

logic comparison of the glands indicated that the differences in size were owing to an increase in the amount of cortical tissue in the glands from the experimental animals.

We have no proof that the glands of the fetus protected the mother against adrenal insufficiency. Mild symptoms of adrenal insufficiency were common among the pregnant mothers and we have observed, in other unpublished experiments, that a severe state of insufficiency is easily produced in these animals by mild stress, such as chilling, a 24-hour fast, and so on.

The mechanism by which the cortical hyperplasia is induced in the fetal adrenal gland was not studied in this experiment. There may be a hormonal stimulus arising from the pituitary body of the adrenalectomized mother or the stimulus may arise in the fetus itself in response to other abnormal changes in the fluids provided to the fetus by the mother.

10125

Capacity of Skeletal Muscle of Castrated Female Rats for Sustaining Work Output.

DWIGHT J. INGLE. (Introduced by J. L. Bollman.)

From the Divisions of Biochemistry and Experimental Medicine, The Mayo Foundation, Rochester, Minn.

In a previous experiment,¹ I have made a comparison of normal and castrated male rats in respect to the capacity of the gastrocnemius muscle for performing work when made to contract by faradic stimulation. In the present experiment, normal and castrated female rats were studied in a similar manner.

Albino female rats were closely matched into 10 pairs on the basis of weight and one animal in each pair was castrated during the second month following birth. Each rat was prepared for the work test when it reached a weight ranging from 185 to 195 g.

The animal was anesthetized with phenobarbital sodium, its gastrocnemius muscle was weighted with 100 g and was stimulated directly to contract 3 times per second until the muscle became "fatigued," or for 120 hours. The amount of work performed was recorded automatically. Each rat received 6 cc of a physiologic solution of saline by subcutaneous injection every 12 hours. A

¹ Ingle, D. J., unpublished data.

detailed description of the apparatus and procedure used has been presented.²

The data on averages and ranges of work for 10 pairs of rats are summarized in Table I. Inferiority as regards the ability of castrated female rats to sustain work of the gastrocnemius muscle was not observed in this experiment.

TABLE I.
Record of Work for 10 Normal and 10 Castrated Female Rats.

Hr of work	Normal			Castrated		
	Avg*	Range*		Avg*	Range*	
		Minimum	Maximum		Minimum	Maximum
0 to 24	61.2	41.1	82.9	60.7	32.1	70.9
24 to 48	31.3	9.2	52.6	28.6	6.5	42.1
48 to 72	33.6	20.6	42.7	36.3	16.7	50.3
72 to 96	39.3	28.7	49.9	45.6	22.4	61.3
96 to 120	32.4	0	50.5	42.8	21.8	60.9
Total period of work	197.8	147.2	240.5	214.0	99.7	259.1

* Expressed in kilogram-meters; error for relative values does not exceed 10%.

The results of this experiment are similar to those of my previous study on castrated male rats. They do not agree with the results of Miley,³ who found that castrated female rats were deficient in their capacity for work.

The daily values for work in this experiment were occasionally higher than on the preceding day although the stimulation was continuous. This is a frequent observation on performance of work when studied under the experimental conditions used in this investigation.

10126

Effect of Cortin on Survival and Work Capacity of Rats after Removal of Intra-Abdominal Organs.

DWIGHT J. INGLE. (Introduced by Jesse L. Bollman.)

From the Division of Experimental Medicine, The Mayo Foundation, Rochester, Minnesota.

The site of action of cortin is unknown. In this study I have attempted to determine whether cortin will act after all the abdominal

² Heron, W. T., Hales, W. M., and Ingle, D. J., *Am. J. Physiol.*, 1934, 110, 357.

³ Miley, H. H., *Am. J. Physiol.*, 1927, 82, 7.