were fed iodoedestin and iodogliadin. Every third day a small quantity of algae were fed along with the iodized proteins. The hind limbs of the animals grew rapidly at first, but later, limb growth slowed down and metamorphic changes progressed slowly. It required 3 months of continuous feeding to bring the animals of these cultures to the same stage of metamorphosis as that which resulted from 20 days feeding with iodofibrin.

It was noted that considerable of the iodine split off from the edestin and gliadin after the powdered material had been in the water for an hour. Such was not the case with iodofibrin. It seems probable that the method of iodization employed has much to do with the activity of iodized proteins in accelerating amphibian transformation.

[1] Swingle, W. W., *Biol. Bul.*, 1923, xlv, 229.

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The Effect of Forcing Fluids, upon Survival after Bilateral Epinephrectomy.

E. L. COREY. (Introduced by W. W. Swingle.)

From the Osborn Zoological Laboratory, Yale University.

Previous work done by several investigators has shown that the administration of certain solutions may result in prolongation of life beyond the usual period in epinephrectomized animals. Stewart and Rogoff[1], working on dogs, report that intravenous injections of Ringer's Solution and dextrose prolonged life. Zwemer[2], working on cats, in this laboratory, was able to keep double operated animals alive for considerable periods by administering orally 5 per cent solution of glucose. This work suggested the possibility that forcing fluids containing various substances might prove beneficial in the treatment of adrenal insufficiency. Zwemer and Swingle have noted and commented upon the symptoms of dehydration which appear after bilateral epinephrectomy in cats, and, the fact that animals, presenting marked symptoms, eagerly drink large quantities of water up to within a few hours of death.

The procedure followed in the present work was to remove the left adrenal and after a lapse of 5 to 10 days extirpate the remaining glands. Untreated cats subjected to this procedure generally

survived about 60 hours. The solutions were given by stomach tube, beginning immediately after the second operation. None of the animals employed were pregnant.

Ringer's Solution definitely prolonged life, the average survival period of animals receiving it being 174 hours. Doubling the percentage of the constituents of Ringer's Solution did not materially prolong the life span.

Sodium chloride given in 1 per cent solution prolonged life, the average life span of animals so treated being 149 hours.

Sodium bicarbonate likewise increased the life span, the average being 143.3 hours for animals treated with it.

Sodium acetate did not increase the life span, the average being 60 hours. The ineffectiveness of the acetate was probably due to its irritating effect upon the alimentary tract since the cats had difficulty in retaining it.

Solution A_1 containing magnesium lactate 0.9, strontium lactate 0.024, acid sodium phosphate 0.024 prolonged the survival period to an average of 150 hours.

On the other hand, Solution A_2 containing magnesium sulphate 0.9, strontium chloride 0.024, sodium sulphate 0.024 failed to prolong life, the average survival being 68.5 hours.

A 5 per cent solution of glucose increased the life span to an average of 180 hours.

It is not clear why forcing fluids should prolong the life of bilaterally epinephrectomized cats. The idea which most readily comes to mind in this connection is that the forcing of fluids and the consequent diuresis flushes some toxic substance out of the organism. Such treatment is merely palliative since all animals so treated eventually succumb with typical adrenal symptoms.

[1] Stewart, G. M., and Rogoff, G. M., PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 394.

[2] Zwemer, R. L., *Anat. Rec.*, 1925, xxxi, 338.