

⁸ The point-set t is said to be the limiting set of the sequence of point-sets t_1, t_2, t_3, \dots provided that (a) each point of t is the sequential limit point of an infinite subsequence of some sequence of points, P_1, P_2, P_3, \dots such that, for every n , P_n belongs to t_n , and (b) if P_1, P_2, P_3, \dots is a sequence of points such that, for every n , P_n belongs to t_n then t contains the sequential limit point of every subsequence of P_1, P_2, P_3, \dots which has a sequential limit point.

CHARACTERISTIC EFFECTS UPON GROWTH, OESTRUS AND OVULATION INDUCED BY THE INTRAPERITONEAL ADMINISTRATION OF FRESH ANTERIOR HYPHYSAL SUBSTANCE *

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At the last session (Proc. Amer. Assoc. Anat., *Anat. Rec.*, vol. 21) we reported a characteristic acceleration of growth in rats treated intraperitoneally with the finely ground, fresh anterior lobe of the hypophysis of beef. We had shown that this effect is in marked contrast to the lack of effects from oral administration of the same substance, even in very large amounts. Two careful series of experiments with litter mate controls have now been completed, some members of the first series having been experimented with continuously for a period of over one year. *Such animals are invariably much heavier than their litter mate sisters.* The greatest disparity which has been observed was attained on the 333rd day of life when an animal receiving anterior hypophyseal substance weighed 596 grams and its healthy litter mate control weighed 248 grams. It would not appear to be incorrect to characterize these changes as producing constantly a certain degree of true gigantism. Increase in weight results to a great extent from a storage of fat, but is not solely due to this, the skeleton being invariably somewhat larger and heavier, and, as would be expected, the heart, lung, alimentary canal and kidney are heavier. The fat deposits in the omentum and mesentery are such that these structures weigh three or four times as much in the experimental animals as in their controls. The weight of the hypophysis, thyroid and thymus is not appreciably effected.

Most surprising is the effect on the reproductive system. *Oestrus, as detected by typical changes in the vaginal smear, may never occur in these animals or may be exhibited only at long intervals.* It was, consequently, surprising to find that in all instances the ovaries instead of being underdeveloped weighed twice as much as they did in the control animals and exhibited great numbers of substantial corpora lutea. The uterus, on the contrary, weighed absolutely about half as much as it did in the normal

controls. Histological examination of the gonads confirmed the presence of very abundant lutein tissue and demonstrated the formation of this tissue about the egg in unruptured, normal follicles and in atretic follicles. Ripe, normal Graafian follicles were invariably absent. *A powerful, specific stimulus to lutein cell transformation has thus been effected by this hormone.*

Aside from the fact that it is tolerated only in smaller quantities, fresh posterior hypophyseal substance gave none of the above characteristic effects upon growth, oestrus and ovulation in animals as compared with similar care with litter mate sisters.

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A STUDY OF THE EFFECTS OF CUCURBITA PEPO SEEDS ON KIDNEY EXCRETION

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1. *Purpose and Plan of Experiment.*—The object of this experiment was to compare and verify the results obtained from a somewhat similar experiment conducted during March 1920.¹ Moreover, a further study of the effects of Cucurbita seeds on kidney excretion is thereby promulgated.

Since the previous experiment does not give sufficient analytical data so far as the urine samples are concerned a more elaborate plan was followed by virtue of which not only comparative data may be obtained but additional analyses may be available for the elucidation of the problem under consideration.

Three successive dietary periods were arranged for the experiment, namely, three days of a preliminary basal dietary period, three days of an experimental dietary period, and three days of a final dietary period. The entire experiment lasted for nine consecutive days.

All the foodstuffs consumed in this experiment were measured. The pumpkin seeds (*Cucurbita pepo*) were of two kinds, roasted and raw, a known quantity of each kind was added to each meal during the experimental dietary period.

2. *Dietary.*—Hindhede's "back-to-the-farm" dietary,² slightly modified, was used for the basal diet. Composition of this dietary is given in table 1. This diet was used during the preliminary and final periods of this experiment. The experimental diet consisted of the same basal diet plus 30 grams of roasted pumpkin seeds for the first day; 35 grams of roasted and 30 grams of raw pumpkin seeds mixed for the second day, and 30 grams of raw seeds for the third day of the experimental dietary period.