9042

Glycogen Formation After Alanine Administration in Adrenalectomized Animals.*

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According to Evans,[1] the metabolism of endogenous protein is interfered with in the adrenalectomized rat. In our present studies the metabolism of an orally administered amino acid, alanine, has been investigated in animals with the adrenal gland removed. Butts[2] has shown that this amino acid is converted to glycogen in the organism, the maximum storage being 8 hours after the oral administration of the acid.

To 7 normal male and a like number of normal female rats 1.6 mg. alanine per square centimeter of body surface, was administered by stomach tube. A like amount was given to the paired brothers and sisters of the above animals which had been bilaterally adrenalectomized 6 days previously and had received salt solution since. All animals were fasted 24 hours before the alanine was fed. Three animals of each sex and of each group were given an amount of water by stomach tube equivalent in volume to the alanine solution fed in the other group.

In the groups of normal and adrenalectomized males, blood sugars were determined on blood obtained from the tails just before alanine administration and at the periods after administration shown in the table. At the end of 8 hours the livers of all animals were removed under amytal anesthesia and glycogen determined in the organ. A summary of the results is given in Table I.

Apparently adrenalectomy does interfere with the conversion of alanine to glycogen. The blood sugar changes are also less marked. Not only this but all of the adrenalectomized animals showed a drop in the sugar level after the peak which was reached one hour after alanine administration, while the normal rat showed a high level throughout the 4-hour period. The failure to store glycogen may be due not to failure of glycogen synthesis but to low blood sugar level.

The difference between normal males and females in ability to

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1 Evans, Gerald, *Am. J. Physiol.*, 1935, **114**, 297.

2 Butts, J. S., Dunn, M. S., and Hallman, L. F., *J. Biol. Chem.*, 1935, **112**, 263.

TABLE I.

	No. of Animals	Blood Sugar Fast	½ hr.	1 hr.	2 hr.	3 hr.	4 hr.	Liver Glycogen % at 8 hr.	Alanine % absorbed
Normal ♂, Fed Alanine	7	89	113	111	108	108	109	.70	99.04
" " " H_2O	3							.13	
Adrenalectomized ♂, Fed Alanine	7	85	88	98	93	93	86	.29	97.41
" " " H_2O	3							.16	
Normal ♀, Fed Alanine	7							.79	100.00
" " " H_2O	3							.11	
Adrenalectomized ♀, Fed Alanine	7							.24	99.21
" " " H_2O	3							.08	

store glycogen, as reported by Deuel and Butts[3] after glucose administration, does not appear in this experiment. Further work is being continued to determine the course of alanine metabolism in adrenalectomized animals.

9043

Effect of Transfusion of Blood From Dogs with Experimental Renal Hypertension into Normal Dogs.*

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Ischemia of the dog's kidney, produced by constriction of the renal arteries, results in a chronic hypertension (Goldblatt, Lynch, Hanzal and Summerville[1]). Destruction of the nerves to the kidney does not prevent the development of this hypertension (Page,[2] Collins[3]). Hence it may be supposed that we are dealing with a chemical mechanism. A number of workers (Prinzmetal and Friedman[4]; Harrison, Blalock and Mason[5]; Govaerts and Dicker[6]) have

3 Deuel, H. J., Jr., Gulick, M., Grunewald, C., and Cutler, C. H., *J. Biol. Chem.*, 1934, **104**, 519.

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1 Goldblatt, H., Lynch, J., Hanzal, R. F., and Summerville, W. W., *J. Exp. Med.*, 1934, **59**, 347.

2 Page, I. H., *Am. J. Physiol.*, 1935, **112**, 166.

3 Collins, D. A., *Am. J. Physiol.*, 1936, **116**, 616.

4 Prinzmetal, M., and Friedman, B., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 122.

5 Harrison, T. R., Blalock, A., and Mason, M. F., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 38.

6 Govaerts, P., and Dicker, E., *Compt. rend. Soc. de biol.*, 1936, **122**, 809.