Body of Abstract: The effects of low-dose rate gamma-irradiation were investigated on model mice for type II diabetes mellitus, C57BL/KsJ-db/db. The mice develop the type II diabetes by 10 weeks of age due to obesity and are characterized by hyperinsulinemia.

Female 10-week old mice, a group of 12 mice, were irradiated at 0.65 mGy/hr from 137-Cs (370 GBq). The urine glucose levels of all of the mice were strongly positive at the beginning of the irradiation. In the irradiated group, the decrease in the glucose level was observed in 3 mice. Such recovery from the diabetes was never observed in 12 mice of non-irradiated control group.

There is no systematic difference in the change of body weight, food assumption, and amount of drinking water, between the irradiated group and the non-irradiated group or between the recovered mice and the non-recovered mice.

The survival was better in the irradiated group; the surviving fraction at the age of 90 weeks was 75 % in the irradiated group, while 40 % in the non-irradiated. Marked difference was also observed in the appearance of the coat hair, skin, and tail; better condition was kept in the irradiated group.

In the irradiated mice mortality was delayed and the healthy appearance was prolonged in the irradiated mice by about 20 - 30 weeks compared with the non-irradiated mice.

These results suggest that the low-dose irradiation modified the condition of the diabetic mice, which lead not only to the recovery of the diabetes, but also to the suppression of the aging process.