3,4-Methylenedioxymethamphetamine — Effects on Human Performance and Behavior

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ABSTRACT: 3,4-Methylenedioxymethamphetamine (MDMA, "ecstasy") is a unique drug, sharing properties of hallucinogens and stimulants. The acute effects of empathy, euphoria, and excitement for which it is used recreationally can make it overwhelmingly distracting for the user in the context of driving. This review considers the chemistry, synthesis, analysis, pharmacology, pharmacokinetics, and documented effects of MDMA on cognitive and psychomotor skills important to driving. Laboratory studies show that users do experience cognitive impairments, and may also act more impulsively while under the influence of the drug's sympathomimetic effects. Psychomotor impairment may occur with elevated doses or after repeated administration, and residual psychomotor impairment during the "coming-down" phase may be compounded by fatigue, dehydration, combined drug use, or other confounding factors. There is growing anecdotal information providing evidence of MDMA-impaired driving, and it is evident that many users recognize and attempt to mitigate the effects by delaying driving until the acute affects have dissipated. The drug inevitably may affect a subject's judgment and ability to properly assess their fitness to drive also. Blood concentrations in MDMA-impaired drivers suggest that this impairment can be caused by normal patterns of recreational use, and MDMA use should be considered inconsistent with safe driving immediately following ingestion, and for up to a day or longer following use.

KEY WORDS: Drugs and driving, ecstasy, MDMA, 3,4-methylenedioxymethamphetamine.