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Title:	MDMA self-administration under a progressive ratio schedule in rats
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The relative rewarding effects of abused drugs are often assessed using animal models of intravenous (i.v.) self-administration in conjunction with a progressive ratio (PR) schedule of reinforcement. Although 3,4-methylenedioxy-N-methamphetamine (MDMA or “Ecstasy”) is used extensively as a recreational drug in young adults, the reinforcing properties of MDMA have not been extensively studied using the self-administration paradigm. In addition, there are no published reports of MDMA self-administration under a PR schedule of reinforcement in rats. In the present study, rats were trained to self-administer MDMA (1.0 mg/kg/inj) on a fixed ratio 1 (FR1) schedule. After 10 days of FR training, animals were switched to a PR schedule. Animals self-administered each of three MDMA dosages (0.25, 0.5 and 1.0 mg/kg/inj) for 5 consecutive daily sessions, with 2 drug-free days between different doses. Total number of responses, breakpoints and locomotor activity were assessed during each session (2 hr maximum duration). Core temperature was also recorded before and after MDMA self-administration sessions. During FR1 training, locomotor activity was enhanced in an intake-dependent manner, supporting previous findings of the locomotor stimulant effects of MDMA. During PR sessions, significant differences in lever responses between MDMA doses were observed, with the 0.5 mg/kg/inj MDMA dose producing the highest breakpoint levels and total number of lever responses. However, locomotor activity scores were comparable across different dosage sessions and MDMA self-administration did not induce significant thermal responses at any level of MDMA intake. This study demonstrates that MDMA can support high rates of self-administration behavior and suggests the potential for addictive properties in human users.

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