

# (3,4-Methylenedioxymethamphetamine) or ecstasy: The neuropsychobiological implications of taking it at dances and raves': Reply.

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## **Abstract**

MDMA (3,4-methylenedioxymethamphetamine) or 'ecstasy' is a ring-substituted amphetamine derivative, which is widely used as a recreational drug, most particularly at dances and raves. Around 80-95% of dancers/ravers report using ecstasy/MDMA, compared to 5-15% of young people in general. This paper will consider the possible contribution of stimulatory environmental conditions to the neuropsychobiological effects of MDMA. Animal research shows that heat and crowding potentiate the acute effects of MDMA. Social interaction and intravenous drug self-administration in laboratory rats are significantly enhanced when MDMA is given under hot ambient temperatures. Loud noise and physical activity can also contribute to the general overarousal. Furthermore, MDMA impairs homeostatic thermal control in rats, leading them to overheat in hot environments. The human implications of these findings are that the hot, noisy and overcrowded conditions at raves may be providing the ideal environment to heighten the acute drug response. In recreational users, the acute medical dangers of MDMA comprise a constellation of hyperthermia-related abreactions, which generally only occur when it has been taken in hot and crowded environments. MDMA is well established as a serotonergic neurotoxin in laboratory animals, but heat and overcrowding increase the degree of distal axon terminal loss. If this also occurs in humans, then the stimulatory

environments of clubs and raves may heighten the likelihood of adverse neuropsychological sequelae in recreational ecstasy users. Consistent with this prediction, the extent of self-reported dancing/exercise when on MDMA has recently been shown to be associated with significantly more psychobiological problems afterwards.

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