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Lactogen Content of the Anterior Pituitary of Growing Rabbits and Guinea Pigs.*

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The amount of lactogenic hormone in the anterior pituitary (AP) of male and female albino rats during growth, pregnancy and lactation has been reported by Reece and Turner.[1] In a continuation of this work, similar data are being obtained on the guinea pig and rabbit. The present paper presents our observations upon the growth phase.

Normal animals were sacrificed, in increasing weight groups. The pituitaries, thyroids, adrenals and gonads then removed and weighed. The pituitaries were kept frozen until assayed by the Reece-Turner method. Each group of pituitaries was assayed with 20 pigeons. Both crop glands were used, and male groups were assayed in comparison with the female groups of the same weight.

The AP of the male New Zealand White rabbit has a low lactogen content during all stages of development, varying from 0.88 B.U. per pituitary in the 500 g group to 1.55 B.U. per gland in the 300 g group. As the AP increases in weight from 10.29 mg to 28.08 mg, there is actually a decrease in the lactogen concentration from .085 to .055 B.U. per mg pituitary tissue (Table I).

The lactogen content of the AP of the female New Zealand White rabbit is but slightly higher than that of the male in the younger groups. However, at the time of puberty with the pronounced weight increase of the ovary, there is a very conspicuous rise in the lactogen content (from 1.85 B.U. to 8.75 B.U. per AP).

The observations on guinea pigs (Table II) reveal a number of distinct species differences in comparison with either rat or rabbit. The lactogen content of the male and female in the early growth stages is quite similar but much higher than in the rabbit. They compare favorably with the concentration in the female rat AP. The most striking observation, however, is the enormous increase in the

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

TABLE I.
Lactogen Content of Pituitaries from Rabbits.

Sex	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)	Avg wt of thyroid (1 gland) (mg)	Avg wt of adrenal (1 gland) (mg)	Avg wt of testes or ovary (mg) (1 gland)
M	20	515	10.29	0.88	.085	.17	17.75	26.98	67.58
F	16	534	10.16	1.25	.123	.23	20.98	26.64	10.62
M	20	1004	15.74	0.95	.060	.09	40.45	38.53	166.82
F	18	1068	18.58	1.79	.096	.17	40.88	36.12	15.53
M	16	1512	17.34	0.89	.051	.06	58.84	81.85	890.88
F	16	1547	23.79	1.73	.073	.11	67.23	86.65	58.84
M	20	1994	21.44	0.93	.043	.05	69.76	86.39	1391.25
F	12	1964	25.65	1.85	.072	.09	56.95	79.66	67.32
M	16	2561	24.16	1.44	.060	.06	81.59	100.63	2309.69
F	10	2542	26.47	8.75	.331	.34	72.51	100.33	129.64
M	16	3065	28.08	1.55	.055	.05	80.08	162.11	3260.94
F	6	3087	38.80	10.00	.258	.32	90.80	140.19	133.63

*Bird units.

TABLE II.
The Lactogen Content of Pituitaries from Guinea Pigs.

Sex	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)	Avg wt of thyroid (1 gland) (mg)	Avg wt of adrenal (1 gland) (mg)	Avg wt of testes or ovary (mg) (1 gland)
M	20	204	6.90	1.98	.286	0.97	16.00	55.60	152.45
F	20	195	6.42	1.93	.300	0.99	17.09	56.70	16.87
M	20	306	9.48	2.19	.231	0.71	19.80	67.88	417.40
F	10	299	8.37	2.31	.276	0.77	19.62	80.89	30.49
M	14	397	10.38	2.93	.282	0.74	23.92	118.75	1114.29
F	10	397	9.03	5.50	.609	1.39	27.44	110.49	24.44
M	8	499	16.21	9.50	.586	1.90	36.76	235.98	2059.38
F	9	488	13.04	6.63	.508	1.36	33.81	182.27	38.37
M	8	598	16.14	11.53	.714	1.93	36.04	204.38	2259.38
F	11	585	15.16	9.79	.645	1.67	36.05	185.24	50.18

*Bird units.

lactogen content in the male as well as the female at the time of puberty. Per gram of pituitary, the mature male and female guinea pigs have the greatest concentration of lactogen of all species so far studied when not in lactation.

Summary. While the lactogen content of the AP of the male rabbit is very low and almost constant during all phases of growth and adult life, that of the male guinea pig increases very rapidly at puberty and even exceeds the content of the mature non-lactating female. In the case of the females of both species, there is a marked rise in the lactogen content of the AP associated with increased ovarian weight at sexual maturity. In a comparison of species, on the basis of the lactogen per gram of AP, it was observed that the mature female guinea pig ranks first with about 600 B.U., the albino rat second with about 500 B.U., and the rabbit third with about 300 B.U.

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Inhibitory Action of Peptone on Sulfapyridine Adsorption.*

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The bacteriostatic effect of sulfapyridine on the pneumococcus *in vitro* and the inhibitory action of peptone have been shown previously.[1] The findings compare with those reported by Lockwood,[2] who studied the effect of sulfanilamide on the streptococcus under similar conditions. The effect of peptone in preventing drug-action suggested the possibility of an interference in adsorption of the drug. To test this, a study was made of the adsorption of sulfapyridine by activated carbon particles.

Varying amounts of activated carbon were added to solutions containing 10 mg of sulfapyridine and 0.85 g of sodium chloride per 100 cc. After allowing the reaction to take place for 15 minutes, the carbon was removed by filtration, and the filtrate was tested for the presence of the drug by the method described by Marshall.[3] Adsorption was found to occur, as shown in Fig. 1 (solid line).

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1 Hoyt, R. E., and Levine, M., PROC. SOC. EXP. BIOL. AND MED., 1939, **40**, 465.

2 Lockwood, J. S., *J. Immun.*, 1938, **35**, 155.

3 Marshall, E. K., Jr., and Litchfield, J. T., Jr., *Science*, 1938, **88**, 85.