



Medtox Journal on Drug Abuse Recognition

March 2012

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Dear Andrew,

Thank you for taking the time to read the MEDTOX Drug Abuse Recognition Journal. We hope you find this newsletter interesting and educational. In addition to this month's final mystery drug article, this issue focuses on the new synthetic drug of concern, the latest research on the psychedelic mushroom, and the latest possible new treatment to fight alcoholism. As always we enjoy to hear your feedback. If you have any questions or topics you would like to see in future Journal issues please email us at medtoxjournal@medtox.com.

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New Twists and Turns in Designer Drug Abuse



If you are having a hard time keeping up with the changing trends and the variety of products associated with designer drug use, you are not alone. This market is in a state of flux and, as a result, there has been a flurry of new products that have arrived on the scene. In fact, "glass cleaner" and "novelty powders" have now joined bath salts and incense (K2/Spice) as agents for an alternative drug high. Of concern is the emergence of a product called *Eight BallZ*. The manufacturer's choice of the product name is a play on the street slang used by dealers to describe an eighth of an ounce of cocaine; dealers call that product an "8 ball." With that in mind, readers can surely surmise what this product is about. Like most of its bath salt cousins, this "glass cleaner" is a stimulant. User comments are quite consistent on this point. *Eight BallZ* energizes the central nervous system and causes a state of euphoria that is reminiscent of cocaine. User experiences seem to vary according to the dose of "glass cleaner" taken. It appears that the higher the dose of the product, the more edgy the experience. The drug is usually snorted or "bumped." There are scattered reports of users who have injected the powders or "stuffed" them rectally.

On the streets, *Eight BallZ* is one of the more popular alternatives to *Ivory Wave* (known on the street as "I-V"). Ivory Wave is perhaps the best known of the original bath salts products. Whatever the name of the product, bath salts all share some common markings and language. There are two caveats that are found with nearly every one of these products: "Not intended for human consumption" and "Not to be sold to people under 18 years of age." But these products have historically been an ever-changing set of formulas and ingredients. And with the enactment of federal law banning the original recipes that featured MDPV and mephedrone, formulas have been in a constant state of flux as they mix and match banned and non-banned powders to create their unique batch.

New salts and cleaner products loudly proclaim their "50 State Legal" status. But it is unclear whether any of those claims are true. Some of these purportedly legal products have been spiked with MDPV; others have contained drugs from the phenethylamine family of psychedelic stimulants. Others yet have contained legal stimulants found in diet pills and aphrodisiacs. In fact, one caller to the MEDTOX DAR Hotline, an addiction counselor, said that a client of his swore that the bath salt he had recently snorted was nothing more than crushed up Viagra. (The client evidently had prior experience with Viagra.) Perhaps this bath salt user is correct though. Many "glass cleaner" users boast of the aphrodisiac power of the powder. Recent reports have purported that many contemporary salts and cleaners contain a legal stimulant called *methylhexanamine*. The Journal has reported on this substance in the past. Its effects are amphetamine-like, at higher doses it purports to have aphrodisiac powers.

Readers should keep an eye out for other salt or cleaner products with names such as "*Fine China*," "*White Girl*," "*Sextacy*" and "*Drone IV*." At present, the best way to drug test for the use of these products is to contract with a SAMHSA certified laboratory that provides select forensic designer drug screening systems. Sales representatives will be able to guide you through the process of selecting the testing protocol that is best for you. Readers should remember that K2 & Spice products are still out in the marketplace and are widely abused. Synthetic cannabinoid use continues to be a popular alternative to the smoking of marijuana.

The MEDTOX DAR Program will host a designer drug update webinar in April. Stay tuned for details. Tuition for these MEDTOX webinars have been slashed; be sure to view the course announcement.

What Makes Psilocybin Mushrooms So Magical?



For four decades now, people hoping to experience a hallucinogenic high have chewed, swallowed, or sipped concoctions of psilocybin "magic" mushrooms. This particular breed of mushrooms is carefully cultivated from select spores. Grown mushrooms or "shrooms" are then dried, pulverized, and ground into fine pieces. The small granules are then loaded into gelatin capsules or blended into a tea or other beverage and then ingested orally. Dried "shrooms" can be chewed in "jerky" form too. The effects are usually strung out over a period of three to four hours. The drug can cause some nasty side effects on the "way up." Typically gastrointestinal cramps and dyspepsia will occur, especially if a user consumed whole, moist mushroom pieces. But after an hour or so of unpleasant effects, users will experience the sought after visual and emotional changes or distortions. These effects seem to be dose

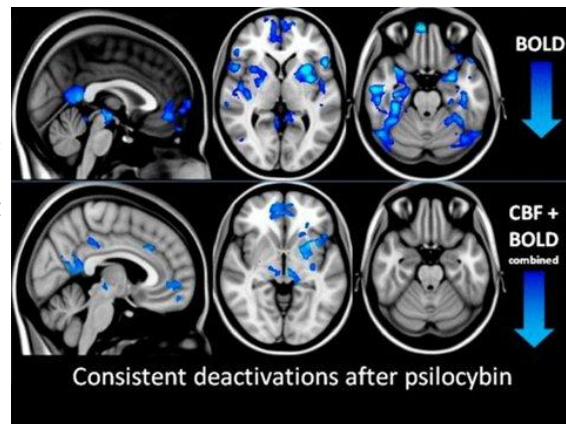
dependent. Low doses tend to be more pleasant and calming; higher doses cause more classic kaleidoscopic changes in colors and sounds. Higher doses are also more associated with frightening experiences or a "bad trip."

The market for premium psilocybin spores does brisk business. A devoted following of aficionados are always on the hunt for better and more potent psychedelic mushrooms. But what is really going on in the brains of "shroom" users? How does psilocybin exert its effects? A recently published brain imaging study by an Imperial College (London) professor may have shed some light on the matter.

Dr. Robin Carhart-Harris and co-investigator Dr. David Nutt recently conducted functional MRI studies of 30 healthy volunteers who had each been injected with a standardized dose of psilocybin. In examining the effects of the drug, the researchers were surprised at what they discovered. Intuitively, the doctors expected certain areas of the brain to light up and become significantly more active, because that is what hallucinogenic drugs are believed to do. But the results were quite different; in fact, they were exactly opposite of what was expected. In certain spots of the thalamus and cingulate bodies, the brain actually experienced *decreased* blood flow and oxygenation. The brain had essentially turned off some of these key areas that act as information hubs and transfer stations. It is these precise locations that experience bursts of heavy activity in people with depression.

Other studies on the effects of these mushrooms have also been conducted. A recently concluded study at Johns Hopkins University evaluated the experiences of healthy people that had been given psilocybin, the active ingredient in magic mushrooms. Patients often described those experiences as being among the most meaningful of their entire lives. These reports build on research published in September 2010 in the Archives of General Psychiatry. There, Dr. Charles Grob and fellow researchers at UCLA determined that patients with advanced stage cancer experienced reduced anxiety and fewer symptoms of depression while taking psilocybin.

More work needs to be done in determining the effects from psilocybin used as medication. But it appears that there may be some use for the drug in a pharmaceutical preparation. It is of interest to note that cluster headaches are often brought on by increased hypothalamic blood flow; perhaps in addition to the roll that the drug plays in quieting mood and anxiety, it may be useful in treating stubborn headaches as well. As Dr. Carhart-Harris pointed out, that with new imaging capabilities and knowledge of the brain, it might be the time for scientific investigators to take a fresh look at psilocybin and related compounds.



It has been over 40 years since the arrival of the "sex, drugs, and rock and roll" culture in America. It was in that era that hallucinogens emerged as drugs of abuse. Much time has passed. And the public's concern about these drugs and others as agents of unrest has now subsided. Perhaps now is the time to take a new look at the medical uses for these drugs.

Study Claims That LSD May Be Effective Therapy in Treatment of Alcoholism

"Turn on, tune in, drop out," a lyric made famous in a speech by Dr. Timothy Leary in 1967, may be a harbinger of a new medical treatment for alcoholism. Dr. Leary became the chief apostle of the LSD-using community and spokesperson for the larger 1960s sociological move towards experimental drug use. But LSD use declined in the 1980s and has been only a minor factor as a contemporary drug of abuse. But LSD may be on the verge of a comeback. And although Timothy Leary has been dead for years, his earlier advocacy of LSD as medicine may have been prescient.

For years, medical researchers have toyed with a variety of odd medications to reduce the frequency and degree of cravings experienced by recovering alcoholics. And as it turns out, there is evidence that LSD may be an effective therapy in the course of treating alcoholism. A recently published report from researchers at the Norwegian University of Science and Technology

assessed the results of controlled drug trials that were conducted in the United States and Canada back in the 1960s and 1970s. The thesis of researchers was that a dose of LSD might provide alcoholics with a moment of self-awareness that would give them clearer insight as to the nature of their heavy drinking and make it less likely that they would relapse. But LSD's illicit status (Schedule I) created political problems for scientists who wanted to pursue this line of research.

The Norwegian scientists assessed drug test results from 536 alcoholic patients, all of them were volunteers. Participants were assigned to groups that either received a full dose of LSD, a partial dose of LSD, a stimulant drug (i.e. amphetamine), or a placebo. At the 12 month mark following the administration of the full LSD dose, 59% of those patients showed a "clear improvement" in their condition. For the other three test groups, 38% showed similar improvements. The full dose LSD group demonstrated over a 20% improvement over those who did not get a complete dose. Researchers commented that the positive influence of LSD wore off over time and that should the drug ever make it into clinical practice, patients would have to take the drug on a periodic schedule. Of course, LSD would not be a *stand alone* therapy for alcoholism. The full panoply of services and therapies currently in use in treating this disease would be kept in place and offered side by side with the use of the hallucinogen.

A Drug for All Seasons: An Entirely Indiscriminate Actor



This essay will conclude the longstanding Journal column that has been devoted to the Parcheesi game we have come to call, "name that drug." In the course of nearly 50 essays designed to challenge our readers' knowledge of substance abuse and addiction, this column has analyzed the obscure and the obvious. From alcohol to zolpidem (Ambien), these exposes have delved into the societal habits and individual experiences associated with common drugs of abuse. And to that end comes our final mystery drug challenge. It involves a drug of immense power and celebrity. This drug is of legendary potency, a drug that has waylaid its users leaving addicted peasants and presidents in its wake.

This month's drug is one of the most widely distributed drugs in North America. The active ingredient in this drug is extracted from the leaves of a rather prosaic looking plant, a shrub to be exact. Despite its widespread presence in the United States, this shrub cannot grow there. It requires some unique soil and environmental conditions to grow. Unlike marijuana, this plant is finicky. It is about as different from marijuana as any drug could be. This month's mystery drug is a central nervous stimulant. But more revealing is that this drug is also a topical anesthetic. If properly formulated, this month's drug can be a very effective medication, one that facilitates some very delicate surgical procedures. If this drug is improperly formulated, it takes on a Robert Louis Stevenson identity, a sort of Dr. Jekyll and Mr. Hyde personality. These effects are especially true if the drug is smoked and inhaled into the lungs. When ingested in that manner, this month's drug becomes a monster.

Some notable physicians and surgeons have dabbled with this month's drug. One of medicine's most revered surgeons is William Halsted, one of a small group of doctors who founded Johns Hopkins hospital. Halsted experimented with this month's drug extensively. His experimentation resulted in a lifelong addiction to the drug. Amazingly, Halsted continued to function as a general surgeon. His story runs contrary to modern abusers of the drug. Of importance in evaluating the experiences of Dr. Halsted is that he inhaled the hydrochloride powder form of the drug. He did not smoke it. During the civil war, some experts promoted the drug as a putative treatment for soldiers who had become addicted to morphine. That did not work. Others proposed the drug as a tonic for an array of emotional ills. Especially with melancholia, this month's drug seemed to instantly erase signs of the "blues" or depression. Ironically however, extended use of the drug actually triggered a very deep depression that would often digress into a paranoia and withdrawal from social interactions. These effects are seen with modern users of this drug as well. In fact, the onerous side effects from chronic use of the drug are more pronounced in the modern era.

Our featured drug is perhaps the most hated illicit drug in the world. It has been the central figure in the destabilization of countries located in the southern hemisphere. In the United States, the drug has been the proximate cause of a great deal of inner-city violence. There, the drug has become the currency for a wide array of legal and illegal activities. The drug has been the staple

product and principal source of income for criminal gangs. In fact, the more notorious street gangs in America fueled their growth in the 80s and 90s from sales of this drug.

The most critical moment in this drug's history came at the point when users discovered that the drug could be easily converted into a water insoluble form that could be smoked. When this happened, users discovered that this very potent stimulant drug could be delivered to the brain in a matter of seconds once it had been heated beyond its melting point. The street name given to this form of the drug was a play on the noise that the drug would make when heated on pie tins in kitchen ovens, a process designed to quickly convert the drug into its smokable form. As they say, that was a "game changer." An entire line of paraphernalia evolved to facilitate the smoking of this drug. Legions of addicts grew out of this period and destined this drug for its reputation as a uniquely destructive substance.

Those who are addicted are easy to identify. Users of this drug exhibit very noticeable symptoms of intoxication. As a central nervous system stimulant, the drug triggers pronounced excitation. Users display pronounced dilated pupils and an overall pattern of hyper activity. Speech becomes rapid and emotional; gestures move quickly and are exaggerated. This drug is short acting, arguably, the shortest acting drug in the current lineup of major abused drugs. Because of its short half-life, users will display serial patterns of use where the intervals between doses may only last 10-15 minutes. This drug is an anorectic, it blunts appetite and convinces users that they have eaten when they have not. It convinces users of a list of many things that are not true. It is also perhaps one of the most difficult drugs to detoxify from; there are no known maintenance drugs or pharmaceutical preparations that directly reduce cravings and urges.

This month's drug is a monster. Just ask an addict, one in recovery, or one still actively using. Their stories will always be the same.

Thank you for reading this popular column. We look forward to seeing you back here next month when we launch our new features in its place.

Answer:

This month's mystery drug is cocaine. It's also known as "crack" and "rock."

Possible New Treatment for Alcoholism Emerges: Dihydromyricetin

In another Journal essay in this edition, our authors have reported on promising data that suggests that LSD has the potential to help alcoholics stay sober. In the same vein comes information that an active ingredient in a Chinese herbal remedy has demonstrated positive effects in a series of well-constructed animal studies. At the moment, there are few medications approved by the FDA to treat alcoholism. These drugs include naltrexone (Vivitrol) and acamprosate (Campral) and disulfiram (Antabuse). And although each of these drugs is helpful in its own way, none are considered to be major therapeutic factors.



In a series of experiments, researchers treated rats with a Chinese flavinoid called dihydromyricetin (DHM), alcohol, or both in combination. DHM provoked some startling results. First, DHM prevented alcohol tolerance in the rodents. In rodents trained to seek alcohol, DHM noticeably reduced their alcohol seeking behavior. Further, in the case of rats experiencing alcohol withdrawals, DHM reduced anxiety-related behaviors. It even reduced susceptibility to alcohol-related seizures. The drug also changed movements of neurotransmitters associated with alcohol intoxication; it slowed activity down and desensitized the rats to alcohol.

DHM is a substance that has been used for generations as a Chinese remedy to hangovers. It appears to be capable of causing some rather complex biological actions to take place. It blocks multiple effects of alcohol without causing impairment or tolerance. It does all of these things, while at the same exact time, reduces the onerous symptoms associated with alcohol withdrawal.

It appears to be a multifaceted drug with the potential for significant human effect.

DHM is a substance that can be extracted from the Hovenia dulcis tree. It grows in Japan and in China. It is also known as the oriental raisin tree. It is a stout ornamental tree that grows edible fruit. A variety of different products are made from its various components. Extracts from the leaves are recognized for their protective effects on the liver. A separate product called Quercetin can also be extracted from this tree, that substance is widely known for its anti-inflammatory and anti-oxidant effects.

This is a development that is worthy of watching closely. DHM is the first drug in 20 years that poses some hope as a new therapy in the treatment of alcoholism. No doubt, herbal therapies containing DHM will soon pop up as over-the-counter potions and extracts. What remains to be seen is how the drug works in clinical trials of humans. That much is yet to come. Let us all cross our fingers and hope that DHM meets its potential.

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Sincerely,

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