PITUITARY CONTENT OF FOLLICLE-STIMULATING HORMONE IN IMMATURE MALE RATS

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Data on the pituitary content of follicle-stimulating hormone (FSH) in immature female rats have been published (Kragt & Ganong, 1968; Goldman & Mahesh, 1968; Fawke & Brown, 1970), but there seems to be little comparable information about the male. The following results have been obtained in males from our colony of Porton rats: the experiments were under conditions similar to those used in a previous investigation of the females (Fawke & Brown, 1970).

Three series of measurements were made (see Table 1). Results are strictly comparable within each series as they were obtained from animals born on the same day. In Series B and C, rats were randomized individually; in Series A, which involved unweaned rats, whole litters were killed together and only the allocation of litters was random. The animals were killed between 09.00 and

TABLE 1
PITUITARY FSH CONTENT OF MALE RATS OF VARIOUS AGES

Series	Age (days)	FSH ($\mu\text{g NIH-FSH-S1/gland}$) (95% fiducial limits)
A	11	18 (15 to 24)
	16	43 (35 to 55)
	21	30 (24 to 37)
B	22	79 (43 to 218)
	24	141 (74 to 645)
	26	98 (58 to 162)
	28	121 (73 to 201)
	30	156 (97 to 252)
	32	109 (74 to 166)
	34	98 (66 to 149)
	36	124 (71 to 203)
	38	166 (118 to 236)
	40	151 (107 to 205)
C	40	195 (128 to 337)
	45	221 (122 to 341)
	50	206 (133 to 862)
	60	374 (216 to 821)
	70	744 (422 to 1612)

Ten donor rats supplied material for each age-group in Series B and C. In Series A, groups of forty, seventeen and twenty-five donor rats were used.

11.00 hours with chloroform vapour and their anterior pituitaries quickly removed and homogenized in 0.9% NaCl solution. The homogenates were stored at -20°C until assayed for FSH by the method of Steelman & Pohley (1953) using ovine NIH-FSH-s1 as standard. In all assays, both standard and unknown were used at not less than two dose-levels and gave valid parallel-line assays. Details of the methods and experiments to test their suitability have been

TEXT-FIG. 1. Pituitary FSH (μg NIH-FSH-s1/gland) and mean weights (mg) of seminal vesicles + coagulating gland (SV) and right testis of male rats of different ages all plotted on the same logarithmic scale. 95% fiducial limits for the FSH estimations are shown in Table 1. Note that age is shown on different scales in the three series.

described previously (Fawke & Brown, 1970). Body weight was recorded and organs including the seminal vesicles plus coagulating gland and the testes were weighed after fixation. In most cases, the pituitary tissue was not weighed but was homogenized and frozen as rapidly as possible. Pituitary weights were obtained from another series of comparable animals.

FSH was measurable at the age of 11 days (Table 1). Between the ages of 22 days (one day after weaning) and 40 days (Series B), pituitary content varied between 79 and 166 μg NIH-FSH-s1/gland. There were fluctuations but these do not appear significant when seen in combination with the errors of the

assay (Table 1). While total content changed little over this period, the concentration of FSH probably tended to fall slightly as the mean anterior pituitary weight of comparable rats rose from 1.87 mg at 22 days to 4.08 mg at 40 days. Testis weight increased 4.5-fold over this interval (Text-fig. 1), while body weight rose 2.3-fold: it is, therefore, likely that FSH was being secreted. The seminal vesicles did not begin to increase strikingly in weight until after 34 days of age. As the rats reached 60 and 70 days of age (Series C) with mean body weights of 195 and 220 g, FSH content rose sharply, finally reaching a mean of 744 μg NIH-FSH-s1/gland.

These findings contrast with the findings in female rats of this colony. For the period after weaning, the graphs of pituitary FSH content in males and females are almost mirror-images. The final content reached by the males is higher than many values reported in the literature, but these values show considerable variation. Values of 610 and 640 μg NIH-FSH-s1/gland have been found previously in adult males of a different colony (Brown, 1963).

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