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A study of the influence of lecithin on growth.[1]

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A reexamination of the evidence upon which was based the stimulating properties attributed to lecithin included experiments on tadpoles and very young kittens. Danilewski believed that lecithin (one part in about 15,000 of water) caused in tadpoles an increase of 300 per cent. in weight, and about 200 per cent. in size, over the control animals.

My own experiments included three series of over 1,200 tadpoles. In each series the lecithin varied in strength from 1/150 per cent. to 2 per cent. (the toxic concentration). In one series (1) the tadpoles were not fed, in another (2) they were given minced worm, in the third (3) they were given a liberal supply of plant debris.

The tadpoles that were kept in lecithin solutions did not show any greater increment in weight or size than the controls of the same series. There was a marked difference, however, in both the size and weight of tadpoles of one series compared with the tadpoles in the corresponding solution of another series, due to the kind (and presumably the amount) of food given. Individuals of series 1 were smallest and weighed least; those of series 3 weighed from 3 to 6 times as much and were twice as broad as the tadpoles in the same strength of solution in series 2.

Young kittens (over 50 in number) were treated as follows:

Series 1. Lecithin was injected subcutaneously daily in doses of from 0.0006 to 0.004 gram. Control animals received subcutaneously equal volumes of physiological salt solution. The increase in weight was somewhat greater in the kittens that received the lecithin.

Series 2. Lecithin was injected subcutaneously in doses of from 0.01 to 0.32 gram daily. The kittens that received the

[1] I am greatly indebted to Professor Gies and Dr. W. N. Berg for the lecithin made by them for use in these experiments.

lecithin gained, in some cases, as much as 7 per cent. over the control animals.

Series 3. Lecithin was fed daily in amounts of from 0.01 to 0.32 gram. With very few exceptions, these kittens weighed from 2 per cent. to 12 per cent. more than the controls.

The best results were obtained in the feeding experiments, with doses of from 0.04 to 0.16 gram daily; yet under these conditions the actual difference in weight between the kittens fed with lecithin and those not so fed was small, amounting on an average to about 7 per cent. Whether the same quantity of any other fatty or simple nutrient compound would result in an equal increment has not yet been determined, but will be investigated with other matters bearing upon the interpretation of the results recorded above.

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Comparative data for the elementary composition and the heat of combustion of collagen and gelatin.

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Comparative elementary analyses, as well as determinations of the heat of combustion, of many samples of connective tissue collagen and gelatin, have indicated that there is a closer agreement between the mother substance and its derivative, on these two planes of comparison, than the prevalent idea of their chemical relationship would indicate. The following sample data show this quite clearly:

	C	H	N	Heat of combustion
	Per cent.	Per cent.	Per cent.	calories.
Tendocollagen[1]	48.85	8.01	18.02	5,387
Tendogelatin	48.28	7.84	17.56	5,350

These data were obtained before the experiments by Emmett

[1] Each of these products was desiccated (before analysis) to constant weight by the Benedict-Manning process in vacuo. See the *American Journal of Physiology*, 1905, xiii, p. 309.