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**EXPERIMENTAL STUDIES ON THE EFFECTS OF INTERNAL
RADIATION OF STRONTIUM-90 (^{90}Sr) ON THE MOUSE***

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Internal radiation effects of ^{90}Sr on mice, the dd-strain, four weeks old and weighing 15 to 20 g, were studied biologically and biochemically. The results obtained are summarized as follows:

1) Total retention of ^{90}Sr was 28.4% of the injected dose on the fifth day, 18.9% on the fifteenth day, and 17.6% on the forty-fifth day after intraperitoneal injection of ^{90}Sr . At twenty-four hours, ^{90}Sr concentrations (dpm/mg of Ca) in blood, bone, and organs were almost the same. However, the ^{90}Sr concentration (dpm/mg of Ca) in blood was almost one-tenth of that in bone by the 15th day.

2) Leukocyte counts on the 30th day after the ^{90}Sr injection were slightly, moderately and severely decreased when doses of 0.2 $\mu\text{c/g}$, 0.4 to 0.8 $\mu\text{c/g}$, and 1 to 2 $\mu\text{c/g}$ respectively were given. The LD_{50} at 30 days for ^{90}Sr by the intraperitoneal injection was 4.0 $\mu\text{c/g}$. The ^{90}Sr concentrations in bone for these cases were determined.

3) The incorporation of ^{32}P and ^{45}Ca into the bone were inhibited remarkably after the injection of ^{90}Sr . On the tenth day after the intraperitoneal injection of 2 $\mu\text{c/g}$ of ^{90}Sr the incorporation of ^{32}P into the spleen and into the lymph nodes rose remarkably, whereas the liver showed a moderate increase.

4) The incorporation of ^{32}P into the various phosphorous fractions in the spleen and liver were observed. In the liver the synthesis and utilization of phospholipids had markedly increased. But in the spleen the synthesis and utilization of the nucleic acid, phosphoprotein and acid soluble phosphorous compounds as well as phospholipids had markedly increased.

5) The oxygen consumption of the liver tissue was almost the same as that of the control animals, but the activity of the ATPase increased markedly while the glycogen level decreased.

* The original report of this work will appear in the *Nat. Inst. Anim. Hlth Quart.*, 5, (1965).