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Effect of an Excess of Salt on Resistance to Histamine in Rats.

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In the previous paper[1] it was noted that depletion of the stores of sodium chloride decreased the natural resistance of histamine.

In the present study the prophylactic effect of the administration of an excess of saline to normal rats was observed on the subsequent resistance to histamine. A number of normal adult rats were each given 20 cc of physiological salt solution intraperitoneally. All the saline was absorbed within 3 to 4 hours. The rats were tested 4 hours after injection of the saline with varying quantities of histamine intraperitoneally injected. Control rats were inoculated at the same time. The minimal lethal dose was determined in both groups.

In some instances 2 to 3 cc of fluid was still present in the peritoneal

TABLE I.
Effect of an Excess of Saline on Resistance to Histamine in Rats.* (Combined data of several experiments.)

No. rats	Histamine in mg per kg	Survived	Died
Rats given 20 cc physiological NaCl solution intraperitoneally 4 hr prior to test.†			
2	1200	2	0
4	1400	4	0
2	1600	2	0
2	1800	1	1
5	2000	4	1
3	2200	2	1
2	2400	0	2
Rats fed 2 g salt per day for 3 days prior to test.‡			
3	1400	3	0
8	1600	3	5
7	1800	0	7
4	1900	0	4
Control rats.			
4	1000	2	2
2	1100	0	2
4	1200	0	4

[1] Perla, D., and Sandberg, M., PROC. SOC. EXP. BIOL. AND MED., 1939, **41**, 275.

* All the rats in the experiments were of our standard normal Wistar stock, raised in the laboratory under the same conditions of diet for many years. They were free from known latent infections. The histamine was administered intraperitoneally dissolved in small amounts of distilled water.

† In these rats the serum sodium remained at the normal level but the serum potassium rose somewhat. This will be discussed in a subsequent report.

‡ These rats lost about 10 g in weight in 3 days. They drank excessive quantities of water and diuresis was pronounced. The normal diet contains in addition to the traces of Na in the natural foods, one percent by weight of sodium chloride.

cavity 4 hours after injection of the saline. This residual fluid was fairly rich in protein. Blood counts and determination of hemoglobin before and after the injection of the saline showed no evidence of altered concentration of the blood elements. There was no change in the hemoglobin or the total red cell count.

The rats receiving saline withstood 2200 mg of histamine per kilo of body weight, an amount equal to twice that which is lethal for the normal rat (1100 mg per kg). The results are given in Table I.

Feeding salt in amounts of 1 to 2 g per day for a period of 3 days prior to the test also raised the resistance of the rat but not to the same degree as the saline injections. Some rats survived 1600 mg of histamine per kilo of body weight.

Summary. An excess of salt for short periods above the apparent requirement in rats in which the depôts of saline solution have been filled enhances the natural resistance of the animal to large amounts of histamine. The intraperitoneal injection of large quantities of saline a few hours prior to the test increased the resistance to twice the normal. Salt feeding for several days prior to the test raised resistance about 30 to 40%.

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Whey as the Substratum in Vitamin B_1 Assays.

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To meet the requirements for the other essential substances of the Vitamin B complex in Vitamin B_1 (thiamine) assays, early workers used autoclaved yeast. Because of the uncertainties involved in obtaining a yeast quite free from the vitamin in question, the use of autoclaved whey and autoclaved liver has been advocated since the thiamine in these apparently is more readily destroyed. For these assays it is customary to place the test animals on the basal ration at weaning, hold them until the body stores of B_1 are depleted, manifested by stationary weight, and subsequently for a given specified period add the material to be tested in amounts sufficient for considerably less than the optimum gain. Although theoretically it should be possible to use a test animal for successive assays, in practice it is customary to make only one assay with a given animal. Under these