
THE EFFECTS OF NICOTINE AND CIGARETTE SMOKE ON PREGNANT FEMALE ALBINO RATS AND THEIR OFFSPRINGS

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Both tobacco smoke and dilute solutions of nicotine were used in these experiments. The dosage of the nicotine content in smoke was figured to approximate human smoking of a package of cigarettes per day. Treatment began at the time of mating and ended at the time of weaning in all the experiments except one. This one was designed to check the latent effect of tobacco smoke on the mothers. It was desired to treat the females prior to the development of the mammary gland for lactation. If, in so doing, anomolous development of the young could be demonstrated, the injury must reside in organs other than the mammary gland. Litter mates of young sexually mature females were used in the various experiments and controls. The results are as follows:

1. Two-thirds of all the young of treated mothers were underweight; the young from nicotine-injected mothers were more underweight than those from smoked mothers.
2. The underweight group remained underweight during the entire period of observation; many of the young of this group were undersized and died early.
3. Of the females injected, 63.3 per cent lost one or more young before weaning, and 33.3 per cent lost all of their young.
4. Of the mothers exposed to tobacco smoke, 28 per cent lost one or more of the young before weaning, and 13.5 per cent lost all of their young.
5. Of the mothers smoked prior to mating, 23.3 per cent lost one or more of their young before weaning, and 25 per cent were underweight.
6. In both groups of the treated mothers, temporary sterility, resorption of young in utero, and abortions were noted.
7. Alteration of maternal behavior was observed and consisted of cannibalism and neglect of the young as to care and feeding.
8. A marked parallelism exists between the treated rat females and their young and human mothers and their young in cases where the mother is a heavy smoker or is employed in the tobacco industry.
9. Individual variation is much in evidence.