

Elimination of radiocesium in contaminated adult female Norwegian reindeer

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Abstract: In an attempt to find practical solutions to the treatment of radiocesium contaminated reindeer, 8 adult female reindeer were fed naturally radiocesium contaminated lichen *ad lib.* for 35 days. The lichen contained on average 45 000 Bq/kg, and the food intake of lichen was on average 2 kg dry matter per day. Determination of radiocesium contamination was based on measurements of blood, after establishing that wet muscle contained 7 times more cesium than blood. In the experimental period accumulation of the isotopes ¹³⁷Cs, and ¹³⁴Cs combined was on average 400 Bq/kg wet muscle pr day. A daily oral administration of 250 mg ammonium-ferrohexacyanoferrate, (Giesesalt, Riedel-de Haën AG, Seelze, Germany), prevented net accumulation of radiocesium when reindeer were fed the above mentioned naturally radiocesium contaminated lichen *ad lib.*. The biological halftime of the cesium isotopes was determined to 25 days when reindeer were fed lichen, 10 days when they were fed RF-71, and 7 days when fed RF-71 *ad lib.* and orally treated with 250 mg Giesesalt pr day. Giesesalt mixed in artificial food, such as RF-71, seems to be very efficient in reducing the cesium burden of these animals. We have developed a constant releasing capsule (120 mm long and 21 mm diameter) containing Giesesalt, with an orifice of 15 mm. Four adult female reindeer have orally been given these capsules, which released on average 413 mg \pm 286 mg pr day for 30 days. This prevented net absorption of radiocesium. In a separate series of experiments reindeer were given 2 g Giesesalt orally per day over a 2 month period without any ill effects.

Rangifer, Special Issue No. 3, 1990: 49