rate-limiting step in the production of serotonin, meaning that even when there are enough building blocks (tryptophan) for more serotonin, it is the amount of TPH which determines how quickly serotonin can be restored. Researchers have shown that TPH is inactivated by oxidative radicals and it is possible that protecting this enzyme from oxidation may increase the speed with which the brain is able to recover normal levels of serotonin. Even if MDMA never reaches neurotoxic levels, antioxidants may help the brain and body recover more quickly after the effects subside.

Blocking Neurotoxicity

One of the most important recent findings about MDMA neurotoxicity is the fact that damage to the serotonin system appears to be entirely separable from the primary experiential effects. More than a decade ago, several papers documented that SSRIs such as fluoxetine block MDMA neurotoxicity, but some users have understandable discomfort about mixing two strong psychoactives, not to mention that SSRIs are expensive, can be difficult to get, and reduce desirable effects if taken before MDMA. There are also some theoretical concerns about possible dangerous interactions between MDMA and SSRIs, although these are not borne out by case reports and a research suggests that SSRIs reduce MDMA's overall physiological effects.[10] Despite these issues, there is good reason to believe that SSRIs are effective at reducing risk of neurotoxicity.

Antioxidants could be more promising than SSRIs for widespready use in reducing MDMA neurotoxicity. Since the damage appears to be caused by oxidative stress, one way to reduce might be to simply increase the amount of antioxidants available to the cells. Some very compelling papers have been published showing that antioxidants alone can prevent neurotoxicity caused by

"Damage occurs when endogenous free radical scavenging mechanisms become overwhelmed or exhausted." — O'Shea *et al.* 1998

enormous doses of MDMA. In a paper published by Aguierre *et al.* in 1999, researchers administered 4 high doses of alpha lipoic acid by injection to rats during the 2 days preceding a single neurotoxic dose of MDMA (20 mg / kg, also injected) and found that alpha lipoic acid "completely prevents the loss of 5-HT [serotonin] content and the decrease of ... 5-HT transporters in the frontal cortex, hippocampus and in the

TERMINOLOGY

5-HT – Serotonin, 5-hydroxy-tryptamine.

Axon – The extension of a neuron's cell body along which signals are transmitted.

DA – Dopamine, 3,4-dihydroxy-phenethylamine.

Half-life – The time required to reduce blood levels of a chemical to half their peak level.

Neurotoxicity – A broad definition of long lasting damage to brain cells which impairs their function or kills them.

SSRI – Selective serotonin reuptake inhibitor, a chemical which blocks the serotonin reuptake transporter.

Transporter – Protein embedded in a neuron's cell wall which 'transports' chemicals across the cell wall.

ROUTES OF ADMINISTRATION

IM - Intramuscular — Injected into a muscle
IP - Intraperitoneal — Injected into the abdomen
IV - Intravenous — Injected into a vein
PO - Oral — Swallowed or eaten
SC - Subcutaneous— Injected under the skin

striatum and also abolishes the increases in the glial response [another marker of neurotoxicity] observed in the hippocampus 7 days after MDMA."[11] Several additional labs have reproduced and confirmed that high-dose, injected antioxidants block MDMA neurotoxicity in rats.[1,3,6,7]

But perhaps even more interesting is work done with cheap, well tolerated, and universally available antioxidants such as ascorbic acid (vitamin C) showing similar protection. In the first paper to demonstrate this, G.A. Gudelsky[7] found that rats given extreme doses of MDMA (20mg/kg injected under the skin) had lasting damage to their serotonin system, but that rats given this same dose of MDMA with a very high dose of ascorbic acid (250mg/kg injected) showed no sign of serotonin damage.

Reducing Tolerance

As with humans, rats given two doses of MDMA within a short period of time experience substantially reduced experiential effects from the second administration. In rats, this occurs even when the doses are spread a week apart. Because a rat's metabolism is much faster than that of a human, one week may represent an even longer recovery period in humans.

A paper published in early 2001 by Shankaran, Yamamoto, and Gudelsky not only confirmed the previous work showing that antioxidants prevent serotonin depletion, but found that rats given ascorbic acid (vitamin C) with their MDMA and then given another dose of MDMA a week later had stronger effects during the second experience than rats who did not receive ascorbic acid the first week. This means that antioxidants administered with MDMA may not only reduce neurotoxicity, but may also decrease the reduction in effects experienced with a second dose a week later.

Shankaran studied 4 groups of rats, one which received saline only, one group saline + ascorbic acid, one group saline + MDMA (10mg/kg ip), and one group ascorbic acid (100mg/kg ip) + MDMA (10mg/kg ip). One week later, a few rats from each group were killed and their levels of serotonin measured. The rats who received ascorbic acid with MDMA did not have statistically different serotonin levels than the rats who received saline-only or vitamin C-only, but the rats who received MDMA+saline had serotonin levels about 40% lower than all of the other rats, suggesting neurotoxicity. At the same time, the remaining live rats were all given MDMA (10mg / kg injected, 4 times in 8 hours) and their behavioral and biochemical reactions recorded. The results clearly demonstrated that the rats who received MDMA without ascorbic acid during their first session showed substantially attenuated effects to the second administration compared to the other 3 groups. MDMA-activated release of serotonin in these rats was blunted (figure 2), body temperature was less affected, and behavioral signals (head weaving, paw treading, and body posture) all indicated significant tolerance to MDMA which none of the other rats exhibited. Ascorbic acid administered with MDMA had blocked not only damage, but also tolerance.

This research re-energizes the question of whether long term experiential tolerance to MDMA may be related to neurotoxicity, but this remains an unresearched issue.

Effects of Vitamin C on Free Radical Levels After Single MDMA Administration

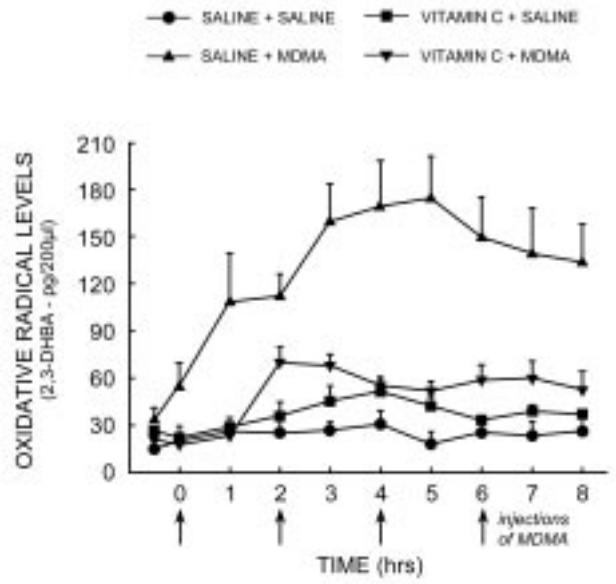

Figure 1. Effects of MDMA on the extracellular concentration of the free radical 2,3-DHBA in rats. The upper line shows that levels of 2,3-DHBA are highest in rats given MDMA without Vitamin C. In comparison, the line with downward pointing triangles shows levels of 2,3-DHBA in rats given both vitamin C and MDMA. Lines marked with circles and squares show levels in control rats not given MDMA.

graph from Shankaran 2001

What Does This Mean For Humans?

Although there is no research in humans confirming that antioxidants block MDMA-specific oxidative stress, neurotoxicity, or tolerance, it is believed that the oxidative stress mechanisms for toxicity in rats are very similar to those in humans. Trying to speculate what implications this research has for humans is fraught with possible invalidating assumptions, but the research with antioxidants seems to offer a potential method for decreasing the negative effects of MDMA. The following paragraphs will attempt to describe some of the issues and questions involved in trying to extrapolate from rat data to human use.

Extrapolating From Rats to Humans?

Because of differences in the metabolic systems of rats and humans, it is extremely difficult to extrapolate from the available data to practical human application. There are a number of confounding issues.

1) Equivalency of Dosages

Some researchers suggest that risk of neurotoxicity increases as "total exposure" to MDMA and its metabolites increases.[5] This means that potential neurotoxicity is affected not only by peak levels of MDMA, but also by how long the MDMA remains in the bloodstream. Total exposure is measured by something called "Area Under the Curve" (AUC). Very simply, AUC is the height of a curve multiplied by its length. Picture a chart with a curved line running from left to right. The height of the line represents the amount of MDMA in the blood and the length of the line represents time passing. As you'd expect, after a single dose of MDMA, the line would rise initially, come to a peak, and then slowly go down over time. If you imagine shading in the space below the line in the chart, the area you shaded would be the Area Under the Curve and would measure the total exposure of serotonin neurons to MDMA and its metabolites. It is easy to picture how both increasing the dose (which would cause a higher peak) or redosing during the experience (which would cause a longer curve) would increase the AUC and thus

increase the amount of oxidative stress the cells are exposed to.

The AUC model helps explain why the seemingly excessive dosage regimens given to rats might be reasonable. Rats metabolize MDMA 4-8 times faster than humans[12,13] and thus in order to approximate the AUC for humans with a single dose in rats, a much higher single dose is required. A second way to approximate the AUC of a human is to give rats multiple doses, spaced apart in time. This method, used in the Shankaran study described above, extends duration as a way to better match human AUC and thus total exposure to oxidative stress.

2) Exaggerating To Find Subtleties

It is likely that the levels of neurotoxicity demonstrated in rats at doses of 10+ mg/kg are much worse than those experienced by any moderate recreational user of MDMA. This is a standard issue with laboratory research: exaggerated doses and contexts are created to make otherwise small changes more easily detectable.

Rats are given very high doses, when measured by dose per bodyweight, in order to be able to detect what would otherwise be subtle effects. Researchers inject rats with doses of MDMA 4-20 times higher than those taken orally by humans and these doses are measurably neurotoxic. The reasoning goes that if a large dose is very neurotoxic, a small dose is a little neurotoxic. This logic is not always correct because it assumes a linear relationship between dose and damage. It is also quite possible that there are thresholds under which no damage occurs.[24,25] There is, however, evidence that some long term changes or damage do occur at doses used by some people and there is also evidence that doses of MDMA within the normal human range (100-150mg) overwhelm some enzymes that metabolize MDMA.[14]

The doses of antioxidants given to the rats are also very high. Injected doses of 100mg/kg of ascorbic acid would be the equivalent of 5-10 grams (!) of vitamin C injected into humans, an extremely high dose. It is impossible, given the limited data, to know what levels of oral antioxidants might be required to reduce MDMA-related oxidative stress.

Since we have no data about what doses of vitamin C are *in*effective at blocking MDMA neurotoxicity in rats, we don't have a lower bound from which to speculate about minimum human doses. Clearly it is unreasonable to even suggest that ecstasy users inject 5 grams of vitamin C into their abdomen, but since the neurotoxic rat doses of MDMA are also administered by injection and very high, there is reason to think the doses of antioxidants do not need to be this high to have some positive effect. Normal supplement level doses of over-the-counter antioxidants are very well tolerated and, based on the work by Aguirre, it may be helpful to take antioxidant supplements in the days both before and after each MDMA exposure.

Effects of Vitamin C on Serotonin Levels After Multiple MDMA Administrations

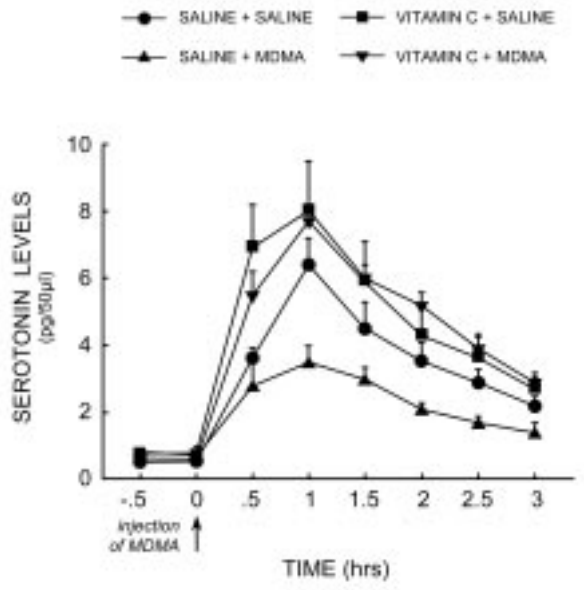

Figure 2. Effects of MDMA on serotonin levels in rats. The bottom line shows that levels are lowest in rats given MDMA without Vitamin C one week earlier. In comparison, the line with downward pointing triangles shows levels of serotonin in rats given both Vitamin C and MDMA one week earlier. Lines marked with circles and squares show levels in control rats not given MDMA the week before.

graph from Shankaran 2001

3) Injected vs Oral

Injected doses of vitamins can act very differently from oral doses. When taken orally, the blood levels of vitamin C peak much lower than the levels achieved with injection. In lab research, humans given high oral doses of vitamin C never reached peak plasma levels of ascorbic acid higher than 100 umol per liter, while injected doses easily raised ascorbic acid concentrations in blood to 10 times that amount.[15,16] Unfortunately oral administration is seldom studied in rats. Because of this, there is still the question of whether it is possible to reach high enough levels of antioxidants after oral use to be neuroprotective.

Which Antioxidants?

Although research has only shown that ascorbic acid, alpha lipoic acid, l-cysteine, and some obscure free radical scavengers are effective at reducing oxidative stress caused by MDMA, there is every reason to believe that other antioxidants would also be effective. Antioxidants appear to work best in combination, interacting to make each other more effective. Vitamin E and C are some of the best studied and most common antioxidants. When the heavier vitamin E (alpha-tocopheryl-acetate) loses its electrons to a free radical, the lighter and water-soluble ascorbic acid can replace the lost electron and then be carried of f as an inert waste product.[17,18,19]

Vitamins C, E, and A are all plentiful in fresh fruits and vegetables, but because MDMA acts as an appetite suppressant, it is impractical to imagine users would consume enough food sources of antioxidants during or directly after their experience. Antioxidant multivitamins include things like vitamins C and E, lipoic acid, selenium, riboflavin, zinc, carotenoids, etc which should all help reduce general oxidative stress in the body. The water soluble vitamins such as C and lipoic acid are quickly excreted from the body, so it is necessary to take them every 3-4 hours to maintain high levels in the bloodstream.

Perhaps the most commonly reported supplement taken with MDMA is 5-HTP, a serotonin precursor. There are numerous anecdotal reports that taking 5-HTP alone or in combination reduces both unwanted side effects and day-after effects. One paper found that very high doses of injected 5-HTP block MDMA neurotoxicity and 5-HTP has been shown to be an antioxidant, but 5-HTP's neuroprotective effect may have nothing to do with its being a mild antioxidant.[20,21,22] It may be that 5-HTP is

particularly suited to the task of reducing MDMA's physical impact by both providing some oxidative protection and supporting the replenishing of serotonin. Unfortunately, it is also possible that 5-HTP could increase the risk of serotonin syndrome and research needs to be done to determine whether this is a practical concern.

There are also an increasing number of recreational-psychoactive specific vitamin products available, with combinations of antioxidants and supplements chosen to reduce side effects and hangovers. Many MDMA users create their own combinations based on the word of friends or comments from web forums. Vitamins and supplements which are frequently mentioned by MDMA users include vitamin C, E, A (beta carotene), alpha-lipoic acid, coenzyme Q-10 ("ubiquinone", an antioxidant involved in intracellular energy systems), selenium, B-6 and other B-vitamins, magnesium (involved in cell-energy and the production of serotonin), and many others. While there are a large number of people self-experimenting with supplements, so far there isn't much in the way of documentation of successes and failures.

What Dose of Antioxidants?

Because of the limitations listed above, nothing conclusive can be said about what dosage of antioxidants might be effective. However, there are a number of anecdotal reports from users that taking moderately high doses of antioxidants before, during, and after MDMA experiences reduces the side effects and hangover. The doses described are generally those provided in typical commercial supplements (1-2 grams of vitamin C, 50-100mg 5-HTP, 5000 IU vitamin A, 400 IU vitamin E, 5-50mg B-6, etc). Confusingly, we receive as many or more reports of "no effect" from those who have experimented with supplements. Although the anecdotal reports to date are hardly convincing, the issue appears worth further investigation.

Adverse Reactions to Vitamins

The most common side effect of taking vitamins is stomach discomfort. Most vitamins should be eaten with a small amount of food, such as a piece of fruit, bread, or cracker in order to reduce stomach upset and unpleasant side effects.

Virtually all over-the-counter antioxidant supplements have a unique blend of vitamins in them and generally include appropriate dosage labelling. It's very important not to take overdoses of A and D vitamins which can build up in the system with successive doses and are known to cause health problems at high levels. Too much vitamin A (over 25,000 IU per day), for instance, can cause headaches, hair loss, and liver damage. Vitamin E can also build up, but there are no published case reports of serious problems resulting from overdoses. People who take blood thinners have increased risk of bleeding because vitamin E can increase the action of blood thinning medications. Overdoses of vitamin C (usually more than 1-2 grams at a time) can cause diarrhea and intestinal discomfort. Alpha-lipoic is water soluble and well tolerated, but tends to be expensive and is not as common as other antioxidants.[23]

Most people tolerate the common antioxidants well, but those with special sensitivities or health issues should be careful whenever trying a new chemical. Users should ask their doctor about the specific vitamins and dosages they plan to take. Specifically, they can ask about the use of vitamins to help during times of particularly high stress and physical activity, about possible complications, about contraindications with any other medications or supplements they are taking, about research into benefits and risks of higher doses, and about FDA guidelines. There are other theoretical risks with taking high doses of antioxidants, such as acute allergic reactions, unexpected pharmacological interactions, or potentially worsening unrelated severe adverse reactions to MDMA by lowering the pH of the blood slightly but these risks are speculative and likely very low.

Summary

MDMA causes a sharp increase in oxidative hydroxyl radicals shortly after administration. It is now believed that this rise in oxidative stress is likely involved in MDMA's neurotoxicity, and may be involved in some of its negative side effects. Very high doses of injected antioxidants have been shown in rats to dramatically reduce or block MDMA neurotoxicity as well as reduce tolerance to MDMA's effects between neurotoxic doses. Based on these findings, it is possible that common vitamin antioxidants may be effective at reducing risks of MDMA neurotoxicity, hangover effect, tolerance, and general body stress.

Remaining Questions

Several questions must still be answered before we know how useful this research is for humans.

- Do the supplements already in use reduce unwanted side effects or hangover?
- What is the minimum effective dose of antioxidants which will block neurotoxicity in rats?
- Do 5-HTP or other supplements increase any medical risks in combination with MDMA?
- Are combinations of supplements more effective at lower doses than single chemicals in decreasing recovery time?
- Can oral antioxidants reach levels necessary to block neurotoxicity?

The practical implications of rat-based laboratory research are difficult to reliably assess. However, well-tolerated, common antioxidant supplements such as vitamins C, E, alpha lipoic acid, and others certainly warrant further investigation as a simple means to reduce the negative impact of ecstasy use on the body. For MDMA users who already take antioxidants occasionally, there seem to be few downsides to making sure to take reasonable doses of antioxidants in the days before, during, and after their ecstasy use. The risks are low and the benefits may be immediately apparent.

A potential side-benefit to suggesting ecstasy users take vitamin supplements may be to increase awareness that MDMA is hard on the body. Taking antioxidants before, during, and after experiences could help foster more intention around ingestion, act as a reminder that ecstasy is physically stressful, and could offer an additional way experienced users and harm reduction workers can communicate to new users about risks and precautions. Harm reduction groups could engage users in the issue of toxicity by discussing proper nutrition as a way to maintain the enjoyable effects and recover more quickly.

The primary downside to suggesting antioxidants may be neuroprotective is the chance that some ecstasy users will misunderstand the information and believe that taking vitamin C will protect them from harm or that some will assume that taking antioxidants will allow them to increase their use of MDMA. Increasing MDMA dosage

or frequency of use is likely to significantly increase risk of neurotoxicity. The simplest and most effective way to reduce risk of neurotoxicity is to reduce dosage, refrain from re-dosing during an experience, and reduce frequency of use.

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Supplement Regimens Reported Effective by MDMA Users

Regimen 1

One dose just prior to use, one as effects wear off, and a third at 10-12 hours

5-HTP = 100 mg
Vitamin C = 1000 mg
Alpha Lipoic Acid = 250 mg

Regimen 2

One dose just prior to use and one dose as effects wear off.

5-HTP = 100 mg
Magnesium = 500 mg
Vitamin C = 1000 mg
Vitamin B6 = 100 mg
L-Tyrosine = 1000 mg
DLPA = 400 mg

Please note that both regimens include 5-HTP. While 5-HTP is an anti-oxidant, it is also a direct precursor of serotonin. It's quite possible that the effectiveness of the regimens are the result of 5-HTP as a serotonin precursor

Both L-Tyrosine and DLPA are dopamine precursors. Dopamine has been implicated in MDMA neurotoxicity and there are some concerns that they may do more harm than good.

It is also important to note that we have received many reports of inef fective supplement use. Given the current dataset, it's impossible to know what factors are responsible for differing reactions to MDMA and supplements.

Web Sites with Misinformation About Illicit Drugs

by Fire Erowid

A Response to a Letter in the *New England Journal of Medicine*

In August, the *New England Journal of Medicine* published a letter to the editor by Boyer, Shannon and Hibberd entitled "Web Sites with Misinformation about Illicit Drugs".[1] In this article, Boyer *et al.* criticize government websites for not competing successfully with "partisan" drug information web sites, name sites they consider partisan, and offer specific criticism of information found on those sites.

The authors made several comments about Erowid.org, pointing out the large amount of traffic the site gets, as well as implying that the information we provide is both less reliable than government sponsored anti-drug websites and likely to cause harm.

Internet Drug Information

Boyer *et al.* cite a study (Wax 2000) which looked at the effects of internet drug information on the use of drugs by students. Their letter states that this study found:

"24 percent of college students used the Internet to obtain information on illicit substances, and 27 percent of Internet-using college students reported that Internet use increased the likelihood that they would use drugs."

While this certainly *implies* that drug use increased after exposure to information on the internet, a closer examination of the study cited reveals that an even higher percentage of students reported that internet drug information *reduced* the likelihood that they would use illicit drugs.

From the study itself, 168 students were surveyed (94 college and 74 first year medical students). Nineteen percent reported having used the internet to find information on recreational drugs (24% college and 14% medical). Of those who surfed for drug information, 9% said this increased their likelihood of using recreational drugs (27% college and 0% medical) while 19% said it decreased their likelihood of using recreational drugs (27% college and 10% medical).[2]

MDMA & SSRIs

Boyer's primary criticism of Erowid was in reference to a comment made about the potential use of SSRIs to reduce negative side effects of MDMA. They commented that "The combined use of SSRIs (selective serotonin reuptake inhibitors) or MAOIs (monoamine oxidase inhibitors) with drugs possessing serotonergic activity such as MDMA has led to serotonin syndrome in selected patients."

While it is true that combining MAOIs with MDMA increases risks of serotonin syndrome, there is little evidence to suggest the same is true about SSRIs. We submitted a formal response to the *New England Journal of Medicine* (below) which they declined to publish, citing space limitations.

It should be noted that Boyer's original submission was a 30 page article cut to two pages by the editors of the *NEJM*. It is unclear whether the problems with the final content were part of the original or a result of these cuts, but we were disappointed that the *NEJM* would publish such a letter and not allow space for a response. ●

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To the Editor of the *New England Journal of Medicine*: In their article discussing online drug information resources, Boyer *et al.* express concern over a comment made on Erowid.org that taking an SSRI after Ecstasy may reduce the risk of MDMA neurotoxicity. They state that taking an SSRI after MDMA might lead to serotonin syndrome, but their concern is unsubstantiated.

SSRI coadministration has been practiced by MDMA users for many years, without evidence of serotonin syndrome, as documented by published papers [2] and dozens of unpublished reports collected by Erowid. Additionally, one clinical study administered 1.5 mg/kg MDMA (po) after citalopram with no evidence of increased medical risk. [3] By blocking MDMA interactions with the serotonin transporter, SSRIs reduce the physiological and experiential effects of MDMA in humans[2, 3] and neurotoxicity in rodents.[4] This includes attenuation of both heart rate and blood pressure increases.

No drug or drug combination is without risks. At least one adverse event (not involving serotonin syndrome) has been reported after this combination[5]. Attempting to decrease risk of MDMA neurotoxicity with an SSRI may increase other risks, but serotonin syndrome is not known to be one of them.

The well meaning but misinformed concerns of Boyer *et al.* illustrate why many people rely on Erowid.org and other alternative information sources rather than biased "anti-drug" or government-sponsored sites. Unlike those sources, the Erowid.org archive maintains reliability through literature reviews, expert critiques, interviews with users and input from readers. We welcome comments and corrections.

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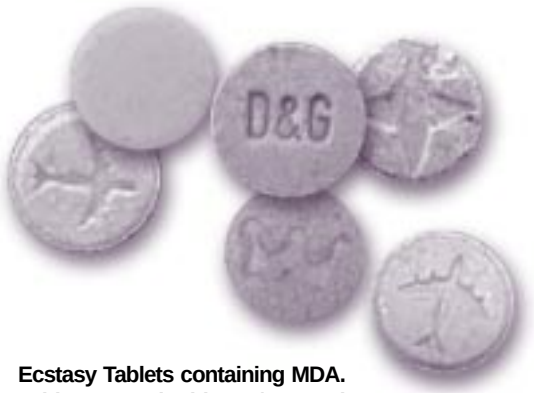
STILL HIGH AT 12 HOURS or DOWN AT 3?

Re-examining MDA Duration



Ecstasy Tablets containing MDA. Tablets tested with GC/MS and displayed on EcstasyData.org.

by Earth & Fire Erowid

Although there have been conflicting reports about the duration of methylene-dioxy-amphetamine's effects, the canonical sources generally agree on a duration of 8-12 hours. This would place MDA's duration at around double that of MDMA, which is generally documented at 4-6 hours.

After receiving a number of credible reports that the duration of MDA is perhaps shorter than generally reported, more in the range of 3-6 hours, we were spurred to look into the matter further. After some digging, it appears there is good reason for confusion. While the question of duration will not be resolved here, we can lay out the data as it stands today.

The Literature

Perhaps the first to publish about the duration of MDA was Gordon Alles, a UCLA researcher who tested the activity of the substance on himself in the mid-1950s. He wrote that "The remarkable subjective changes continued with varying emphasis for three to four hours." [1] He also noted that marked pupil dilation lasted 1-2 hours with some dilation for as long as 12 hours at high doses.[2]

When MDA hit the streets in the mid-1960s, there was still only minimal information publicly available about its effects or duration. MDA gained in popularity through the '60s and was made illegal in 1970 with the passage of the Comprehensive Drug Abuse Prevention and Control Act. After a decade of popular use, there were several articles published during the mid-1970s which included information about duration.

These new published durations included "6-10 hours",[3] "8 hours",[4] and Turek *et al.* who reported that "Most subjects [...] could still feel some effects after 12 hours" though blood pressure increases detected during the first few hours had subsided to baseline levels by hour five.[5] An interesting note is that lab research with MDMA has found that blood pressure largely returns to normal within 4-5 hours but pupil diameter takes longer to return to normal, approximately 8-12 hours.[6] Although MDA's metabolism and physiological effects are largely similar to MDMA, equivalent research has not been done with MDA.

In 1976, Andrew Weil published a report about MDA in the *Journal of Psychedelic Drugs* where he stated that at a dose of 90-150 mg, "effects persist for about twelve hours"[7]; this quote was subsequently included in the widely read *Psychedelics Encyclopedia* by Peter Stafford (1978). Around the same time, the *High Times Encyclopedia of Recreational Drugs* (now out of print) reported that at an effective dose of 120-150 mg MDA lasts about eight hours. And finally in *PiHKAL* (1991), Alexander Shulgin lists the duration of MDA as "8-12 hours".

3-6 Hour Duration

Interviews with more than a dozen MDA users in the summer of 2001 found there were consistent reports of a shorter duration. At doses ranging from 90-150 mg, most of the individuals interviewed placed the duration of primary effects at less than 5 hours with some reporting primary effects as short as 3 hours.

Most of those interviewed said they found the curve of MDA very similar to that of MDMA; this included peak duration as well as an abrupt drop-off of effects from the plateau to near baseline. A couple of individuals reported being able to intentionally hold the warm, positive space for 6 hours or more, but these individuals also reported the ability to do the same with MDMA.

8-12 Hour Duration

Among those to whom we talked were several respected, knowledgeable, and experienced members of the community who report having seen or had experiences which support the 8-12 hour duration. Several reports even mentioned experiences of 12-24 hours after a single moderate-to-high level dose of known material.

One chemist who produced MDA in the 1980s, both for himself and friends, reported that while he experienced a duration of 6-8 hours, others had experienced idiosyncratically long experiences of more than 12 hours.

Published MDA Duration References

1959 - Alles	— "subjective changes continued [...] for 3-4 hrs"
1967 - Naranjo/Shulgin	— "effects [...] lasted for approximately 8 hrs"
1970 - Jackson	— "effects [...] last between 6 and 10 hrs"
1972 - Richards	— 8 hrs (citing Naranjo/Shulgin)
1974 - Turek	— "Most subjects [...] could still feel some effects after 12 hours" — Blood pressure returned to normal at 5 hrs
1976 - Weil	— "effects [...] persist for about 12 hrs"
1976 - Yensen	— 6-14 hrs, with a mean of 8 hrs
1978 - *High Times*	— "trip lasts about 8 hrs"
1978 - Stafford	— 12 hrs (citing Weil)
1996 - Shulgin	— "8-12 hrs"

Chemical Identity

Obviously, an important issue to address is whether the material being used was MDA and not some other MD-- compound. For the published cited in the table, we feel reasonably confident that the materials used were in fact MDA. For the dozens of people interviewed this summer, all reported using material from known experienced chemists who asserted that the material was MDA. Some of the material was tested using Marquis, Mecke, and Simons reagents and results were consistent with MDA.[8]

MDA is often sold in pressed tablets as "ecstasy" and there is a huge amount of confusion among users about what is contained in these tablets. Some reports we have received about "MDA" ingestion are more properly described as "suspected-MDA" reports. None of those reports have been included in this review.

When Do We Stop Counting?

One point that could account for some, though not all, of the discrepancy in reports, is differing definitions of duration. Does the duration of a substance include all time during which one can detect *any* effects? Does it end when one can go to sleep? Or does it end when physiological changes such as increased blood pressure or dilated pupils return to normal?

Many of those who report a 3-6 hour duration also described lingering after-effects ranging from mild to strong in intensity, and lasting an additional 1-6 hours after "primary effects" ended. Some found the after-effects sedating, while others report lingering stimulation and jaw tension.

It is quite possible that some of those who report an 8-12 hour duration could be including these "after-effects" in their duration. Without a shared, unambiguous terminology, it is difficult to compare reports reliably.

The Role of Dosage

For most psychoactives, increasing dosage increases duration. One veteran psychedelic chemist, who preferred not to be named, said s/he believed MDA's duration was more dose sensitive than that of MDMA.

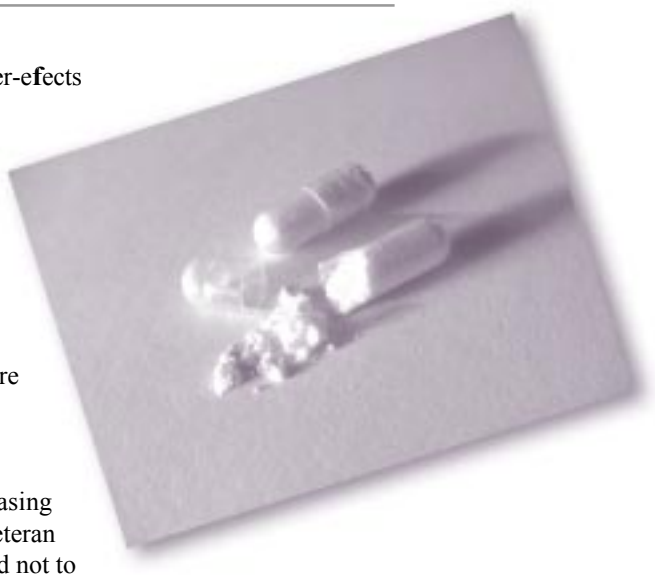
> "Whereas the duration of MDMA seems not to be prolonged very much by increasing the dose a bit (e.g. going from 100 to 200 mg), if you double the dose of MDA from 100 to 200 mg you will definitely [be affected] for a whole lot longer."

Although MDA's pharmacokinetics (the how & when of metabolism) have not been studied, MDMA's pharmacokinetics have been shown to have a non-linearity at doses between 75 and 200mg: in some people an increase of 25 mg from 125 to 150mg of MDMA can double the blood concentrations of MDMA.[8] While the research provides no information about whether the increase in blood levels affected experiential duration, it is possible that a non-linearity in metabolism could play a part in this confusion. The role of dosage in user reports is also complicated by the fact that dosage is often unknown or unreliable.

Idiosyncratic Reactions

Over the years we have received a handful of reports which describe unusually long experiences from MDMA alone. While the average peak MDMA experience lasts perhaps 3-4 hours, there are a small number of credible reports from people who report strong ef fects lasting 8-16 hours after a single dose of known pure material.

Some of the recent pharmacokinetic data on MDMA from Marta Mas *et al.*[8] has shown that there is a wide variability in physiological metabolism of MDMA. Of eight individuals who were tested, there was a range of over three fold between the fastest metabolizer and the slowest: between 3.8 hours and over 11 hours to reach half of the peak blood concentrations of MDMA.



Knowing this, it's difficult to rule out the possibility that there is a percentage of the population who metabolize MD-- compounds significantly more slowly than the average person or have some other factor which causes the duration to be radically longer. Unfortunately, it is difficult to make any reliable assertions about how common these reactions are.

Expert Opinions

As we began digging into this quandary, we sought out some respected individuals who had experience with MDA.

Nick Sand

First we talked to Nick Sand, a well known chemist who produced MDA in the late 1960s. He said he initially synthesized MDA in the search for a less-controlled LSD replacement. His working group was looking for a long-acting compound (approximately the same duration as LSD) and found MDA completely unsuitable because they came down abruptly at around 4 hours. Some in the group ended up taking three successive doses in order to maintain effects for 10-12 hours. Nick reported that redosing in this way led to "the worst hangovers [they] ever had" which lasted several days. Because of this, the group quickly abandoned MDA.[9]

Alexander Shulgin

Next we asked Alexander Shulgin for his thoughts on the matter. After going back to his original notes, he agreed that the duration listed in *PiHKAL* is too long. Dr Shulgin wrote:

Excerpts from Shulgin's Notes

1. 60 mg ++
peak: 2-2.5 hr. 3.5 hr, largely cleared

2. 80 mg ++
peak: 1.5-2 hr. By 3 hr largely out but there was an unworldliness and lingering effect that went on to about the tenth hour.

3. 100 mg +++
2.5 hr. dropping off and pretty much out something after 3 hrs. at the 10th hr, there was still tooth gritty, some leg pains and absolutely no appetite.

4. 120 mg +++
2.5-3 hr. max. 3:40 dropping 4.5 hrs gone except for peripheral grindy that lasted into the evening.

5. 140 mg (#1) 100 mg (#2) 80 mg (#3)
2 hrs, everyone at ++, 2:40 dropping
4:20 heavy teeth clench which lasted on to 8 hrs.

"My notes pretty much support the shorter duration that you mentioned (around 4 hrs) and that is what I should have put into PiHKAL. The consistent awareness of some past impact on the body that always stretched out 8 hrs or more is what probably prompted the longer time range. An added nuance was from a number of reports by Claudio Naranjo, all of which stretched out for hours, but I now suspect that he was calling the session finished when his subjects (or he) got completely to baseline.

Also, I have just glanced at his chapter on MDA in *The Healing Journey* where he explored MDA in some 30 patients. In some, there was a supplement given, and in most he apparently continued the therapeutic interactions through what may well have been that body memory period. I suspect that he may have equated the end of the therapy session with the full end of the drug's effect.

If I were to write *PiHKAL* today, [MDA] would have a duration of about 4-5 hours and a strong emphasis on the fact that you weren't completely out of it, bodywise, for quite a few more hours."[9]

Rick Doblin

Rick Doblin, president of MAPS (the Multidisciplinary Association for Psychedelic Studies), commented:

"My experience with MDA has been very positive and pleasurable. I'd also say the duration is 4-6 hours, though I'm not surprised that it lasts much longer in some people since psychological processes can impact duration."[9]

L's Comparison

"The total experience is 8 hours, but the "trip" is 4-5 hours like X. The after-effects are like being way-laid: definitely washing around in the after-swell of a full experience of an amphetamine-hallucinogen. We call MDA 'industrial electronic mushrooms' and compare the post-peak to riding the diesel-electric locomotive all the way home. Your feet & teeth vibrate for some time after you step off a huge machine like that: tingling and numb. There's no finer intoxicant, but you need careful and considerable support or the body load can turn you into a vegetable for the latter half of the experience and the day after."[9]

Summary

Although most sources list the duration of MDA as between 6 and 12 hours, usually stressing that it is significantly longer in duration than MDMA, many users of MDA have found the two to be of similar duration and effects. A number of very credible reports exist of MDA-only experiences lasting 12-24 hours, but these appear to be far less common than experiences under 6 hours.

Based on our analysis of the available data, we have recently changed our documentation of MDA duration from "8-12 hours" to "3-5 hours" and added notes about the confusion and lingering effects.

"Describing the difference between MDMA and MDA to the unexperienced is like trying to explain the difference between shiraz and cabernet to someone who only thinks in terms of 'red wine / white wine'."

— Lamont Granquist

There are several open questions: whether MDA's duration may be more dose-sensitive than MDMA; what percentage of users experience what duration; how to describe the effects-time curve so that we have a shared terminology for describing when effects "end"; and whether some of the duration confusion is due to including boosts in duration calculations.

If you have information about MDA duration that is not mentioned in this article (including experience reports with known-pure material), please let us know.

Notes / References

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MDA TIMELINE

1910 - MDA first synthesized by chemists G. Mannish and W. Jacobson.

1939 - First animal tests with MDA.

1941 - First human trials with MDA during search for parkinsonism therapy.

1949 - 1957 - MDA studied as a potential antidepressant and anorexic agent by Smith, Klein and French.

1953 - Harold Blauer dies of an overdose of MDA (code name EA-1298) during an army-sponsored drug experiment.

1957 - Gordon Alles describes the MDA experience at a conference in Princeton, New Jersey.

1958 - 1961 - MDA is patented by several companies for a variety of purposes.

1963 - 1964 - MDA begins showing up in the counterculture.

1970 - The Comprehensive Drug Abuse Prevention and Control Act is passed, making MDA (and many other drugs) illegal.

1970-2001 - Recreational and underground therapeutic use continues despite its illegal status.

I, LAB RAT

An Experience with 2C-I

by Catfish Rivers

Having no deep spiritual need to trip, no unresolved questions on which to ponder, and a fresh supply of 2C-I, Catfish found himself in a wee bit of a quandary. Does one require a reason to trip? If one trips without an unwavering intent about where to direct the psychedelic energies, is it merely escapism? Psychonautical wanking? I sat around for three days pondering this in my spare time, every now and then picking up the small bag of clumpy off white powder and staring at it, as if expecting it to say "eat me". It was plain 'ole curiosity that won out in the end. I felt confident knowing that the scorpion sting of curiosity is reserved for the cat, and not for me, for tonight: I am Lab Rat.

10:26 PM

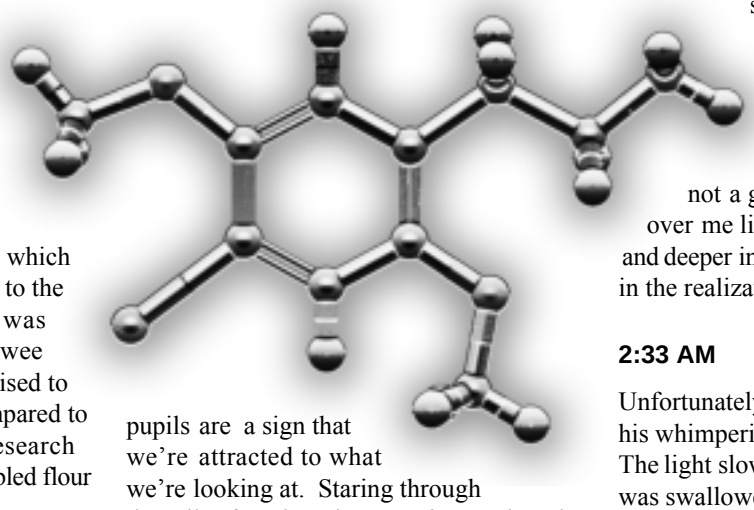
So, down the rat hole I went, 25 mg 2C-I, oral in a gelcap. I chose my dosage based upon my experiences with other 2C drugs, 2C-T-2 and 2C-T-7. I had drunk a cup of coffee within the last hour, which may have contributed in some way to the experience. Earlier on, while I was measuring out my dose, I tasted a wee speck of the powder and was surprised to find it almost tasteless, at least compared to the extreme bitterness of other research chemicals. The powder itself resembled flour

11:03 PM

First alert coming on slowly. A slight chest rush is developing. It is a soft warm glowing sensation which feels quite nice, like a hug from an old friend. Slight tension in my lower jaw area, nothing troublesome at this point. I'm salivating like a hungry dog however. Perma-grin smile forms around 11:15 and is pinned to my visage like a mask for the rest of the evening. Several times I have to stop what I'm doing in order to take deep breaths and relax my cheeks because they hurt from too much smiling. At this point it's safe to say my mood is floating upwards like a hot air balloon. My head feels as if it's in the clouds and I feel a fluffiness pervading my skull. Fluffhead as Phish would sing...

11:23 PM

A wonderful body buzz has wrapped itself around me like a silken sheet against bare flesh on a summer night. It is fun to touch things and feel their texture. I close my eyes and handle familiar objects, trying to translate what I feel into an imagined copy in my thoughts. This exercise helps center my awareness, which was growing more and more scattered as the effects increase. Within minutes I start to notice slight swirls and psychedelic eddies flowing across the carpet and cinder block walls. Watching the flame of a candle is calming. I can see tiny sparks leaping from the body of the flame, as if it is stretching for the sky. I get up and look in the mirror. My pupils are well dilated. I once saw on the Learning Channel that dilated



pupils are a sign that we're attracted to what we're looking at. Staring through the veils of my humdrum routines and worker bee existence, my pupils are ready to swallow whole what lies before them.

12:00 AM

I am nearing a +++, but I know that the ride isn't even close to over yet. Playing guitar yields fresh and innovative licks. I am in the flow, no thoughts, just my hands and my ears working as one. The visuals have become quite engrossing by now. Everywhere I look, I see a hodgepodge of neon swirls, waves, and tracers. Geometric tubes and other Final Fantasy Ghost-looking hallucinations move about the room, gliding eerily through and over objects. After a while, it is quite hard to convince myself that these are products of my mind. I start to believe that they are sentient enegetic beings: that I have recalibrated my senses to pick up a weak signal from higher frequency realities. I lay on my black leather sofa, sinking back, staring at the phantasmagoric ballet floating about the dark, candlelit basement. Didgeridoo music garbles away in the background, reminding me to which reality I belong, grounding me.

1:44 AM

Behind closed eyes, I sense an immense yellow-green radiating sphere. I feel a sort of gravitational pull towards the light, the sensation is centered around my third eye area. I feel as if some part of me is being tugged through this area, as if I were falling into myself. The feeling is not too dissimilar from the falling sensation felt before sleep. As I begin to understand that I'm moving closer to the light, I hear a voice informing me over and over in a sing- songy ghostly whisper, "you're a dreamer, not a genius..." This phrase sweeps over me like a lullaby as I move deeper and deeper into the radiance... Losing myself in the realization of my lot in life.

2:33 AM

Unfortunately, my puppy had to piddle and his whimpering broke the spell I was under. The light slowly recoiled back into itself and was swallowed back into the nothing. I felt higher than I have felt in quite a while. I was bordering on the delusional state induced by high DXM doses. To top that, I still felt there was more terrain to climb on Mt. 2C-I. I wasn't standing on the peak quite yet.

"I feel secure in my ability to discern between what is real and what is not . . ."

I venture outside to smoke a bowl. This instantly brings some peace of mind. I can feel the soft cradle of THC rock my mind softly back and forth. I feel secure in my ability to discern between what is real and what is not...

Moments after having this thought, I glance skywards to watch the night sky, only to see a smiling Mayan shaman trickster type

peering down at me from a maple tree in my back yard. I suppress a startled yelp. Nervously, I peek back up at the tree and see only a cluster of tree branches where I saw the merry prankster a moment ago. Somehow, I am not so sure that what I saw wasn't real. It was such a lucid and clear image that I wonder how my mind could construct it. Rarely do I have visual hallucinations in which the scene is so "real".

I feel well above a +++ experience. I glance at my skin and see a myriad of fluid hieroglyphic tattoos. I can't see behind the visuals; it's as if my skin has actually become this symbolic fluid. The room is awash with so much movement, I am beginning to lose track of where exactly I am. There is no way I could be in public at this level. Who knows what mishaps might occur.

3:15 AM

Heavy jaw tension has settled in. It is rather annoying and uncomfortable. I have a bit of a sore throat feeling I associate with jaw tension. I take .5 mg clonazepam to help alleviate the symptoms. I should have done this sooner, but I was in no mind to think ahead. The jaw tension gets worse over the next 30 minutes so I add two beers to help me relax. As I finish them, the clonazepam has kicked in and I am feeling much better.

4:00 AM

I smoke a bowl to celebrate. Visuals have slowed but are still quite active. I again believe I can discern what is real and what isn't. While earlier I felt I was moving at lightspeed, I now feel slow and sticky minded due to the alcohol and clonazepam.

6:00 AM

I am groggy enough to drop off to sleep. I fade away into dreams, remembering the mantra I heard while lost in the radiant yellow-green light earlier, "you're a dreamer, not a genius..." and everything is starting to make sense again.

Afterward

I felt no real nausea with 2C-I, perhaps some slight stomach tension, but nothing worth worrying about. Slight leg twitching in the hamstring area was present during the lift off. The jaw tension was troubling however.

I feel that 2C-I is much more potent than its counterparts 2C-T-2 and 2C-T-7. 25 mg was a bit too much. Next time I will experiment with say 15-20 mg. In retrospect, I was floored by the multifaceted quality of this drug. It was immensely visual, music was greatly enhanced, my thoughts were gilded in the juices of creativity, and my body was awash with a pleasurable glow somewhat akin to 5-MeO-DiPT or 4-Acetoxy-DiPT , though not as erotic. I predict this one will soon be all the rage. ●

Organizational Updates

Trip (tripzine.org)

The winter issue of *Trip* magazine arrives in early December. In this issue, "Psychedelic America Speaks Out" on the war on terrorism, with thoughts by Erik Davis, Antero Alli, James Kent, Mark Pesce, Alexander Shulgin, R.U. Sirius, Rick Strassman, Earth Erowid, and others. The Trip staff is working hard to build up to a quarterly schedule, and recently welcomed new contributing editors Erik, Mark, and Paco Xander Nathan.

Entheogen Review (entheogenreview.com)

A sample compilation of *ER* articles is now available on their website as a PDF. The site now also lists the contents of all back issues. We hope to see more *ER* archives online and available to the public in the future. The upcoming issue of *ER* discusses a new technique for psilocybian mushroom growth perfected by an amateur Dutch mycologist. This technique reportedly does away with the need for sterile procedures...should be interesting.

Alchemind (alchemind.org)

"Ask Dr. Shulgin", a service provided by Alchemind, is now available for display on other sites, as long as it is clearly marked as such and links back to alchemind.org. Ecstasypills.com, related to eztest.com, now features "Ask Dr. Shulgin" embedded in its own website. Contact Alchemind for details.

Lycaeum (lycaeum.org)

In June, The Lycaeum found a new home with Gluckspilz and friends. There was a rough transition with the server being down for several weeks, but it has been up and stable since mid-July. The same group put together a parody of the government sponsored Anti-Drug website at theantidrug.org (original: theantidrug.com).

MAPS (maps.org)

On Friday November 2, MAPS received approval for its MDMA/PTSD research protocol. The proposed study will look at MDMA as a potential treatment for Post Traumatic Stress Disorder.

This approval marks the culmination of 16 years of effort on the part of Rick Doblin to gain approval for scientific research into the use of MDMA as an adjunct to psychotherapy in the United States. The study now awaits approval by the Institutional Review Board (a normal part of the approval process), but FDA approval was a major hurdle to overcome.

Council on Spiritual Practices (csp.org)

CSP completed their new book *Psychoactive Sacramentals* in July (Thomas B. Roberts, ed.). Definitely recommended for those interested in the spiritual use of entheogenic plants and chemicals.

DanceSafe (dancesafe.org)

DanceSafe has expanded their Ecstasy Testing Kit project and are now selling Mecke and Simon's reagents in addition to the Marquis reagents they previously offered. The new combination kits are able to distinguish MDMA/MDE from MDA, DXM, Amphetamines, and 2C-T-7.

Media Awareness Project (mapinc.org)

The on-line database of drug policy related media articles recently received cease and desist demands from many newspapers and legal firms after MAP was announced to an email list of newspaper librarians and journalists. MAP is temporarily utilizing an excerpt method with articles from these papers and publishers as an interim step until they can determine how or if they can resume full text posting. This action affects archives from the *NY Times*, *Newsweek*, *Boston Globe*, *SF Examiner*, and *Time*, among others. ●

MEME CULTIVATION

Publishing information about psychoactives continues to be challenging work. We face a constant barrage of incoming commentary, criticism, and praise and difficult choices to make about where to spend time, what to include, and what to exclude. Criticism comes from all sides, from the expected angry parent, to members of the psychedelic community who think we're not doing enough or that we're selling out their ideals. Praise also comes from all sectors, with surprising support coming from people who work for prohibitionist organizations and agencies. The ratio of positive to negative feedback remains extremely high, with perhaps one critical note per hundred or more we receive in support.

You people need to be educated about ghb. I cannot believe what i am reading in this demented web site. I will make it my full time job to have this site outlawed. I will donate money to people to help me organize the formation of an ant-erowid site coalition. You and your whole company are the biggest joke and embarrasment to this world that I have ever seen.

— email sent to Erowid by B.G.

We continue to expect that the level of scrutiny on our work will rise. The *NEJM* article (page 12) and the various prurient national news-tainment publishers continue to offer extremely unbalanced and partisan forums for the complex issues around psychoactives. The Hive's recent inclusion in an expose on ecstasy production by *Dateline NBC* (October 2001) and the new backlash against information with the "War on Terrorism" has increased paranoia and fear in many on the edges of this controversial topic.

Our work continues to spread into the corners of the wider culture. Dozens of newspapers, television shows, and websites have included images or bits of text from erowid in the last 6 months, most with a note in the corner saying "erowid.org". Examples are too many to list, but include a group in Hungary (www.daath.hu) translating a number of Erowid documents into Magyar (Hungarian language), a German medical journal using an image, and a French author who is using an experience report in an upcoming book. One of the small uses which particularly pleased us is the use of our 3D caffeine molecule in a recent issue of the San Francisco Exploratorium's newsletter.

We continue to believe that our work is very directly affecting the way people think about and relate to psychoactives. A generation is growing up with unprecedented access to information and we hope that as the quality and accessability grows, the next generations will make better and healthier decisions.

Good Drugs / Bad Drugs?

One of the specific meme-changes we work to promote is informed differentiation between specific plants and chemicals.

Unfortunately we are swimming upstream against the tax- and corporate-funded juggernauts and their "public service announcements". Prohibitionists repeat *ad nauseum* that there is a class of things called "drugs" which one can "stay away from" or "just say no" to. Many alternative publishers believe that this "*drugz*" meme has done long term damage to the public's critical skills, weakening people's ability to make important distinctions. There is an unspoken assumption that everyone knows which drugs are "bad". Certainly they're not talking about ibuprofen, probably not cof fee, but how about Viagra, Prozac, or Dexedrine? The intentionally vague grouping seems to offer little in the way of practical advice beyond "don't smoke crack".

The very chemicals which make our brain function can and do change how we think and feel. Nearly every plant, if concentrated and smoked, snorted, eaten, or injected in sufficient quantities will alter your thinking. Nearly every chemical under the sink or in the hardware store and nearly every medicine in your medicine chest will make you feel funny if you take enough. Some neurotransmitters required for brain function are actually scheduled in the United States (DMT and GHB).

There is no escaping that our mental states are built on an ever-changing and user-serviceable biochemistry. Drink a Coke, get a little stimulated, lie down on the floor with the lights off or drink herbal tea, relax a little. Play a computer game, use a mind machine, take supplements, snort cocaine, smoke pot, inject heroin, swallow ecstasy, chew khat, take Prozac, Valium, cough syrup, Ritalin, Viagra, Adderall, Tylenol III, Benadryl, Zyban, Oxycontin... the list is endless and growing.

Everyone makes choices about how to regulate their moods and feelings; some choices lead to happier people and healthier humans and others lead to more depressed people and more disease, but there are no firm lines around what works and what doesn't. As more and more people are exposed to ever more choices, "Just Say No to Drugs" seems a quaint relic of a failed cultural experiment.

As this century progresses, humankind must come to terms with a radically different psychoactive technology playing field. We must face this technology with accurate and complete information and useful critical frameworks. ●

Storage Tips : Label Psychedelic Clearly

Careful labelling of substances and appropriate storage are both important parts of responsible psychoactive use.

Don't use food containers for psychoactives. Even if it seems like it would never happen, it's not at all uncommon for a guest to see a food or beverage container and eat or drink out of it. This goes for cannabis cookies in the cookie jar on the kitchen counter, ayahuasca in a tea bottle in the fridge, GHB in a water bottle in the cupboard, etc. Many unpleasant and dangerous experiences can be avoided if strong psychoactives are never confusable with food or drink.

Storing white powders unlabelled can also come back to bite you. If you've ever been in the possession of more than one white powder at a time, figure out a way to label them. No matter how sure you are that you'll remember what each is, time passes, memories fade, & other people get involved. Often people choose not to label items out of fear. Cryptic abbreviations are far better than nothing when you're trying to remember which vial contains the MDMA and which contains 2C-T-7.

An Interview with Andrew Weil

An Excerpt from *Ecstasy:The Complete Guide*, Edited by Julie Holland, M.D.

JH: Do you think that MDMA has any place in alternative medicine?

AW: I don't know that I would put it in alternative medicine. I think it has a place in medicine. I wouldn't make a distinction there. For me, the interesting thing is that if the set and setting are properly attended to, MDMA can produce a state of great relaxation and lack of defensiveness in which the body behaves differently. You see that chronic pain can disappear and that habits can disappear. It can show people that there is a possibility that they're not obliged to have certain symptoms. The experience can motivate them to figure out other ways to maintain that symptom-free state.

JH: What is your opinion about the use of MDMA in palliative care?

AW: I have less experience with that. I know of some cases of people with advanced cancer who felt it was very positive for them. It helped them come to a sort of resolution with their lives and complete emotional work that they had to do with other people.

JH: I was hoping to touch on the potential for MDMA to be used as an analgesic [painkiller].

AW: A major component of pain is the subjective experience of it. MDMA changes your perspective about what is going on in your body, so it can help people develop a new relationship with chronic pain in which it is less of a discomfort.

JH: And what about the impact of fear and anxiety on pain perception?

AW: That's a huge component of pain. If the experience is structured properly, MDMA induces an extremely low anxiety state, which can dramatically lessen that aspect of pain. Often, there is a great deal of carryover after that experience.

JH: Do you see insight as a tool to assist in physical healing? For instance, if MDMA is used in a psychotherapeutic setting, and a person comes away with a better understanding of self-defeating or self-damaging behavior in terms of lifestyle, do you think that could help someone with his or her health issues?

AW: Yes. I think that gaining insight is the easy part; the harder part is applying it.

JH: The integration?

AW: Yes. Integration may require some work and help, so that the experience doesn't just get boxed up and put into the past. But I definitely think that during the experience, one can gain insights into the nature of one's problems.

JH: What about the recreational or pleasurable component of MDMA? Most people want to separate the recreational and the therapeutic aspects of MDMA.

AW: I don't make much of a distinction. I think recreational experiences can be therapeutic.

JH: The quality of acceptance or forgiveness that people experience with MDMA can be valuable. Would you say that in some medical conditions, there is an element of anger or fear or guilt?

AW: Definitely. I think all of those kinds of states translate into body states.

JH: So it would probably be therapeutic to have an experience where those emotions are markedly lessened. What is your take on "psycho-neuro-immunology"?

AW: It is a field that's very well established. It's been around for three decades, and there is a vast body of research on it. The problem is that it's made very little impact on thinking and practice in conventional medicine. It's had all sorts of resonance with the general public as a result of books and TV shows. At the University of Arizona in the immunology course, for instance, the word "psycho-neuro-immunology" isn't even mentioned. There is a lack of connection between this body of research and the public's enthusiasm for it, as opposed to the actual day-to-day application in medicine.

JH: Do you have any opinion about the issue of MDMA being synthetic, as opposed to natural, in terms of its use in alternative medicine?

AW: If there were a totally natural substance that had the effect of MDMA, I would use it, but there isn't one. MDMA is semi-synthetic; it's pretty close to a natural substance, but it's got a slight twist.

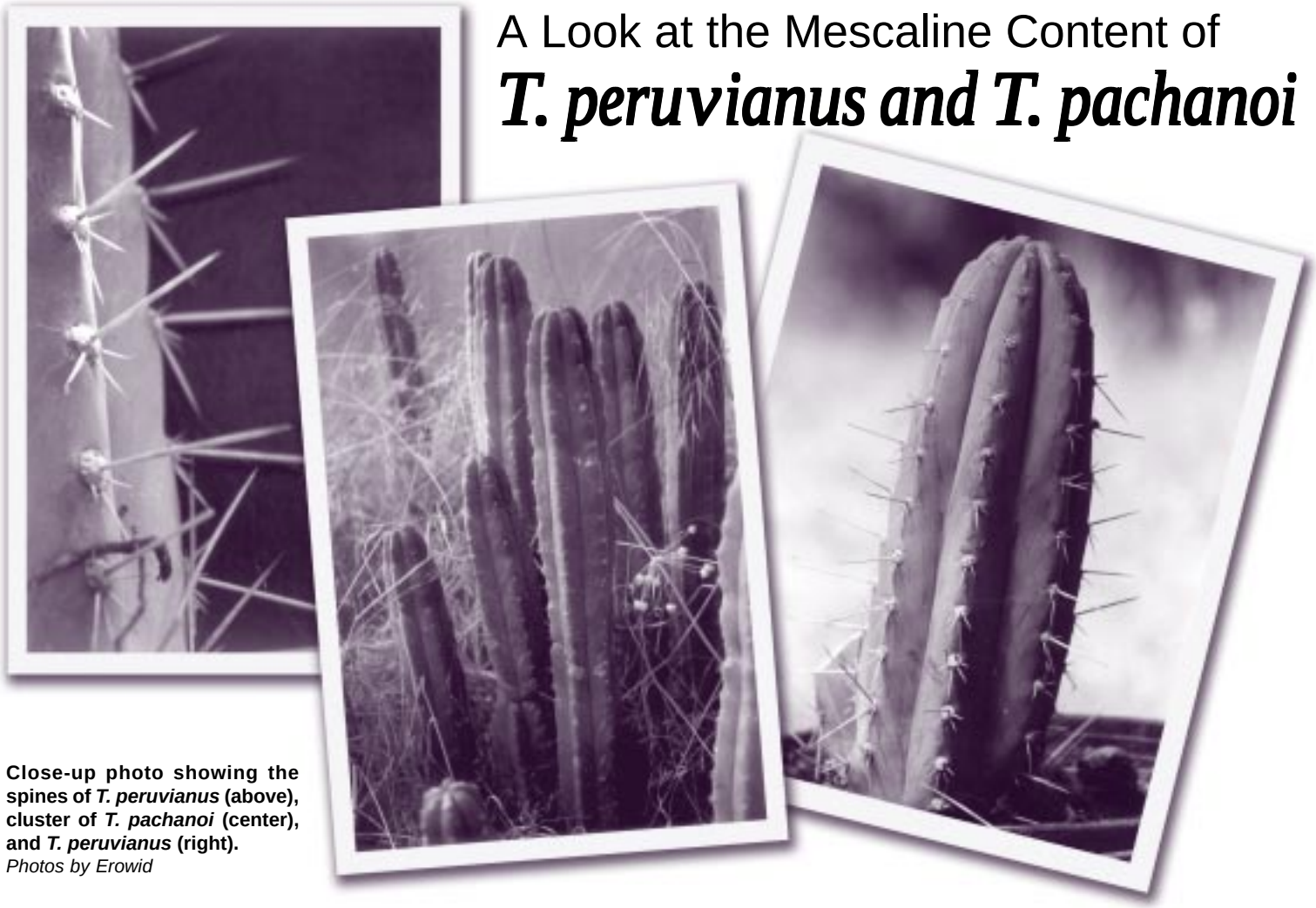
JH: I have heard you speak of optimism as a healing tool. For most people, the MDMA-induced state is chock full of optimism.

AW: Right. ... Optimism is a behavior and an attitude that can be learned, and I think that it has many consequences in terms of how our bodies function and how our minds work. I think that just having the experience of it, seeing that there is a mental perspective from which things can look positive, is very useful—especially if you haven't had that perspective in a long time. The basic point is that mental states translate into physical states. And one of the great values of the MDMA experience is that it can show you very concretely how a shift in your mental state can produce dramatic responses in your body. Often, this has significant carrryover into daily life. ●

VENDOR NOTES

- JLF, an online supplier of "poisonous non-consumables", was raided by federal authorities in September. JLF maintains that none of the substances they sell are illegal, and no charges have yet been filed.
- Other vendors, particularly those selling research chemicals, have shut down in the wake of the JLF situation.
- Science Alliance, a chemical supplier in Texas well known for being home-chemistry friendly, was put out of business by the DEA in September 2001. The owner admitted on a nationwide television news magazine to being Strike, the founder of the Hive (a web forum for discussing underground chemistry) and a convicted MDMA chemist. He has been charged with conspiracy to produce MDMA and business records were seized.
- In May, we reported that we had received many complaints against ethnobotanical supplier Shaman's Garden. The company was recently reclaimed by its founder, who offered to fulfill any outstanding orders neglected under the previous manager.

A Look at the Mescaline Content of *T. peruvianus and T. pachanoi*



Close-up photo showing the spines of *T. peruvianus* (above), cluster of *T. pachanoi* (center), and *T. peruvianus* (right).
Photos by Erowid

MYTH DEBUNKING

by Fire Erowid

Rumors persist among those interested in mescaline containing cacti that *Trichocereus peruvianus* (Peruvian Torch) is "10x stronger" than *Trichocereus pachanoi* (San Pedro). As usual, there appear to be a number of reasons for this confusion.

The Sources

The earliest reference supporting the myth seem to be *Peyote and Other Psychoactive Cacti*, by Adam Gottlieb. In 1977 Gottlieb wrote, " *T. peruvianus* is purported to contain ten times the mescaline content of San Pedro." He makes no mention of where this rumor came from and cites no sources to support it, but the claim remains in the 1997 reprint.

Second is a note in Ott's *Pharmacotheon* (1993) where he states that "Mescaline has been found in 12 species of*Trichocereus*, the highest concentration in *T. peruvianus*." To support this, Ott cites the only published reference on the isolation of mescaline from *T. peruvianus* which showed .817% mescaline by dry weight.[1] Unfortunately, he appears to have ignored the data found by Poisson who, in 1960, found 2.0% mescaline by dry weight in *T. pachanoi*.[2]

The Data

The published data does not support a claim of 10x potency. A look at the original sources shows that the potencies of the two species are quite similar, with the difference from one specimen to the next outweighing the difference between species. Mescaline contents (by dry weight) in *pachanoi* have been found ranging from .33% - 2.375%, while *peruvianus* has been found with .817% and 0%.[3,4,5]

The only way we reach anything like 10x potency for *peruvianus* is if we compare the single published isolation of *peruvianus* against the lowest recorded mescaline content for *T. pachanoi*. Obviously this is a faulty analysis.

Diameter

Length is a traditional method of measuring a dose of columnar cacti. "A piece the length of your forearm, from elbow to knuckle" (12-15 in.) is a common recommendation, which unfortunately doesn't take diameter into consideration. Due to the relative unavailability of accurate scales, many amateur cacti enthusiasts continue to measure dosages by length rather than weight.

T. peruvianus tends to grow to a lar ger diameter than *T. pachanoi*, meaning that at equal potency, less length is required of *peruvianus* for the same dose. Even after standardizing all other factors (assuming an average of 90% water by weight and 1% mescaline by dry weight), [7] the difference between the mescaline content of a 9 cm diameter and a 6 cm diameter cactus is significant. An 8 cm long section of a 9 cm diameter cactus would yield approximately 400 mg of mescaline—a good solid dose—

FURTHUR

REMEMBRANCE OF KEN KESEY

by david moses fruchter

Beloved author and counter-culture hero Ken Kesey died Saturday, November 10, at the age of 66. Kesey's death was attributed to complications arising from diabetes and recent surgery to remove a tumor. Kesey's own words on the subject: "Nothing lasts."

Raised in Oregon, Kesey attended graduate school in creative writing at Stanford University. It was during this period that he volunteered as a subject for clinical trials with LSD at a nearby VA hospital, and managed to smuggle some of the drug out to share with fellow residents of his Perry Lane neighborhood, infamous for its bohemian, artistic and intellectual residents. This was the first of several communities to coalesce around Kesey and psychedelic drugs.

Kesey took a job as a psychiatric aide in that same VA hospital, where he garnered much of the material for his first published novel, *One Flew Over the Cuckoo's Nest*. The novel was told from the hallucinatory point of view of a Columbian Indian patient, Chief Broom, and it was the film version' s neglect of that character which later caused Kesey to sue, unsuccessfully, to prevent the film's release.

Kesey's second novel, *Sometimes a Great Notion*, was a tale of a logging family , the Pacific Northwest, and the paradoxes of self-reliance. Shortly after completing it in 1964, Kesey left novel-writing to found the Merry Pranksters, a loose group of bold, surreal artists and performers whose ventures included a wild cross-country road trip in the psychedelic converted school bus they called Furthur, and the Acid Tests, all-night LSD-soaked free-for-alls of art, music, bizarre antics and community.

After serving three months in jail for marijuana possession, Kesey retreated to his farm in rural Oregon with his wife, Faye, and his children, Jed, Zane and Shannon. Kesey remained unapologetic about his advocacy of drugs: "I think acid is a blessed drug," he said in 1986, adding: "There have been more people killed in planes searching for marijuana [than] smoking it."

The next 20-odd years of life on the farm for Kesey, his family and the occasional odd visitor are chronicled in his 1988 short-story collection, *Demon Box*, which also contains the children's story "Little T ricker the Squirrel Meets Big Double the Bear". After being published separately, this story was named a Recommended Book for Children by the Library of Congress.

Kesey's final novel, a collaboration with fellow Prankster Ken Babbs, was appropriately titled *Last Go Round*. Babbs, Kesey's close friend of over 30 years, also provided this moving epitaph for Kesey:

"He will be sorely missed but if there is one thing he would want us to do it would be to carry on his life' s work. Namely to treat others with kindness and if anyone does you dirt forgive that person right away. This goes beyond the art, the writing, the performances, even the bus. Right down to the bone."

We'll try, Ken. ●

while an equal length section of a 6 cm diameter cactus would yield only 180 mg, just above a threshold dose.

Summary

It is important to note that both *T. pachanoi* and *T. peruvianus* vary significantly in mescaline content from one specimen to the next, based on factors such as soil condition, altitude, amount of sun and age. Additionally, there is great confusion taxonomically concerning *T. peruvianus*. Most experts agree it's likely there are many distinct species being circulated as *T. peruvianus*.

Unfortunately, without more testing of *T. peruvianus* samples, it's difficult to know how the average *peruvianus* compares to the average *pachanoi*. Common wisdom and bioassay data still put *T. peruvianus* as the more potent of the two, but only about 2-2.5 times stronger at best, and without scientific data to back up the claim.

What this all suggests to the average consumer is that when looking for potent cacti, the reliability of the source is likely more important than the species.

1. Pardanani JH, *et al*. 1977. "Cactus Alkaloids. XXXVI. Mescaline and related compounds from *Trichocereus peruvianus*" *Lloydia* 40(6): 585-590.
2. Poisson J. 1960. "Présence de mescaline dans une Cactacée péruvienne" *Annales Pharmaceutiques Françaises* 18: 764-765.
3. Crosby DM, McLaughlin JL. 1973. "Cactus Alkaloids. XIX. Crystallization of Mescaline HCl and 3-Methoxytyramine from *Trichocereus pachanoi*" *Lloydia* 36(4): 416-418.
4. Helmlin H, Brenneisen R. 1992. "Determination of psychotropic phenylalkylamine derivatives in biological matrices by high-performance liquid chromatography with photodiode-array detection" *Journal of Chromatography* 593: 87-94.
5. Agurell S. 1969b. "Cactaceae Alkaloids I" *Lloydia* 32(2): 206-216.
6. Agurell S. 1969a. "Identification of Alkaloid Intermediates by Gas Chromatography-Mass Spectrometry. I. Potential Mescaline Precursors in Trichocereus Species" *Lloydia* 32(1): 40-45.
7. Trout K. 1998 [Revised 1999]. *Trout's Notes on Cactus Chemistry by Species* p 47.
8. Aardvark D (Ed.) 1998. *Entheogen Review: The Journal of Unauthorized Research on Visionary Plants and Drugs 7(1): 18-19.*
9. *Personal communications with K. Trout and M.S. Smith.* ●

Published Mescaline Content

***T. pachanoi* (dry)**

2.375%	— Helmlin & Brenneisen 1992
2%	— Poisson 1960
0.67%	— Agurell 1969a
0.33%	— Crosby & McLaughlin 1973

***T. peruvianus* (dry)**

0.817%	— Pardanani 1977
0%	— Agurell 1969b

Mouth-Smoking Cannabis

One of the primary health issues with cannabis is the effect of smoke on the lungs. While the risks from long term cannabis smoking are not fully understood, it is assumed by most health professionals that inhaling smoke into the lungs over long periods of time carries increased risks of lung problems. For people with very sensitive lungs and those who are using cannabis as part of a treatment for serious disease, smoking cannabis can be difficult and hard on the body.

Acute effects can include wheezing, coughing, difficulty breathing, and increased mucus production leading to more coughing.

Medium term effects can include decreased lung capacity for exercise, increased respiratory and throat infections, and chronic coughs. Many people (especially asthmatics) experience so much wheezing and chest discomfort that it's not worth the effects.

While some users turn to ingesting cannabis orally, eating cannabis has some downsides which make it unattractive as a replacement for smoking such as difficulty setting dosage, reduced "high", increased sedation, and dramatically increased duration.

One solution to these problems (Zam 1997, 2001) is to avoid using the lungs to extract the cannabinoids from the smoke. Using a technique called "mouth-smoking" or "puffing" commonly used for tobacco cigars, the smoker uses a pipe or joint (not a bong or vaporizer) and pulls smoke into the mouth, holding it there for 30-60 seconds, and then blows it out through the mouth or nose. The lungs are not used, but instead one sucks on the pipe as if drinking through a straw.

Mouth-smoking is not as efficient as lung-smoking and requires approximately 3 times the material for the same level of effect, but for some people efficiency is not an issue.

Many potent varieties of cannabis flowers available around the world in the 1990s and 2000s are so strong that a single lung hit is too much for many people. Using a less efficient method can be a practical way to better titrate dosage. With high potency cannabis, a single mouth hit is enough for most people to feel effects. With low potency cannabis, several mouth hits may be required to reach threshold effects.

Mouth-smoking has amusing implications for President Clinton's comment: "I didn't inhale".

Pipes and joints reportedly work best for mouth-smoking. While bongs and vaporizers can make lung-smoking less problematic, even a good vaporizer can cause unpleasant lung problems in many people. Most water pipes and vaporizers don't work well for mouth-smoking because it's difficult to pull the required volume with the mouth alone, so many mouthfuls are needed to achieve effects.

Blowing out through the nose is one way to increase efficiency of mouth-smoking, but it can also irritate the sinuses and nasal mucosa. Cannabis users who are extremely sensitive report that blowing out the nose can trigger irritating allergic feelings and discomfort.

Many users are incredulous that cannabis can be smoked without ever pulling into the lungs. Cannabis users with high tolerance report that it can be hard to get their desired effects levels with mouth smoking, but higher potency materials (extract, oil, hash, kief, etc) can be used where necessary to achieve therapeutically useful levels. Some users also report difficulty remembering not to inhale the smoke. As the effects increase, vigilance wanes and lapses in technique are common. With practice, smokers report that they are able to avoid inhaling smoke and can achieve adequate effects without the need to involve their lungs. ●

New Books

1. *Ecstasy: the Complete Guide*, Julie Holland, MD, Editor
   A comprehensive look at the risks and benefits of MDMA. (Inner Traditions)
2. *Psychoactive Sacramentals*, Thomas B. Roberts, Editor
   Essays on Entheogens and Religion. (Council on Spiritual Practices)
3. *Shamanic Snuffs or Entheogenic Errhines*, by Jonathan Ott
   Covers three classes of indigenous snuff plants. (Entheobotanica)
4. *Transfigurations*, by Alex Grey
   A new book of Alex Grey artwork. (Inner Traditions)
5. *Psychopharmacology of Herbal Medicine*, by Marcello Spinella
   Plants that alter mind, brain, and behavior. (MIT Press)
6. *Drawing in Out: Befriending the Unconscious*, by Sherana Hariette Francis
   Drawings done by the author during a course of LSD psychotherapy. (MAPS)
7. *Psychedelic Trips for the Mind*, Paul Krassner, Editor
   Anecdotes of the 60s, mostly related to LSD. (High Times/Last Gasp)
8. *Entheos : Journal of Psychedelic Spirituality*, Mark Hoffman, Editor
   Premiere Issue. (Entheomedia)
9. *Intoxicating Minds: How Drugs Work*, by Leslie Iverson
   Overview of how psychoactive drugs work in the brain. (Columbia Univ. Press)
10. *Trout's Notes on the Cultivation and Propagation of Cacti*, by K. Trout
    Growing tips from the expert. (Better Days)
11. *The Other Side of Haight*, by James Fadiman
    Novel about a '60s Haight-Ashbury commune. (Celestial Arts)

Along with the daily maintenance and upkeep of the site, we are always working on a number of interesting projects. Here is a list of some of the larger of these projects. Erowid is seeking targeted donations to support this work.

EcstasyData.org

In July, Erowid took on a new project with the management of EcstasyData.org. Launched out of DanceSafe's ecstasy pill testing program, the project has been moved to an independent website and is co-sponsored by Erowid, DanceSafe, MAPS, and the Promind Foundation.

Erowid will maintain the website, interface with the lab, add new features, and manage incoming data as people submit ecstasy tablets for testing. In addition, we are looking to expand the project by offering space for the display of results collected by other testing programs. Organizations interested in displaying their results at EcstasyData.org should contact info@ecstasydata.org.

http://www.ecstasydata.org/

Families & Psychoactives

There are few topics that touch nerves and set people off like the topic of kids and drugs. The issue simmers deep within the American psyche and forms one of the pillar stones of the War on Drugs. Nobody wants their child to be hurt by drug use, but the subject is so taboo that people who teach their kids about safer drug use, or who—heaven forbid—help their child have a positive first experience, are often viewed as criminally irresponsible.

We are working to develop a section which discusses a wide array of issues related to families and drug use: Families Who Value Psychedelics; Mentoring and Rites of Passage; Coming out of the Psychedelic Closet (kids to parents or parents to kids); Families with Drug Problems; When Dialogue Breaks Down; Pregnancy Birth and Breast-feeding; Drug Education; and other stories of how drugs or the discussion of drugs have impacted families.

Experience reports and other writings on this topic are welcome—please submit them to the Experience Reports section of the site. If the topic of families and drugs is of particular interest to you and you would like to make a contribution to Erowid earmarked for the development of this vault, please contact us at submissions@erowid.org.

Hofmann Article Database

Working with MAPS and the Albert Hofmann Foundation, we are in the midst of creating a sortable, searchable online bibliography of thousands of LSD- and psilocybin- related references. There are some very interesting articles in the collection going back as early as 1949. At this point, entries are being verified by hand against a paper version of Albert Hofmann's original collection.

MDMA Article Database

Over the summer we succeeded in getting this project fully up to speed. Systems are now in place to keep it up-to-date and new references are being added as they are published.

http://www.erowid.org/mdma/articles/

Submissions

We welcome contributions of many types of information. It's helpful to have others watching for information which is missing from our archives, especially articles we have permission to reproduce. Below are a few specific sections we are seeking to expand. Submissions can be sent to submissions@erowid.org.

Guiding & Sitting - A number of writers and therapists including Ann & Alexander Shulgin, Myron Stolarof f, Stanislav Grof, Joan Halifax, and Ralph Metzner have laid a foundation of recommendations about guided journeying and the handling of difficult experiences (i.e. "bad trips"). We would like to continue building a collection of information useful for those who find themselves helping someone else through an experience whether positive or negative. We look forward to comments and suggestions.

http://www.erowid.org/psychoactives/guides/

Humor Vaults - We are in the process of building our archive of jokes, political cartoons, parodies and other forms of humor related to psychoactive drugs, the drug war, politics, personal liberty, privacy, or other topics covered by Erowid.

http://www.erowid.org/psychoactives/humor/

Sex & Psychoactives - We are also working on collecting articles, experience reports, and links on topics related to sex and psychoactives. This includes Aphrodisiacs; Negative Effects of Drugs on Desire; Drug Facilitated Sexual Assault; and the use of Sex Drugs or Medications such as Viagra, Nitrites, GHB, etc.

http://www.erowid.org/psychoactives/sex/

Book Reviews - *Extracts* readers are invited to contribute quality book reviews to Erowid, especially for books which already have a listing in our library/bookstore.

http://www.erowid.org/library/books/ ●

Site Statistics

Content Pages: 13,357 **Daily Visitors:** 19,400
Archived Images: 2,803 **Daily Page Hits:** 238,850
Members: 504 **Daily File Hits:** 919,222

	Avg Daily File Hits	Avg Daily Page Hits	Avg Daily Visitors
Oct 2001	919,222	238,850	19,400
Sep 2001	784,000	198,767	16,900
Aug 2001	786,000	197,382	16,900
Jul 2001	844,000	203,811	16,700
Jun 2001	786,000	207,843	16,400
May 2001	830,000	215,848	17,200
2000	462,000	126,000	12,000
1999	135,800	37,000	4,100
1998	31,200	8,500	1,000
1997	7,000	2,100	300
1996	1,000	316	60

VERBATIM

"If we could read the secret history of our enemies, we should find in each man's life sorrow and suffering enough to disarm all hostility."

— Henry Wadsworth Longfellow, poet (1807-1882)

"Mankind must put an end to war or war will put an end to mankind."

— John F. Kennedy (1917-1963), U.N. address Sept 25, 1961

"A more glorious victory cannot be gained over another man than this, that when the injury began on his part, the kindness should begin on ours."

— John Tillotson (1630-1694) Arch Bishop of Canterbury

"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

— Benjamin Franklin, 1759

"Democracy is sustained not by public trust but by public scepticism. Unless we are prepared to question, to expose, to challenge and to dissent, we conspire in the demise of the system for which our governments are supposed to be fighting."

— George Monbiot, Oct 16, 2001

"Education is the transmission of civilization."

— Ariel and Will Durant, Historians

"We have to get away from the ethos that knowledge is good, knowledge should be publicly available, that information will liberate us, [...] Information will kill us in the techno-terrorist age."

— Arthur Caplan, 2001 Univ of Pennsylvania bioethicist about the publication of anthrax information

"The 'just say no' campaign at this point is a lot like drawing sea-monsters over certain unexplored areas of the map and expecting people to stay away. It may work for some, but explorers live for this kind of thing." (Paraphrased)

— Terence McKenna (1946-2000)

"In nature there are neither rewards nor punishments; there are consequences."

— Robert Green Ingersoll (1833-1899) lawyer and orator

The mouth of a perfectly happy man is filled with beer.

— Egyptian saying (circa 2200 BC)

Abusus non tollit usum

[Abuse is no argument against proper use.]

— Latin Proverb

"What is your relationship to the mystery? Are you defending yourself from it? Are you making love to it? Are you living in it?"

— Ram Dass (1933-)

A Persian philosopher, being asked by what method he had acquired so much knowledge, answered, "By not being prevented by shame from asking questions where I was ignorant."

— Apocryphal

"The contradiction so puzzling to the ordinary way of thinking comes from the fact that we have to use language to communicate our inner experience which in its very nature transcends linguistics."

— Daisetsu Teitaro Suzuki (1870-1966)

"The price one pays for pursuing any profession, or calling, is an intimate knowledge of its ugly side."

— James Baldwin (1924-1987)

"To me the philosophy of the twenty-first century...is the philosophy of information."

— Timothy Leary (1920-1996)

"I've read all the philosophies, listened to all the gurus, taken all the drugs and this is what I know about death —— Nothing."

— Elizabeth Gips (1922-2001)

"Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it."

— Samuel Johnson (1709-1784)

"I don't take drugs, I am drugs."

— Salvador Dali (1904-1989)

"Not all chemicals are bad. Without chemicals such as hydrogen and oxygen, for example, there would be no way to make water, a vital ingredient in beer."

— Dave Barry (1947-)

"You can't blame the President for the state of the country, it's always the poets' fault. You can't expect politicians to come up with a vision, they don't have it in them. Poets have to come up with the vision and they have to turn it on so it sparks and catches hold."

— Ken Kesey (1935-2001)

"Because it is sometimes so unbelievable, the truth escapes becoming known."

— Heraclitus (535-475 BC)

After ecstasy, the laundry.

— Zen statement