The formyl derivatives were prepared by a method of Professor Hans Clark,* unpublished as yet. The formyl racemic cystine melted at 190-192° and the formyl derivative of the more soluble form had a melting point of 178-180°. The formyl-l-cystine melts at 187-188°. These derivatives likewise showed different crystalline form and solubility. The formyl racemic cystine was resolvable by means of the brucine salt whereas under the same conditions the other isomeric inactive cystine did not yield to resolution.

The actual isolation of racemic cystine from the inactive cystine completes the proof of the presence of this modification in the material. From the evidence obtained we feel justified in tentatively assigning the meso structure to the more soluble isomer. We are subjecting it, however, to as rigorous a proof as possible. The investigation of these isomers and their derivatives is being continued as well as a study of their availability to the animal body in comparison with dextro and levo cystine.

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The Anterior Pituitary Sex Hormone of Normal and Semicastrated Rats.

F. E. EMERY, P. W. BASH AND W. R. LEWIS.

From the Department of Physiology, University of Buffalo.

It is well known that the anterior pituitary gland secretes hormones which are growth stimulators to the reproductive system. This can be easily demonstrated by grafting pituitary glands into sexually immature female rats. The enlarged ovaries produced in this way resemble in weight and histological appearance the hypertrophied ovary of semiovariectomized animals. The evidence presented by Engle and others, recently discussed,[1] shows that the anterior pituitary sex hormone is responsible for the hypertrophy of surviving ovaries and accelerated growth in the remaining testis of young animals.[2] Engle[3] contends that the remaining ovary utilizes the anterior pituitary sex hormone previously used by both ovaries. This would give twice the amount of the hormone to the

* The authors wish to thank Professor Clark for so kindly making available to them his method for preparing formyl-l-cystine.

1 Emery, F. E., *Anat. Rec.*, 1930, **47**, 300; *Physiol. Zool.*, 1931, **4**, 101.

2 Lipschutz, A., *J. Physiol.*, 1922, **56**, 451.

3 Engle, E. T., *Anat. Rec.*, 1928, **37**, 275.

remaining ovary and cause it to about double in weight. Recently one of us (Emery[1]) suggested that the remaining ovary became enlarged due possibly to increased activity or hypersecretion of the pituitary gland following unilateral ovariectomy. Pituitary grafts have been made to determine this point.

The animals used were albino rats and consisted of adult males and females used as donors of the grafts and young immature females used for recipients of the grafts. The donors were of 4 types, normal males and females and semicastrated males and females. The latter groups were operated on at least 2 months before their pituitaries were used as grafts. The recipients received 2 pituitary grafts in the muscles of one hind leg on the twenty-fifth and in the opposite leg on the twenty-sixth day of age. They were killed when 30 days old, and the ovaries and uteri were dissected free from fat and connective tissue and weighed. The Fallopian tubes were weighed with the uterus and the latter was cut from the vagina just anterior to the cervix.

The results show that the average weights of the ovaries and uteri of the recipients were almost identical when grafts from either normal or semicastrated donors were used. As shown in Table I,

TABLE I.

Weights of body in gm., ovaries and uteri in mg. All recipients and controls killed at 30 days of age. The females were nullipara.

Donors	Av. body wt.	Recipients							
		Wt. of Ovaries			Wt. of Uterus			Number of rats	Av. body wt.
		High	Low	Av.	High	Low	Av.		
4 normal ♂	222	102	36	50.9	103	58	79.6	10	51.4
4½ cast. ♂	226	115	30	49.6	112	50	79.0	10	54.8
4 normal ♀	175	21	12	16.2	102	36	67.5	20	50.0
4½ cast. ♀	183	23	13	16.8	88	41	64.2	20	48.8
6 normal ♀	165	42	24	34.5	101	49	77.3	6	46.2
6½ cast. ♀	168	41	24	35.7	97	75	84.2	6	46.3
None, controls		20	10	15.5	58	24	36.9	30	50.6

the male pituitary gland is more potent than the female, which is in agreement with others. The 4 female pituitaries grafted in one recipient produced so slight an increase, only about 1 mg. above the normal controls, in the weight of the ovary that a small difference in potency of the pituitary of the normal and semicastrated donors might not appear. Thus 6 female pituitaries were grafted in each rat and again the ovaries of the recipients were almost identical in weight, 34.5 mg. for the normal and 35.7 mg. for the semicastrated donors. The uterus in our experience is a more sensitive indicator

of pituitary potency than is the weight of the ovaries. Yet when the average weight of the uteri was used as an index of potency of the pituitaries there was no evidence that the pituitaries of semicastrated rats were more potent than those of normal rats.

After the grafts failed to show an increase in the anterior pituitary sex hormone of semicastrated rats the blood was then tested for this hormone. Blood serum from the different types of donors shown in Table I was injected in amounts of about 5 cc. daily into immature female rats. In no instance was a positive test obtained. In some cases a total of 40 cc. of serum was given to each recipient. The hormone must be in the blood in greater amounts in semicastrated rats, or how can the remaining gonad receive more of the hormone needed for the hypertrophy? We have in other cases (not yet reported) obtained the hormone from the blood of certain rats. Thus we know it must be there in small amounts even though we have not detected it from the serum of any of the donors shown in Table I.

Summary. The amount of anterior pituitary sex hormone in the pituitaries of normal male and female rats was not noticeably changed after semicastration. This hormone has not been found in the blood serum of normal or semicastrated nullipara females, or in normal or semicastrated males. The need for a greater amount of the hormone in the blood of semicastrated animals is pointed out.

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Experimental Production of Nephrosis-like Lesions by Sodium Hydnocarpate.

CHESTER N. FRAZIER.

From the Division of Dermatology and Syphilology, Department of Medicine, Peiping Union Medical College.

A 0.1% aqueous solution of a preparation consisting of a selected fraction of the sodium salts of the total fatty acids of hydnocarpus oil was injected intravenously into 6 normal albino rabbits over a period of approximately one year. Injections were given at biweekly intervals into the marginal ear veins. The individual dose was calculated upon the basis of 0.0166 gm. of the sodium hydnocarpate preparation per kilo of body weight, and ranged from 0.022 gm. to 0.03 gm. (0.22 cc. to 0.3 cc. of the aqueous solution). Each animal received a total of 101 injections.