explanation of these observations rests upon the increased utilization of blood fat as a source of energy although it is not an uncommon physiological phenomena for increased utilization of a blood constituent to stimulate an increased rate of mobilization.

It is possible that environmental temperature may influence the rate of secretion (or level in pituitary) of the fat metabolism hormone and in turn influence the plasma fat level. It is planned to investigate this possibility.

From these data it is obvious that animals to be used for the assay of the fat metabolism hormone should be kept in a temperature-regulated room to avoid fluctuations in plasma lipid due to temperature.

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Lactogen Content of Pituitary of Pregnant and Lactating Rabbits and Guinea Pigs.*

SKAT HOLST AND C. W. TURNER.

From the Department of Dairy Husbandry, Missouri Agricultural Experiment Station, Columbia.†

Continuing the study of the lactogen content of the pituitary, the present paper presents our observations concerning the amount of lactogenic hormone in the anterior pituitary glands (AP) of female New Zealand White rabbits and guinea pigs in stages of pregnancy and lactation. The pituitaries, thyroids, adrenals and ovaries of normal animals sacrificed at various stages of pregnancy and lactation were removed and weighed. Each group of pituitaries was kept frozen until assayed with 20 pigeons by the Reece-Turner[1] method. Both pituitary gland weight and the assays are based upon the whole gland rather than the anterior lobe.

The pituitaries of the 10- and 20-day pregnant rabbits showed no increase of lactogen over the pituitaries from non-pregnant mature female rabbits whereas the pituitaries from the animals sacrificed 28 days after conception or just before parturition showed a slight increase from about 11 to 14 B.U. per pituitary (Table I).

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1 Reece, R. P., and Turner, C. W., *Mo. Agr. Exp. Sta. Res. Bul.*, 266, 1937.

TABLE I.
Lactogen Content of Pituitaries from Rabbits.

Stage of pregnancy or lactation	No. of animals	Avg body wt, g	Avg pituitary wt, mg	B.U. per pituitary gland, avg	B.U. per mg pituitary tissue, avg	B.U. per 100 g body wt, avg
10 days pregnant	4	2936	36.25	11.13	.307	.38
20 " "	5	3070	34.85	10.63	.305	.35
28 " "	5	3360	33.30	14.10	.423	.42
48 hr postpartum, young removed 15 hr	4	3067	31.90	18.38	.576	.60
48 hr postpartum, young removed 12 hr, then allowed 3 hr nursing	4	3146	54.61	15.31	.280	.49
5 days postpartum, young removed 15 hr	4	3105	44.35	40.31	.909	1.30
5 days postpartum, young removed 12 hr, then allowed 3 hr nursing	4	3270	49.15	32.19	.655	.98
10 days postpartum	4	3343	78.88	40.00	.507	1.20
20 " "	4	3403	59.68	26.63	.446	.78
30 " "	4	3465	56.55	15.75	.280	.45

TABLE II.
Lactogen Content of Pituitaries from Guinea Pigs.

Stage of pregnancy or lactation	No. of animals	Avg body wt, g	Avg pituitary wt, mg	B.U. per pituitary gland, avg	B.U. per mg pituitary tissue, avg	B.U. per 100 g body wt, avg
15 days pregnant	4	561	15.40	8.50	.552	1.52
30 " "	4	578	16.29	9.38	.576	1.62
45 " "	4	607	19.54	9.13	.467	1.50
58 " "	5	616	19.30	10.38	.538	1.68
48 hr postpartum, young removed 15 hr	4	518	17.06	18.38	1.077	3.55
48 hr postpartum, young removed 12 hr, then allowed 3 hr nursing	4	511	17.83	13.13	.736	2.57
10 days postpartum	4	566	19.26	15.19	.788	2.68
20 " "	4	540	18.43	12.45	.676	2.31
30 " "	4	561	18.08	9.63	.533	1.71

Two groups of animals were sacrificed 48 hours postpartum. In one group the young were removed 15 hours before the sacrifice of the mother and in the other group the young were removed for 12 hours and then returned for a 3-hour suckling period immediately before the sacrifice of the mother. This procedure was followed in an attempt to determine the influence of the stimulation of nursing on the lactogen content of the pituitary gland. The first group was found to contain 18.38 B.U. per pituitary or 0.576 B.U. per mg pituitary tissue while the second group contained 15.31 B.U. per pituitary or 0.280 B.U. per mg pituitary tissue.

Later it was found that the lactogen content of the AP had not reached its peak after 48 hours, therefore, 2 similar groups were obtained at 5 days postpartum. In this case the lactogen content in the group where the young had been removed the last 15 hours of the mother's life reached 40.31 B.U. per pituitary or 0.909 B.U. per mg pituitary tissue as compared to the group where the young had been removed for 12 hours and allowed 3 hours' nursing with a content of 32.19 B.U. per pituitary or 0.655 B.U. per mg pituitary tissue. Thus the difference between these 2 groups is 20.2% based on the B.U. per pituitary or 27.9% based on the B.U. per mg pituitary.

The AP of the rabbits after 10 days of lactation also has a high lactogen content (40.00 B.U. per pituitary) while the last 2 groups, after 20 days and 30 days of lactation, respectively, show a gradual decrease. There was a rather conspicuous weight increase of the pituitary after parturition; the pituitary of the non-lactating female rabbits weighed about 35 mg while the 10-day postpartum, lactating rabbits had pituitaries averaging 78.88 mg or more than twice the weight of the non-lactating rabbits.

The lactogen content of the AP of pregnant guinea pigs remained on a level with that of the non-pregnant females; not even in the group just before parturition was a significant rise noticed (Table II). Forty-eight hours after parturition an increase from about 10 to 18.38 B.U. per pituitary was found in the group where the young were removed for 15 hours; the corresponding group in which nursing was permitted the last 3 hours contained 13.13 B.U. per pituitary. Thus in the guinea pig a considerable difference between these two groups was observed. The 10-day lactation group contained 15.19 B.U. per pituitary, the 20-day postpartum group 12.45 B.U., and the 30-day postpartum group 9.63 B.U. per pituitary.

It will be seen that the rise in the content of the lactogenic hormone after parturition is far more conspicuous in the rabbit than in the guinea pig. After the maximum was reached there was a

gradual decline with the advance of the lactation period in both species.

Summary. In the case of both the rabbit and the guinea pig the lactogen content of the AP does not increase during early pregnancy and very little during late pregnancy. After parturition a distinct increase is noted in both species although the rise in the case of the rabbit is much higher than in the guinea pig. On the other hand, the increase seems to be somewhat slower and more gradual in nature in the rabbit than in the guinea pig which seems to reach its peak almost immediately after parturition.

In both species there is evidence that the absence of nursing results in an increased lactogen content of the AP whereas following nursing the pituitary contains less lactogen. It has been suggested previously that the stimulus of nursing in some way causes a discharge of lactogen from the pituitary.[1]

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Effect of Testosterone Propionate on Genital Tract of Adrenalectomized and Ovariectomized Immature Female Rats.

IRA T. NATHANSON AND RULON W. RAWSON. (Introduced by J. C. Aub.)

From the Laboratories of the Collis P. Huntington Memorial Hospital of Harvard University.

In an earlier communication the effect of testosterone upon the genital tract of ovariectomized and hypophysectomized immature female rats was reported.[1] The essential findings were (a) a direct effect upon the vagina, producing premature opening and an estrous response; (b) a direct effect upon the uterus; and (c) an indirect effect upon the ovary through stimulation of the anterior pituitary. The nature of the vaginal and uterine response to testosterone was not clear, since it has not been shown that this hormone has estrogenic properties. Conversion of testosterone to an estrogen by the adrenal was considered as a possibility. Consequently, in this experiment the effect of testosterone on the genital tract was studied in immature female rats that had been adrenalectomized or both adrenalectomized and ovariectomized. These experiments were per-

[1] Nathanson, I. T., Franseen, C. C., and Sweeney, A. R., Jr., PROC. SOC. EXP. BIOL. AND MED., 1938, **39**, 385.