All: 1 Review: 0

1: Neurotoxicol Teratol. 1999 Jan-Feb;21(1):47-58.

Effects of postnatal exposure of monkeys to a PCB mixture on concurrent random interval-random interval and progressive ratio performance.

Rice DC, Hayward S.

Toxicology Research Division, Bureau of Chemical Safety, Food Directorate Health Protection Branch, Health Canada, Ottawa, Ontario. ricekrwc@midcoast.com

Behavioral impairment as a consequence of PCB exposure beginning in utero has been reported in both humans and animals. The present study assessed the behavioral consequences of postnatal exposure to PCBs. Male monkeys (Macaca fascicularis) were dosed from birth to 20 weeks of age with 7.5 microg/kg/day of a PCB mixture representative of the PCBs typically found in human breast milk (eight monkeys) or vehicle (four monkeys). Blood PCB levels at 20 weeks of age were 0.30-0.37 ppb for control and 1.84-2.84 ppb for treated monkeys, and fat levels were 50-198 and 1694-3560 ppb for the two groups, respectively. Beginning at about 5.0 years of age, monkeys performed under concurrent schedules of reinforcement in which separate random intervals were in effect on two buttons independently. After steady-state performance was reached, the relative reinforcement ratio on the buttons was changed a total of four times, and performance both during transition and steady state was examined. There was no evidence for treatment-related differences in performance across the series of changes in schedule contingencies. The negative results failed to support the hypothesis that performance on an intermittent schedule, combined with the requirement for shifting response strategy, would prove particularly sensitive to postnatal PCB exposure. Following the concurrent schedules, monkeys were tested under a progressive ratio (PR) schedule preceded by a training procedure consisting of a within-session series of increasing fixed ratios. PCB-treated monkeys emitted more responses than controls over the first few sessions of the PR, which may be indicative of retarded acquisition of their steady-state PR performance. These results extend previous studies in these monkeys on the characterization of PCB-induced behavioral deficits.

PMID: 10023801 [PubMed - indexed for MEDLINE]

Display Abstract Show 20 Sort by Send to