

UPDATE

MDMA research in Switzerland

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EIGHTEEN MONTHS HAVE PASSED since we presented several studies into the effects of MDMA on drug-naïve subjects that were to be conducted in our laboratory (see MAPS Vol. VI, No. 3, Spring 1996). Most of the experimental work and parts of the data analysis involved in these studies have been completed. First results will be published soon.

Positron Emission Tomography (PET) & Electroencephalography (EEG)

A 1.7 mg/kg dose of MDMA was given orally to 16 MDMA-naïve subjects in a placebo-controlled, double blind design. PET and EEG were recorded simultaneously, and psychometric self-ratings were performed after the scans. Data acquisition has recently been terminated and a preliminary analysis indicates that MDMA leads to marked changes in regional cerebral blood flow compared to placebo. This effect is most notable in the cerebellum and the prefrontal cortex. EEG analysis is in progress and will involve 3D-tomographic localization of active neural populations using the new LORETA methodology (LORETA=Low Resolution Electromagnetic Tomography).

Acoustic startle reflex & Stroop Test

Thirteen MDMA-naïve subjects were included in this placebo-controlled, single-blind study. After receiving 1.7 mg/kg MDMA or a placebo, measurements of prepulse inhibition (PPI) of the acoustic startle reflex, a Stroop test and psychometric rating scales were performed. Blood pressure and temperature were monitored pre- and post-drug. The PPI/startle data obtained was compared with animal data from Prof. Mark Geyer, UCSD, who used the same dose of MDMA in rats. Surprisingly, in humans, comparable doses of MDMA altered prepulse inhibition in the opposite direction than in rats. These divergent findings might be due to differences in neurotransmitter release profiles, receptor mechanisms or both. It appears that extrapolation from animal to human data is difficult and further mechanistic studies are needed to elucidate species related differences. Also the Stroop findings were of some interest. This task taps selective attention and distractibility, i.e. the (dis)ability to focus on one dimension of a stimulus while ignoring other, irrelevant dimensions. We found that a single dose of 1.7 mg/kg MDMA did not affect Stroop performance. Apparently, processing of selective attention was intact, although most subjects reported that under MDMA, their thoughts

would often drift off during the test, while a more "automatic" level of their minds seemed to take control and obviously managed the test without much difficulty.

Psychometric ratings & vital signs

Analysis of the psychometric rating scales (The Altered States of Consciousness questionnaire APZ-OAV, the EWL mood rating scale) revealed an MDMA-induced increase in well-being and positive affect. Thought disorder and first signs of loss of body control were present, as well, though not associated with any significant degree of anxiety. Visual perception was characterized by optical illusions and an intensification of colors, but no hallucinations occurred. Objects and persons in the immediate surrounding gained new meanings. Sense of time and space was profoundly altered. Locomotor stimulation in the laboratory setting was minimal. At the dose tested, MDMA produced a significant elevation of blood pressure, while there was only a small, non-significant rise in body temperature (0.2 - 0.5°C)

Effects of regular Ecstasy use

Currently, we are conducting a study looking into the long-term effects of heavy Ecstasy use. We are recruiting preferential Ecstasy users who have consumed at least 100 doses. Detailed drug histories of subjects are being taken so that the possible effect of drugs other than MDMA can be brought into data analysis. Areas to be examined are attention (Stroop Test), memory (Auditory Verbal Learning Test), brain waves (EEG), cerebral blood flow (PET) and the acoustic startle reflex. The experimental part of this study will be concluded in Spring/early Summer 1998. For more information on these projects, please contact us at the address below. •

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