Effect of radiotoxic effect of uranium ore dust on the reproductive system of rats

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The purpose of research was to study the reproductive function of female and male rates when exposed to uranium ore dust.
A series of studies was performed on 43 mature white mongrel rats of both sexes. Oral intake of UOD was simulated for 7 days of daily feeding of 30 white outbred rats with uranium ore dust (UOD) mixed with feed. The mass of uranium ore dust for single feeding of animals of the experimental group in a dose of 50 is the maximum allowable concentration (MAC) was 5750 mg.

The control group consisted of intact white rats with normal feeding. 24 hours after the last feeding of (UOD), some animals reproduced biomaterials of the reproductive system of females and males and measured the concentration of uranium in samples on an inductively coupled plasma mass spectrometer "Agilent-7800" with a range of measured masses from 2 amu up to 260 amu.

After irradiation, the experimental animals were divided into 3 subgroups for crossing: I was represented by irradiated females (n = 12) and intact males, II subgroup by intact females (n = 7) and irradiated males, and III - control subgroup of males and females with normal diet. Experimental and control female rats were planted with males in a ratio of 5: 2.

According to the results of our study in the organs of the reproductive system of the female uterus and ovaries, the uranium content was more than 2 times higher than that in the control animals, and in the testes of males more than 1.5 times. The sexual function was judged based on the study of crossbreeding and compared it with the control group, where the onset of pregnancy was observed in 100% of cases. The state of sexual and reproductive function of experimental rats along the course of pregnancy and childbirth. The gestation period of pregnancy in irradiated animals lasted an average of 26-27 days in comparison with control females. Of the female rats of the experimental group who were mated with intact males, 58% became pregnant, a similar pattern was observed in the group of irradiated males crossed with intact females - 57%, that is, the cases of pregnancy in rats in both groups decreased almost 2 times compared to the control group .

The result of the studies indicates that the radiotoxic effects of rats result in a decrease in the ability to reproduce both females and males.