

nor can consideration of these effects be applied to any animals save rats with unilateral renal disease until further studies, now in progress, indicate that similar action upon blood pressure takes place on the use of such enzymes in other mammals.

*Summary.* The injection of tyrosinase into hypertensive rats consistently and markedly lowered the blood pressure, this effect appearing 5 to 15 minutes after intravenous administration. The use of this material in normal animals gave variable results.

11393

### Effect of Two Steroid Compounds on Weight of Thymus of Adrenalectomized Rats.\*

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The thymus gland of rats can be made to regress rapidly by the administration of extracts of the adrenal cortex or by the administration of some of the steroid compounds occurring in the extracts. In studies of the biologic effects of 11-desoxy-corticosterone acetate and 17-hydroxy-11-dehydro-corticosterone acetate it was noted that the latter substance was the more active of the two in producing thymus atrophy.

Male rats of the Sprague-Dawley strain each having an initial body-weight of approximately 180 g were used. The diet was Purina Dog Chow. The test substances were dissolved in sesame oil and administered twice daily by subcutaneous injection. Ten normal rats were killed in order to obtain control data on thymus weights; 10 adrenalectomized rats were maintained for 7 days without treatment; 5 adrenalectomized rats were treated with 2 mg daily of 17-hydroxy-11-dehydro-corticosterone acetate; 5 adrenalectomized rats were treated with 2 mg of 11-desoxy-corticosterone; and 5 adrenalectomized rats were treated with 10.0 mg daily of 11-desoxy-corticosterone. Necropsy was performed on the 7th day. The data on body weights and thymus weights are summarized in Table I.

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TABLE I.  
Body-Weights and Thymus Weights of Adrenalectomized Rats.

Exper. group	No. animals	Body wt		Thymus wt	
		Avg	Range	Avg	Range
Normals	10	180	179-181	447.0	358-576
Untreated	10	153.8	143-173	387.0	302-523
2.0 mg daily 17-hydroxy-11-dehydro-corticosterone	5	156.4	148-171	24.6	21-27
2.0 mg daily 11-desoxy-corticosterone acetate	5	200.4	198-203	341.0	285-395
10 mg daily 11-desoxy-corticosterone acetate	5	194.4	186-199	239.0	203-295

Although 2 mg daily of 17-hydroxy-11-dehydro-corticosterone acetate did not protect the adrenalectomized rat against a loss in body weight it did produce a marked regression of the thymus. A similar dose of 11-desoxy-corticosterone acetate permitted the adrenalectomized rat to gain in weight during the period of treatment but it did not produce a significant regression of the thymus. The administration of 10 mg daily of 11-desoxy-corticosterone acetate did produce a definite loss in thymus weight but the extent of atrophy was much less than that produced by the 2.0 mg daily dose of 17-hydroxy-11-dehydro-corticosterone acetate. Selye<sup>1</sup> has previously observed a regression of the thymus following the administration of 11-desoxy-corticosterone to rats.

Wells and Kendall<sup>2</sup> reported that the administration of 11-desoxy-corticosterone acetate to normal rats did not cause regression of the thymus, whereas positive effects were obtained by the administration of corticosterone and its acetate. These workers administered the 11-desoxy-corticosterone acetate in a different manner than was used in this experiment and they did not administer amounts as large as 10.0 mg daily. Ingle and Mason<sup>3</sup> had previously noted regression in the weight of the thymus following the administration of 17-hydroxy-11-dehydro-corticosterone in solid form to the normal rat. The quantitative relationship of these compounds in respect to the effect upon the thymus is similar to that of their effect upon the capacity of the adrenalectomized rat to work<sup>4, 5</sup> and differs from their relative life maintenance activity.

<sup>1</sup> Selye, H., *The Canadian Med. Assn. J.*, 1940, **42**, 113.

<sup>2</sup> Wells, B. B., and Kendall, E. C., *Proc. Staff Meet. Mayo Clinic*, 1940, **15**, 133.

<sup>3</sup> Ingle, D. J., and Mason, H. L., *Proc. Soc. Exp. Biol. and Med.*, 1938, **39**, 154.

<sup>4</sup> Ingle, D. J., *Endocrinology*, 1940, **26**, 472.

<sup>5</sup> Ingle, D. J., *Endocrinology*, in press.