

## **EFFECTS OF A SINGLE INJECTION OF TRITIATED WATER DURING ORGANOGENY ON THE PRENATAL AND POSTNATAL DEVELOPMENT OF MICE**

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**Abstract** --- Pregnant NMRI mice were injected with tritiated water during organogeny. Corresponding to single injections of 0.07 mCi tritium per g body weight of dams on Day 9 post conceptionem (p.c.), the offspring showed a significantly decreased weight of brain and genital tract organs. In offspring aged 4.5 months the number of oocytes was substantially reduced and the seminiferous epithelium was in a state of disintegration. At 2 months, however, these offspring were fertile. 0.135 mCi/g affected fertility of females but not that of males. After injection of 0.27 mCi tritium/g neither sex of the offspring appeared to be fertile at the age of 2 months. At 18 months the ovarian tumour incidence of exposed offspring was increased approximately five-fold over controls (tritium: 67%, controls: 14%). 0.54 mCi/g caused perinatal mortality in 100% of offspring. Injecting 0.54 mCi tritium/g on Days 7, 9 or 11 of pregnancy, the foetuses were stunted, but incidence rates of gross malformations as well as of skeletal anomalies were negligible. Prominent histological findings were common – retardation of the prosencephalon and marked hypoplasia of the gonads. Oocyte nuclei stained with haematoxylin appeared to be pale. In contrast to controls, pachytene stages were extremely rare. In the testicular cords large centrally spaced spermatogonia were absent. The placental weight was reduced. The treatment of dams on Days 7 and 9 led to increased resorption of embryos. After injection of 0.81 mCi tritium/g on day 9 p.c. the rate of resorption was about 50%. Tritium administered at higher activity levels than 1 mCi/g caused maternal mortality. In the uteri of surviving and of dead dams all embryos were in a state of resorption.