

would appear to be best fitted to test completeness of adrenalectomy.

It is a pleasure to acknowledge the technical assistance of Mr. O. Galindo and Mr. L. Collier. I thank the Department of Medical Illustrations for drawing and photographing the Figure.

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Received October 21, 1957. P.S.E.B.M., 1958, v97.

Response of Individual Muscles of the Guinea Pig to "Large" Doses of Testosterone Propionate.* (23671)

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Administration of testosterone and several other androgens at various doses by multiple pellet implantation restored the individual muscles of the castrated male guinea pig only to normal(1). An attempt was made in this study to produce a response greater than normal by injection of "large" doses of testosterone propionate for a "long" period of time.

Procedure. Guinea pigs from the Zeimet Bio-farms were maintained in individual cages in an air conditioned room. They were fed Rockland Guinea Pig diet and supplements of 30 g of carrots and 25 mg of Vit. C twice per week. They were castrated at 68 days of age when they weighed 549 to 698 g. Injection of testosterone propionate† was begun on the day of castration and continued daily except Sunday for 65 days.

At autopsy the internal organs were weighed. The carcasses were sealed in plastic bags and kept frozen until the muscles were dissected.

Results. The castrated animals showed the expected(2,3) smaller gain in body (*cf*

carcass) weight with the accompanying decreases characteristic of the respective muscles (Fig. 1). The 5 and 10 mg/day doses of testosterone propionate maintained all of the muscles except the temporal and digastric at or within the normal level. No significant differences between the 2 dose levels were detected. The 25 mg/day of testosterone propionate not only maintained many of the muscles at the normal level but also increased several above normal. These increases were less than 20% and occasionally as high as 30% (Fig. 1).

The seminal vesicles and prostates as well as the retractor penis did not show an excessive enlargement under the stimulation of the very high doses of testosterone propionate (Fig. 1).

The internal organs showed no remarkable changes in weight(1,2,3). The heart weight was slightly decreased after castration and maintained by the androgen. The thymus showed no change after castration but a slight decrease after androgen treatment. All of the other organs showed no changes.

Discussion. The guinea pig apparently possesses some mechanism(s) to protect it from excessive dosage of androgens. This phenomenon is not specific for any particular

* This investigation was supported by research grants from the Nat. Inst. of Arthritis and Metabolic Diseases, Public Health Service.

† The androgen was provided as perandren propionate by Ciba Pharmaceutical Products.

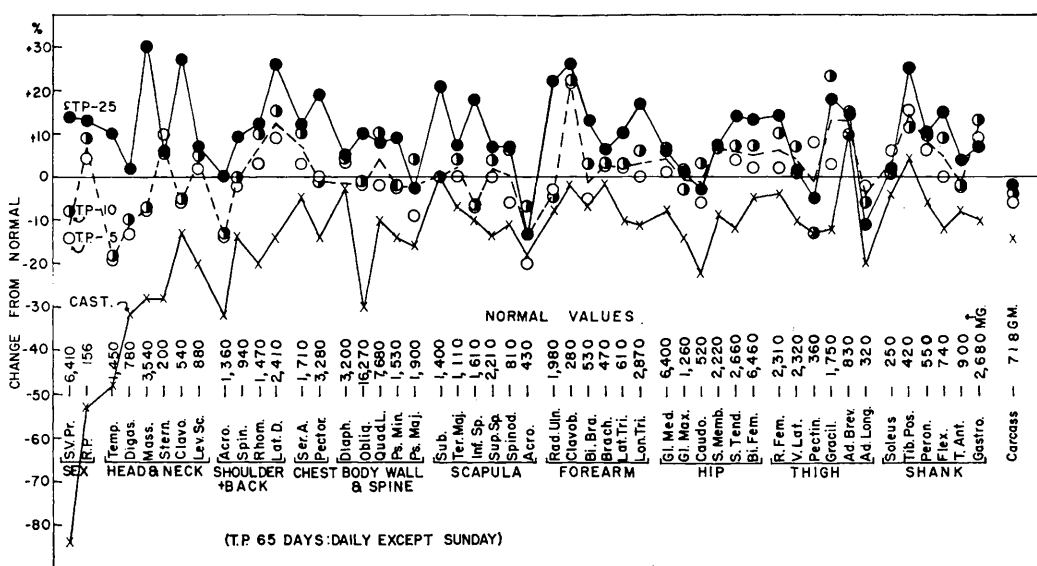


FIG. 1. Response of individual muscles of castrated male guinea pig to "large" doses of testosterone propionate. The guinea pigs were castrated and injections initiated at 68 days of age (549 to 698 g body wt).

tissue. None of the internal organs as well as the muscles and accessory sex organs showed an excessive response to the high doses of testosterone propionate. The guinea pig, therefore, differs from the rat(4), mouse(5) and hamster(6) which show excessive responses in the seminal vesicles and prostates to relatively high doses of androgens yet small relative to those administered to the guinea pig. Indeed the doses used in this study have proven to be effective growth stimulators in much larger species *e.g.* dog(7) and man(8).

It is of interest that the guinea pig in contrast to the rat and mouse does not lose weight (muscle) or decrease the size of the thymus or spleen when administered high doses of cortisone(9).

Summary. Male guinea pigs were castrated at 68 days of age and injected daily for 65 days with 5, 10 or 25 mg/day of testosterone propionate. The 2 smaller doses maintained the rate of growth of the body and that of 48 individual muscles with the exception of the

temporal and digastric. The highest dose not only maintained the rate of growth of the muscles but increased many slightly above normal.

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Received October 22, 1957. P.S.E.B.M., 1958, v97.