

IV. — REPRODUCTION

Endocrine control of sexual development in the gilt

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The purpose of the present paper is to review results concerning the physiological bases of the onset of puberty in the gilt.

The first oestrus represents the last phase of a complex maturation of the hypothalamo-pituitary-ovarian axis.

At the end of foetal life, GnRh secreted by the hypothalamus stimulates the pituitary LH and FSH secretions which in turn act on the ovarian development. During the last month of foetal life and the first month after birth, LH and FSH plasma levels are high. Then, LH secretion declines whereas that of FSH remains high and even increases at the end of the second month of age.

Towards the third month, the rhythm of LH pulses is intensified and the ovaries already stimulated by the increase in the FSH levels, develop actively. First antral follicles appear and their number and size increase rapidly. Concurrently, oestrogen production rises which could be the cause of the decline of LH and FSH secretion observed at about 4 months of age.

Just before puberty, changes in pituitary secretions are not well known. However, the lack of variation in oestrogen production and the possibility to induce puberty by stress suggest that the physiological mechanisms required for the onset of puberty are present several weeks before the first oestrus. Induction of the preovulatory follicle growth only depends on a stimulus whose nature has to be elucidated.

**Respective effects of boar introduction and stress
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Boar introduction into the sow pen and stress are often used to induce puberty in the sow, but results are extremely variable. Three experiments were conducted to determine the following points : the physiological stage leading to a maximum response, the respective role of boar introduction and stress due to the transport and herd change and the possible role of adrenal secretions in the induction of oestrus by the stress.