

Lifestyles

MDMA Studies of popular illicit drug raise questions about effects

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72

TWO YEARS AGO on a picnic in the Canadian Rockies, Brian and his girlfriend traded sips from a plastic jug of orange juice laced with a powdery drug called "ecstasy."

Despite government warnings that the banned drug could induce psychosis, Brian remembers his first ecstasy trip as anything but frightening. "All we did was talk," recalls the 41-year-old Boulder college professor. "Ecstasy has a way of doing that. It makes you fearless to communicate."

But last fall, after consulting a doctor friend, Brian began to have second thoughts about that memorable Canadian afternoon and the dozen other times since then that he has taken ecstasy.

His concern: that ecstasy is eating away at his brain. The drug is a chemical cousin of amphetamine, which originally was produced in 1914 as a diet pill and later used as a tool in psychotherapy to help increase insight and awareness. Also known as "Adam" and by its abbreviated chemical name, MDMA, ecstasy was placed in the same outlaw category as heroin and cocaine in 1985 but still is sold on the street for \$15 to \$25 a dose.

"Quite frankly, if I found out tomorrow that it had shortened my life 10 or 20 years, it wouldn't be worth it," says Brian, who spoke on condition that his real name not be used. "I want to live a long and healthy life."

Brian's decision to stop using ecstasy, comes on the heels of a study that could prove to be the most serious scientific indictment against MDMA yet.

Speaking in Steamboat Springs in January at the annual Winter Conference on Brain Research, Dr. George Ricaurte of the California Institute for Medical Research said MDMA appears to cause brain damage even when used in moderate doses.

Studies also have linked MDMA to brain damage — but only when taken in large doses and in research conducted with mice and rats. Ricaurte, however, conducted his experiments with monkeys, considered the best predictors of the human condition.

"The bottom line is, in the monkey we're observing toxic effects after doses of MDMA that are only two to three times higher than those that are typically ingested by humans," Ricaurte says.

Ricaurte says MDMA affects the monkeys' ability to produce a neurotransmitter called serotonin. Scientists say they think serotonin is important in regulating subtle functions such as mood, sleep, appetite, blood pressure, sexual behavior and aggression.

In some cases, where monkeys received daily injections of MDMA during a four-day period, serotonin levels dropped by as much as 90%.

Although the monkeys showed no outward changes in behavior, the study clearly showed that MDMA could trigger brain cell damage and that it was a dosage-related phenomenon. Even monkeys given single oral doses of the drug showed a 20% to 25% reduction in their serotonin levels after two weeks, Ricaurte says.

"I think the important finding is a single dose of MDMA is producing long-term effects in the monkey brain," he says. "In view of those findings, my feeling is that people should be extraordinarily careful in their use of this drug."

Dr. Stephen Perouka, a Stanford University neurologist and professor who conducted the study with Ricaurte, shares the concerns. An informal poll Perouka conducted earlier this winter indicated that nearly 40% of the university's students have experimented with ecstasy. Another survey conducted a year ago on the Stanford campus indicated that fewer than 10% had used the drug.

Perouka fears that the latest survey is further evi-



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dence of MDMA's growing popularity nationwide. He refers to a survey at the University of Colorado at Boulder last summer that showed one of five students had used ecstasy one or more times.

Unlike LSD, ecstasy does not produce hallucinations or out-of-body sensations — only, as one Boulder psychologist described it, a feeling of discovery and "a deeper level of truthfulness."

Five deaths have been linked to the drug, most of them from overdoses that induced heart arrhythmia in people with unsuspected heart disease. At drug abuse centers, therapists say people who have overdosed on MDMA suffer psychosis, paranoia, elevated blood pressure, nausea, blurred vision and dehydration. And ecstasy has its more subtle temporary side effects. After a night of "X-ing," users have been known to wake up to a hangover — headaches, a dry mouth and depression.

Not everyone within the scientific community is interpreting the monkey study findings the same way. That includes Rick Doblin, president the Multi-Disciplinary Association for Psychedelic Studies, a non-profit group in Sarasota, Fla., that is funding much of Ricaurte's and Perouka's research.

"People are getting the impression that when they take MDMA there is a risk of permanent brain damage, and no one has ever found that," Doblin says.

In the study, Doblin says, the monkeys that showed the largest drop in serotonin received ecstasy by injection, rather than orally. The injections, he says, proved to be twice as toxic as oral doses, the most popular method of taking MDMA, that is bought illegally on the streets. Fur-

thermore, for weeks after the monkeys received ecstasy, the only behavioral side-effects exhibited by the primates was a loss of appetite.

Doblin says the reduction of serotonin levels in the monkeys tested was disturbing, but that the long-term effects weren't as significant as the researchers claim.

When killed for study 2 1/2 months later, monkeys that received heavy doses of ecstasy by injection had regained half their normal serotonin levels.

Doblin, whose organization wants ecstasy reclassified on the federal government's dangerous drug list so that it may be used for research and therapy, says another study being funded by MAPS should prove more relevant.

That study involves the observation of 29 human volunteers who have admitted using MDMA repeatedly for the past five years. The volunteers, who range in age from their early 20s to 70s, have agreed to let researchers analyze their spinal fluid to detect whether MDMA use is affecting their serotonin levels.

"Those people in the study have each used MDMA an average of 60 times, and none of them is evidencing any neurological complications," Doblin says.

At the University of Colorado at Boulder, Bill Olson, director of the drug and alcohol program at the Wardenburg Student Health Center, says he has received several calls from students who want more information about the monkey study. But unless researchers can directly link MDMA to serious brain damage in humans, he says ecstasy is likely to remain a popular underground "party drug."

Olson spearheaded the CU survey of ecstasy use last summer. According to the survey, ecstasy ranks fifth in drug popularity among Boulder students, who listed alcohol as No. 1, followed by marijuana, psychedelic mushrooms and cocaine.

"We're still in the honeymoon phase with ecstasy," Olson says. "People have been using it for two years and only now in the past six months are we seeing the trouble it brings."

Partly because the drug's popularity has grown since it was outlawed, Olson is among the experts who disagree with the federal Drug Enforcement Administration's ban on use of ecstasy for research. "I have some mixed feelings on this. . . Obviously (banning) this drug hasn't curtailed its use," Olson says.

Harvard University drug researcher Dr. Lester Grinspoon advocates placing MDMA on the DEA's Schedule III list, which would bar street use but would make the drug available for testing.

"Every psychiatrist who has experimented with this drug will tell you it has a very interesting potential as a psychotherapeutic catalyst," Grinspoon says. Grinspoon says the DEA has unfairly lumped MDMA together with LSD.

Psychologist Torokin Wakefield, who has a private practice in Boulder, notes that the drug was used legitimately for years as a clinical tool in psychotherapy.

"I don't think anyone is saying this drug should be as available as aspirin," Wakefield says. "But I'd like to see it thoroughly studied. We don't have to be afraid of it."

Dr. Daniel Goldstein, a Denver toxicologist and specialist in pharmacology, takes a more conservative stance. "This has all the hallmarks of a miracle drug that if it were ever let loose on the open market it would fail," Goldstein says. "There is absolutely no scientific data reporting its effectiveness as a psychotherapeutic agent. All we have are testimonials."

He also questions the drug's non-addictive classification. "All drugs with amphetamine-like properties represent significant addiction problems," he says.