

use of the mixture were absolutely identical. The conclusion, therefore, is justified that the heart stimulator is not a split product obtainable by hydrolysis from this type of animal tissue.

*Conclusions.* The iodine content in thyroid preparations seems to be an approximate guide for the estimation of metabolic effect; however relatively large deviations do occur in some products. The effect on the heart is not related to the metabolic action. The thyroxine content has still less demonstrable proportionality to either physiologic effect. While hydrolysis of thyroid globulin increases its heart action hydrolysate from muscle tissue is inert in that respect.

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### Growth-Stimulating Effect of Testosterone Propionate.\*

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For this purpose 24 male albino rats of Wistar Institute strain were used. Of these 12 animals were treated (test group) and 12 served as untreated controls. All animals were kept under similar conditions, Purina Dog Chow used as food, and water were constantly present. In addition, green vegetables were given twice weekly. The treated animals received daily (except Sunday) intraperitoneal injections of 0.05 mg testosterone propionate (Perandren) for 53 days beginning at 26 days of age. Control animals remained uninjected.

Weights were taken at 26 days of age and weekly thereafter. Twenty-four hours after the last injection, *i.e.* at 80 days of age, all animals were anesthetized with ether, their carotid vessels were cut and exitus was allowed to result from bleeding. Body lengths measured from the tip of the snout to the anus were then determined.

All data were treated statistically<sup>1</sup> and observed differences between test and control groups were considered as being probably significant only if the "significance ratio" was 3 or more.

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<sup>1</sup> Pearl, R., *Medical Biometry and Statistics*, second edition, Saunders, Philadelphia, 1930.

*Results.* Initial body weights of the control ( $45.7 \pm 2.3$  g) and test groups ( $45.2 \pm 1.6$  g) showed no significant difference ( $0.5 \pm 2.8$  g). The observed difference of  $19.7 \pm 4.7$  g between the final body weights of the test ( $193.8 \pm 3.8$  g) and control ( $174.1 \pm 3.0$  g) animals in favor of the treated group, however, was probably significant. Likewise, the difference in final body length of  $12.0 \pm 3.6$  mm in favor of the treated group ( $203 \pm 2.8$  mm) as compared to the controls ( $191 \pm 2.7$  mm) was also probably significant.

The significant increase in body weight and length of animals treated with small doses of testosterone propionate stands in contrast to the growth-inhibiting influence of large doses of this same hormone.<sup>2</sup> A statement concerning the effect on length is included although initial body lengths were not taken. This was deemed permissible since the test and control animals had originally shown no significant difference in body weight. Body lengths, which are normally so highly correlated with body weights<sup>3</sup> may therefore be assumed to have been approximately similar before treatment was begun. The gain in body weight of approximately 11% may not appear very large but when one recalls that growth curves of animals treated with substances lacking growth-stimulating properties remain essentially parallel<sup>4</sup> and the difficulties encountered in trying to stimulate growth during the early age period of the albino rat,<sup>5</sup> any gain must be considered seriously.

*Conclusions.* Testosterone propionate administered intraperitoneally to male albino rats in doses of 0.05 mg daily (except Sunday) from 26 to 80 days of age led to a probably significant increase in body weight and length. This growth-stimulating effect of small doses of testosterone propionate stands in contrast to the growth-depressing effect of large doses of the same hormone.

<sup>2</sup> Rubinstein, H. S., Kurland, A. A., and Goodwin, M., *Endocrinology*, 1939, **25**, 724.

<sup>3</sup> Donaldson, H. H., *The Rat*, Memoirs of the Wistar Institute of Anatomy and Biology, Philadelphia, 1924.

<sup>4</sup> Rubinstein, H. S., *J. Comp. Neur.*, 1936, **64**, 3.

<sup>5</sup> Rubinstein, H. S., *Bull. Sch. of Med., University of Maryland*, 1933, **17**, 163.