

AVAILABILITY OF INTRAVENOUS Δ^9 -TETRAHYDRO/ CANNABINOL UNDER A FIXED-INTERVAL SCHEDULE IN MONKEYS

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The lack of procedures which can unequivocally demonstrate cannabinoid self-administration in animals has been an obstacle to the study of the neural basis for the reinforcing effects of this drug class. Because Δ^9 -tetrahydrocannabinol (Δ^9 -THC) produces a relatively slow-onset, long-lasting behavioral effect, a self-administration procedure with widely spaced drug deliveries was evaluated as an alternative to fixed-ratio schedules which typically require frequent, closely spaced injections to demonstrate reinforcing effects. Three adult male rhesus monkeys were surgically implanted with intravenous catheters and trained to self-administer phencyclidine (PCP) under a 10-mm fixed-interval schedule of reinforcement. Three injections were available each day, separated by 2-h periods during which responding had no programmed consequences. In an attempt to link the effect of the drug with the response which produced it, each 20-s injection was paired with a red light which remained illuminated for 10 min. PCP (100 mg/kg/injection) maintained steady rates of responding during each availability period, ranging from approximately 0.2 to 0.7 responses/s. During 7-day substitution periods, Δ^9 -THC (17-100 mg/kg/injection) maintained low rates of responding which occasionally surpassed those during vehicle substitutions, but fell far below rates maintained by PCP. Substitution tests with the potent Δ^9 -THC analog CP 55,940 also resulted in low rates of responding. These results demonstrate that Δ^9 -THC is a poor reinforcer in animals, even under conditions where some of its unfavorable biodispositional properties are taken into consideration.

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