attenuating those hyperactivity syndromes. The interaction between lithium and Tc is the first to show an activating effect of lithium in animals and might be viewed as a possible experimental model of antidepressant activity. We believe that it is important at this stage to merely show that lithium will produce changes in animal activity and metabolism which could conceivably be analogous to alteration of mood in man. The fact, however, that both caesium and rubidium ions have the same effects suggests that the responses studied are not very specific to lithium. They do, however, also suggest reasons for further clinical studies of rubidium and caesium.

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Effects of lysergic acid diethylamide on auditory and visual discrimination in the rat

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The effect of LSD on either visual or auditory discrimination was studied in rats matched for discrimination performance. A drug may affect discrimination either by changing stimulus sensitivity or by shifting the criterion for responding. A method of analysis, derived from signal detection theory (SDT), was used to assess independent effects on these two factors.

Twelve adult, male, hooded rats (300 g) were used. Each animal was first trained on a DRL (differential reinforcement of low rate) schedule. A signal indicated the availability of reinforcement. After each reinforced response, the interval to the next signal was varied unpredictably between 9 and 27 s (mean delay 18 s). A response, 9 s or less before the signal, postponed reinforcement for a further 9 s. The schedule yielded a low but constant response-rate. One group of rats (n = 6) was trained with a light signal, the second group (n = 6) with a tone, and the two groups were matched for discrimination performance. Each rat was trained 45 min per day for 44 days before the experiments, to produce consistent baseline responding. A SDT analysis, described fully elsewhere (Warburton & Brown, 1972), was used to determine two parameters, A', a measure of stimulus sensitivity, and B'', a measure of response bias. The drugs were lysergic acid diethylamide tartrate (Sandoz) and methysergide bimaleate (Sandoz) (a control for peripheral effects). The injection conditions were 0.005, 0.01, 0.05, 0.25 mg/kg LSD, 0.50, 1.00 mg/kg methysergide, and distilled water. The solutions were made up in distilled water and injected i.p. in the volume 1.0 ml/kg. Each rat was tested under each injection condition, with order of injection counterbalanced within each group. Injections were given at 48 h intervals. For statistical analysis results on an injection day were compared with the preceding day's baseline performance.

LSD effects were found to be comparable for the two groups. Total responses were reduced by on average 62.7% ($P < 0.001$) at the highest dose of LSD (0.25 mg/kg). There were no other significant drug effects on response rate. There was a reduction in A' (i.e. a decrease in stimulus sensitivity) at 0.25 ($P < 0.005$) and at 0.05 mg/kg LSD ($P < 0.005$). No other changes in A' under any other injection conditions occurred. The sensitivity changes were not due to changes in response bias (B''), since there were no consistent drug effects on it.

The study demonstrated a reduction in the number of responses at the highest dose of LSD, and independently of this, a decrease in sensitivity to either a tone or a light signal at 0.05 and 0.25 mg/kg LSD. There were no drug effects upon response bias.

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