

the allantoic cavity. It has yet to be shown: first, that there is any inhibitor inside allantoic cells, and secondly, if there is inhibitor inside the cells, that it is destroyed during virus multiplication.

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Precocious Puberty in Rats with Hypothalamic Lesions

It has recently been found¹ that ferrets, normally anaestrous during winter, become oestrous in January and February within 3-4 weeks after electrolytic lesions have been made in the anterior hypothalamus. The hypothesis was advanced that some hypothalamic mechanism may normally inhibit the pituitary secretion of follicle-stimulating hormone in sexually quiescent individuals, for example, (a) during the anaestrus of seasonally breeding animals and (b) during infancy. Interference with such a mechanism by destruction of hypothalamic tissue might promote the secretion of follicle-stimulating hormone and so induce sexual activity. The suggestion that inhibition of follicle-stimulating hormone secretion is normally exerted during infancy has now been tested on a series of immature rats.

Seventeen 14- or 15-day old females of an inbred Lister strain were used. Electrolytic lesions intended to be immediately posterior to the optic chiasma were made in nine, and eight were sham-operated. The animals were examined regularly post-operatively and the day of opening of the vaginal orifice (which is an index of the occurrence of puberty) recorded. Two lesioned rats reached puberty at 30 days of age and four at 33 days. The vaginal orifice of one sham-operated animal also opened at 33 days. In a comparable group of twenty-six normal rats only one animal had reached puberty at 33 days while the average age for puberty was 41 days (S.D. ± 3.7). Examination of the reproductive tract when the rats were killed at 34-35 days of age confirmed that reproductive maturity had been achieved. Ovulation was found to have occurred in the ovaries of five of the six rats in which the onset of puberty was hastened. Histological studies upon the site of the lesion are in progress.

These findings, together with those on the ferrets, seem to support the hypothesis of a mechanism which inhibits follicle-stimulating hormone residing in the anterior hypothalamus. In man, it has been suggested² that such a mechanism is located in the posterior hypothalamus.

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Levels of Thyrotrophic and Gonadotrophic Hormones in the Blood of Mature and Immature Female Rabbits

TEN female rabbits were used in this experiment, three immature, three oestrous and four pseudo-pregnant. The rabbits were rendered pseudo-pregnant by electrical stimulation of the uterine cervix with a 4.5-V. tetanic current. They were then kept until the eighth day, when the corpus luteum is fully developed¹. The reproductive state was confirmed by histological examination of the ovaries.

The levels of thyrotrophic and gonadotrophic hormones in the blood of these rabbits were determined by the use of one-day-old chicks². The chicks were injected daily with a subcutaneous injection of 0.50 ml. of plasma for five days. They were then killed by ether 24 hr. after the last injection.

The thyrotrophic hormone level was indicated by its effect on the weight of the thyroid of male chicks, as shown in Table 1. The thyrotrophic hormone in the blood of rabbits is higher during oestrus than during the stages of immaturity or pseudopregnancy. Similar results were obtained in the rat³.

Table 1. AVERAGE WEIGHTS OF THYROID AND TESTES OF CHICKS INJECTED WITH PLASMA FROM IMMATURE, OESTROUS AND PSEUDO-PREGNANT RABBITS

Treatment	No. of chicks	Average weight of thyroid (mgm./100 gm. body-weight)	Average weight of testis (mgm./100 gm. body-weight)
Control	4	6.11 \pm 0.45*	29.46 \pm 4.62
Immature	6	6.36 \pm 0.47	40.30 \pm 2.37
Oestrous	8	11.64 \pm 0.73	52.54 \pm 4.30
Pseudopregnant	10	9.30 \pm 0.53	53.73 \pm 4.29

* Standard error.

The gonadotrophic hormone level was indicated by its effect on the weight of the testis of chicks. The gonadotrophic hormone in the blood of mature rabbits (oestrous and pseudopregnant) was higher than that in the immature animal. Lauson *et al.*⁴ showed that the gonadotrophic hormone content of the rat pituitary drops rapidly at puberty. They suggested at the time that this may be due to an increased outpouring of the hormone into the blood stream. This view is confirmed by the results obtained in the present investigation. The oestrous and pseudo-pregnant rabbits did not show a significant difference in the levels of gonadotrophic hormone in their blood. The assay method used did not allow a differentiation between the levels of follicle-stimulating hormone and luteinizing hormone factors.

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