developed toward the anterior pituitary factor responsible for the depression in carbohydrate oxidation after glucose feeding. This effect would appear to be quite analogous to that obtained in fasting hypophysectomized rats on prolonged treatment with A. P. extracts.

9445

Inhibition of Somatic Growth in Castrate Rats with Pituitary Extracts.*

HENRY D. MOON. (Introduced by Herbert M. Evans.)

From the Institute of Experimental Biology, University of California, Berkeley.

Male and female rats were castrated when 22-23 days old, and intraperitoneal injections of adrenocorticotropic extracts[1] (A-C-T) were given daily beginning on the day following the operation. The growth of hair over the shaved operative areas and over the whole body was very greatly retarded in the animals given large amounts of A-C-T. There was retardation and almost complete inhibition of *somatic* growth when a high level of A-C-T was administered.

TABLE I.
Effect of A-C-T on Adrenal and Body Weights of Castrate Rats.

Rats	Wt. of Adrenals mg.	Total Dose of A-C-T units	Length of Treatment days	Initial Body Wt. gm.	Final Body Wt. gm.	Gain in Body Wt. gm.
3 ♂	60.0	13.2	16	49.9	107.0	57.1
3 ♂	28.0	Controls		51.3	132.0	80.7
2 ♀	50.5	13.0	14	51.5	99.0	47.5
3 ♀	24.5	Controls		51.3	123.3	72.0
3 ♀	107.9	42.0	28	48.3	96.0	47.7
5 ♀	47.8	Controls		48.0	155.2	107.2
2 ♀	152.2	42.2	23	45.0	65.5	20.5
3 ♀	35.7	Controls		47.8	138.3	90.5

There was a noticeable protrusion of the abdomen of the animals treated with the higher levels of A-C-T (42.0 + 42.2 units).† At

* Aided by grants from the Board of Research, University of California, and the Rockefeller Foundation, New York City.

1 MOON, H. D., PROC. SOC. EXP. BIOL. AND MED., 1937, **35**, 649.

† These animals are discussed with regard to their sexual development in the accompanying paper.

TABLE II.

Rats	Liver gm.	Spleen gm.	Kidney gm.	Digestive Tract gm.	Heart gm.	Thymus gm.	Two Thyroids mg.	Two Preputials mg.
2 castrate ♀ treated with 42.2 units A-C-T (body weight 65.5 gm.)	5.18	.55	.75	11.18	.37	completely atrophied	9.3	93.0
3 castrate ♀ controls (body weight 138.3 gm.)	6.40	.50	.64	15.26	.64	.47	26.5	45.0
3 normal ♀ 23 days old (body weight 48.6 gm.)	2.23	.26	.37	4.09	.33	—	—	—

autopsy the abdominal viscera of the injected animals appeared to be as large as those of the untreated spayed rats in spite of the disparity in body weight. The weights of the various organs were taken in the rats treated with 42.2 units of A-C-T, in the control spayed rats and in 23-day-old normal female rats.

There had been no inhibition in the growth of the spleen and kidney, and only a slight inhibition (?) in the growth of the liver and digestive tract of the treated rats. The heart and thyroids were considerably smaller than in the untreated spayed animals. The preputials were enlarged in the injected animals. The thymus was very atrophic and in some cases completely atrophied.

9446

Effect of Adrenocorticotropic Hormone on the Sexual Development of Spayed Rats.*

HENRY D. MOON. (Introduced by Herbert M. Evans.)

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In a previous paper[1] the production of an androgenic substance by the adrenal cortex in castrate rats after the administration of adrenocorticotropic extracts (A-C-T) was reported. The production of an estrogenic substance by the adrenal cortex in spayed immature female rats after the administration of A-C-T is herein reported.†

Wyman,[2] Martin[3] and Corey and Britton[4] have demonstrated the cessation of estrus after adrenalectomy. Nice and Shiffer[5] were able to obtain premature sexual development in immature female rats with implants of rat adrenals. Frank[6] has reported an increase in

* Aided by grants from the Board of Research, University of California, and the Rockefeller Foundation, New York City.

1 Davidson, C. S., and Moon, H. D., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 281.

† Alcoholic extracts of steer adrenals have shown 1 intravaginal unit in 1-2 gm. of fresh tissue. The method of assay used was that of Lyons and Templeton (PROC. SOC. EXP. BIOL. AND MED., 1936, **33**, 587).

2 Wyman, L. C., *Am. J. Physiol.*, 1928, **85**, 414.

3 Martin, S. J., *Ibid.*, 1932, **100**, 180.

4 Corey, E. L., and Britton, S. W., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 592.

5 Nice, L. B., and Shiffer, A. L., *Endocrinol.*, 1931, **15**, 205.

6 Frank, R. T., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 204.