

significant loss of granules from the eosinophiles. On the other hand A. P. L. injection (the same amount as the females received) in the normal male rat induced loss of granules only from the basophiles.

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Effect of Feeding Desiccated Thymus upon Growth.

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There are numerous studies in the literature concerning the effect of thymus gland feeding upon growth. Liddo¹ found that it had a harmful effect on all rats but was less harmful when fed with carbohydrates. As with many such studies the question of the completeness of the diets clouds the results and there is always the question of whether such effects are produced only by the thymus or may also result from feeding other animal tissues. This question has been examined.

Four rats were removed from each of 4 albino rat litters 30 days old. The 4 from one litter were females and the remainder males. One from each litter was placed upon each of 4 diets. The control diet was composed of cornstarch 41, commercial casein 20, dried brewer's yeast 10, Osborne and Mendel salt mixture 4, lard 15 and cod liver oil 10. One group was fed a mixture of 90% control diet plus 10% desiccated beef thymus (all of the desiccated material was prepared by The Wilson Laboratories, Chicago) and as additional controls groups were fed a mixture of 90% control diet plus 10% of desiccated beef liver and plus desiccated beef kidney, both very nuclear tissues.

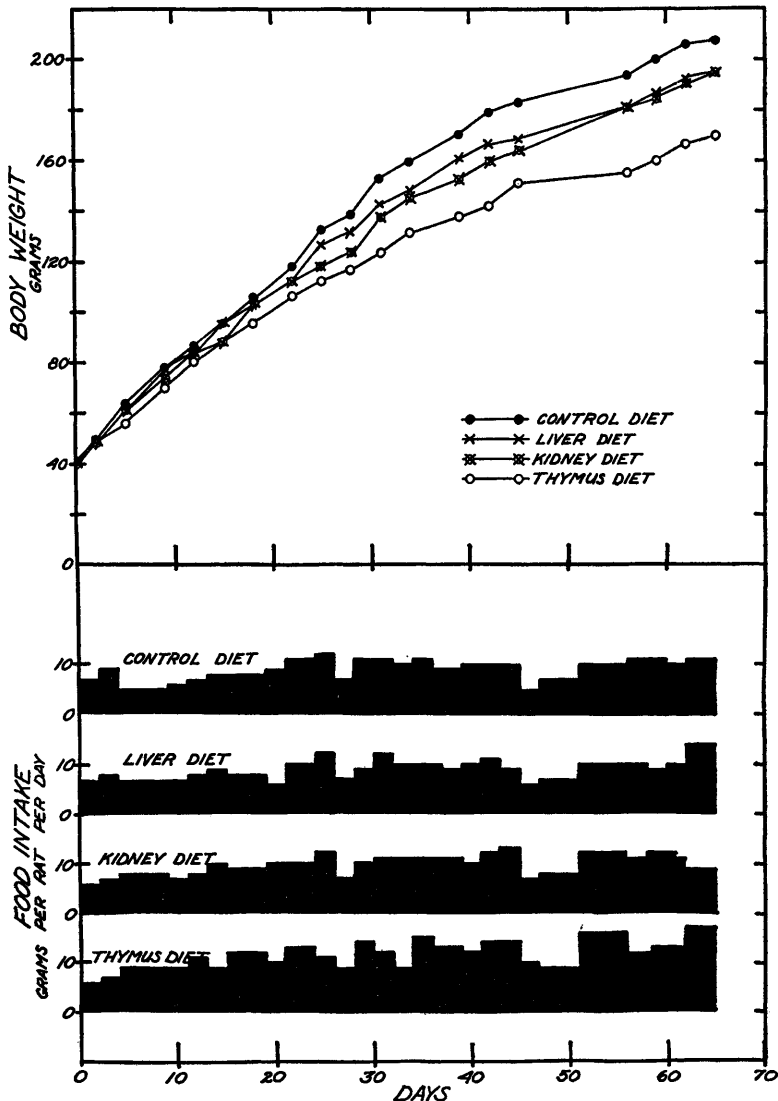
The relative influence of the addition to the diet of desiccated thymus, kidney and liver may be seen in Fig. 1 and we have confirmed this in other experiments. Both the kidney and liver material had essentially the same slightly deleterious influence on growth (see initial body weight and body length at death in Table I), while the desiccated thymus depressed the growth curve considerably more. The poor growth of the thymus-fed rats was in spite of a higher actual food intake than any of the other groups. The average food intake per rat per day for the control group was 9.0 gm., the liver

¹Liddo, S., *Boll. Soc. ital. Biol. sper.*, 1933, **8**, 267.

TABLE I.

	Body wt. after			Body length	Heart Weight		Adrenal Weight		Kidney Weight	
	Initial body wt. (gross)	Body wt. after 65 days (gross)	Body wt. after 48 hrs. starvation (gross)		Per 100 mm. body length	Per 100 sq. cm. body surface	Per 100 mm. body length	Per 100 sq. cm. body surface	Per 100 mm. body length	Per 100 sq. cm. body surface
	gm.	gm.	gm.	mm.	mg.	mg.	mg.	mg.	mg.	mg.
Control Diet	41	207	198	208	718	345	36	186	1406	677
Liver Diet	39	195	186	203	654	322	52	178	1330	656
Kidney Diet	40	195	179	203	888	437	65	247	1567	770
Thymus Diet	39	170	150	196	800	408	68	249	1487	469

fed group 9.6 gm., the kidney fed group 9.6 gm., and the thymus fed group 11.6 gm. We believe that the deleterious effect of these dried tissues on growth is due to their content of nuclear material.



We have found that the addition of yeast nucleic acid to their food impaired the growth of albino rats and the same thing has been reported as a result of feeding sodium nucleate.² If the figures of

² Newburgh, L. H., and Johnston, M. W., *J. Clin. Invest.*, 1931, **10**, 156.

Schmid and Bessan³ for purine nitrogen of fresh tissues are transferred to our desiccated products the kidney powder would contain 0.48%, the liver powder 0.47%, and the thymus powder 1.98% purine nitrogen. The relationship of these figures is the same as the influence of the respective dried tissues on the rate of growth.

The rats with kidney and those with thymus added to their diets had (Table I) abnormally heavy kidneys and hearts. Grossly, they were normal. All of the dried tissues when fed caused the adrenals to become heavier. This increased weight was apparently due to cortical enlargement.

Conclusions. The addition of a significant amount of desiccated beef liver or kidney to the diet of the albino rat impairs slightly the rate of growth. The deleterious influence of desiccated beef thymus is more pronounced. These effects are probably due to the nuclear material in these tissues for their influence is related to their content of purine nitrogen.

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Extracellular and Intracellular Water Loss during Suprarenal Insufficiency in the Dog.

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In the cycle of cortical deficiency and recovery which may be induced in the suprarenalectomized dog by the withdrawal and subsequent readministration of suprarenal cortical hormone, two periods of diuresis may be discerned in balance experiments, in which the animal is offered an approximately constant food, fluid and sodium chloride intake. The first period of diuresis follows the withdrawal of the cortical extract and is associated with increased urinary excretion of sodium and of chloride. This important effect of suprarenal deficiency was first reported by Loeb and his coworkers, following suprarenalectomy in the dog.¹ The sodium

³ Quoted by Brugsch, J., Giebt, in Kraus and Brugsch: *Specielle Pathologie und Therapie der innere Krankheiten*, Berlin, 1913, p. 228.

¹ Loeb, R. F., Atchley, D. W., Benedict, E. M., and Leland, J., *J. Exp. Med.*, 1933, **57**, 775.