

Body Weight Gain in Female Mice Continuously Irradiated with Low Dose and Low Dose-Rate Gamma-Rays.

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Abstract

We have shown that excess body weight gain and premature menopause occur simultaneously in female SPF B6C3F1 mice continuously irradiated with gamma-rays at a low dose-rate of 20 mGy/22h/day from 9 weeks of age. In the present work, we investigated the effect of radiation dose and dose-rate on radiation-induced body weight gain in female B6C3F1 mice continuously irradiated at low dose-rates (1, 10 and 20 mGy/22h/day) to total accumulated doses of 0.1–1.5 Gy from 9 weeks of age. Body weight gains were observed in all of the irradiated groups. The ages at which body weight gains occur were found to be related to the radiation doses that caused a decrease in the number of oocytes. Our results suggest that the body weight gain in female mice continuously exposed to low dose-rate gamma-rays (1, 10 and 20 mGy/22h/day) are triggered by the radiation-induced decrease in the number of oocytes.

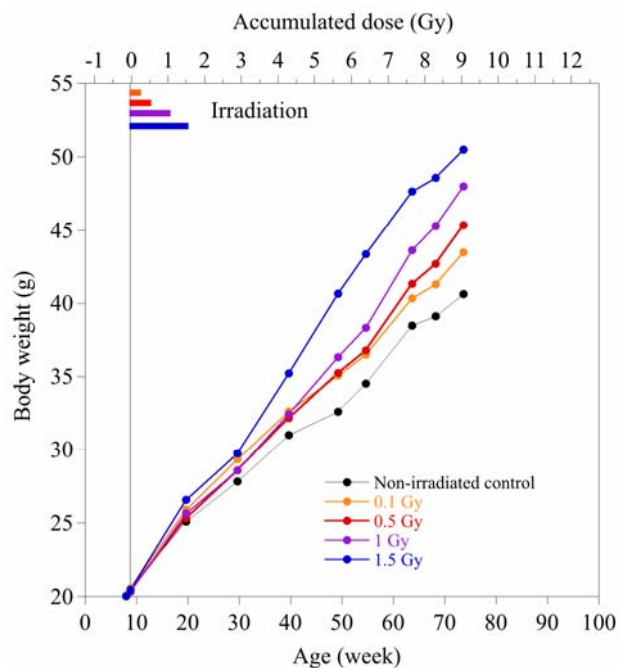


Fig. 1 Time course for alternations of body weight in female mice continuously irradiated with low dose-rate gamma-rays to total accumulated doses of 0.1, 0.5, 1.0 or 1.5 Gy.

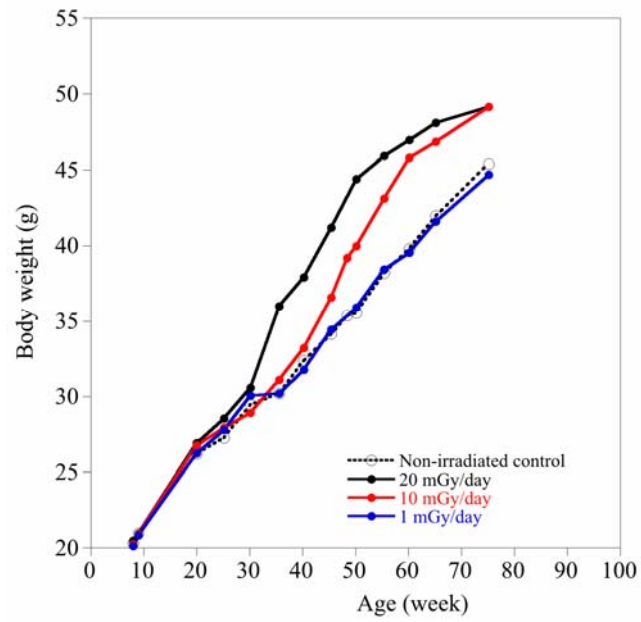


Fig. 2 Time course for alterations of body weight in female mice continuously irradiated with gamma-rays at three different low dose-rates.