8239 P

Gonadotropic Substance in Urine of Normal Children.

S. C. FREED. (Introduced by Samuel Soskin.)

From the Department of Metabolism and Endocrinology, Michael Reese Hospital, Chicago.

By utilizing the synergistic activity of certain pituitary extracts when combined with gonadotropic hormone, such as has been demonstrated on ovarian stimulation with pregnancy urine,[1] Evans[2] has been able to detect otherwise unappreciable amounts of gonadotropic substance in the urine of normal males. Because of this synergism and because it also resembled pregnancy urine, in causing a marked luteinization in the ovaries of his test animals, Evans referred to the gonadotropic substance in male urine as a "prolan body".

It has also been shown that a follicle stimulating substance, similar to the gonadotropic material occurring in the urine of castrates, is present in amounts of several rat units to the 24-hour excretion in the urine of normal adults, both male and female.[3] This follicle stimulating hormone has been reported to be absent from the urine of children before puberty.[3] We wish to report the finding of the "prolan" type of gonadotropic substance in the urine of children after the age of 4-5 years.

We employed the method of synergism referred to above. The urines of normal male and female children were extracted by the Katzman and Doisy benzoic acid method. A dose of this urine extract equivalent to 1/3-2/3 of a 24-hour excretion and administered over a 3-day period had no effect on the immature rat ovary at the end of 96 hours. Our pituitary extract was made with ammoniated alcohol, according to Evans,[1] and in the dosage used caused only a slight increase in ovarian weight of our test animals (an average increase of 6 mg. over the average control weight of 16 mg.).

When the 2 extracts were combined at the stated dosages a definite synergism, varying in magnitude with the age of the child, was observed. At the age of 4-5 years there was little or no effect. Above this age the gonadotropic response gradually increased until, at 10 years of age, values equalling those of normal adults were obtained

[1] Evans, H. M., Simpson, M. E., and Austin, P. R., *J. Exp. Med.*, 1933, **57**, 897.

[2] Evans, H. M., Simpson, M. E., and Austin, P. R., *J. Exp. Med.*, 1933, **58**, 561.

[3] Katzman, P. A., and Doisy, E. A., *J. Biol. Chem.*, 1934, **106**, 125.

(100-150% augmentation of ovarian weight with 1/3 of a 24-hour excretion). Histologic examination of the ovaries of our test animals revealed a heavy luteinization.

The presence of appreciable amounts of gonadotropic substance in urine of prepubertal children has been demonstrated. This hormone resembles "prolan" in its action and not the follicle-stimulating material found in castrate or menopausal urine. That it differs from the latter is also shown by the fact that, although Evans[4] has recently reported that the follicle-stimulating hormone of castration and menopause is synergistic with pituitary extracts, we were unable to obtain such effects with the pituitary extracts we prepared. Nevertheless this same pituitary preparation gave marked synergistic effects with pregnancy urine, as well as with the urine extracts of children as detailed above.

The presence of a prolan-like substance in the urine of normal children suggests the pituitary gland as its source.

I wish to thank Dr. Samuel Soskin for aid and direction.

8240 C

Some Effects of Ether on Bioluminescence in the Lampyrid, Photuris pennsylvanica.

GEORGE A. EMERSON. (Introduced by Paul D. Lamson.)

From the Department of Pharmacology, Vanderbilt University School of Medicine, Nashville.

In normal anesthetic concentrations ether has no direct chemical action on the dehydrogenase system involved in carbohydrate metabolism in mammalian brain, but through humoral effects ether anesthesia in the intact animal has a marked action indirectly on the rate of autoxidation of subsequently excised surviving brain, due presumably to the limiting of available carbohydrate.[1] The present paper demonstrates a striking corollary in the *Lampyridae,* for while ether has little action directly on the dehydrogenase system having to do with bioluminescence, it does exert various indirect effects in the intact insect which yield again quite unexpected results.

The light-organ of *Photuris pennsylvanica* generally flashes spon-

[4] Evans, H. M., and Simpson, M. E., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 1047.

[1] Emerson, G. A., *J. Tenn. Acad. Sci.* In press.