of controlled diabetic children on diets high in protein. With a very few exceptions, these children were receiving approximately 2 gm. of protein per kilo body weight, the ratio of the gm. of nitrogen per gm. of sulfur in the different diets varying from 10.3 to 13.4. Data were collected during a total of 47 periods of 3 to 4 days each.

The N:S ratios of the urines approximate those of the diet rather closely (ranging from 10.9 to 16.6), with a definite tendency to be slightly higher. Children who were much underweight and were gaining rapidly showed the largest increases, while 4 rather fat, phlegmatic children showed urinary N:S ratios almost identical with those of the diets. Three adolescent girls, whose urinary N:S ratios were but slightly above the diet ratio, were kept on a lower protein diet (1 gm. per kilo) for about 3 months. At the end of this time the N balances were barely positive, but the N:S ratios of the urines were definitely increased.

These data have been interpreted as indicating a slight but definite tendency on the part of the growing child to retain a sulfur-rich protein for anabolic needs.

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Fat Absorption on High Fat Diets.

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The subjects of this study were 31 diabetic children, from 2½ to 15 years of age. Food with a caloric equivalent sufficient for full activity was provided, supplied chiefly as fat, with a potential fatty-acid: glucose weight ratio of 1½:1. In most instances, patients were aglycosuric. Three day collections were made under expert supervision, using the usual technique. In some instances the total fecal output was dried and finely ground before analysis; in others aliquot portions of the output, thoroughly mixed, were analyzed without preliminary drying. Total fat was determined according to a modification of a method suggested by Eckstein[1] as most suitable for the purpose. In general it consists of prolonged dehydration and extraction with successive quantities of absolute alcohol, followed by chloroform. The combined extracts after

[1] Eckstein, H. C., personal communication.

evaporation to dryness in the cold are extracted with petroleum ether, the extract filtered, desiccated and weighed. Known amounts of butter oil were recovered with but small error by this method.

The average total daily output of the ether-soluble substances was 4.43 gm. per child. Compared with the individual daily intake, the excretion was equivalent to from 0.75% to 6.5% of the amount of fat ingested, with an average value of 2.56%. These patients were receiving daily approximately 3 gm. of fat per pound of body weight, constituting about 75% of the total calories. The retention is similar to that found in children receiving the usual fat intake, which comprises about 30% of the total calories.

This study confirms the observations of others that fat absorption in the healthy person is practically complete, even with a high fat intake. It also indicates that the adequacy of fat digestion in diabetic children is not demonstrably diminished.

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Glycogen Formation under Amytal Anaesthesia.

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In a previous report[1] it was pointed out that dogs under amytal anesthesia exhibited a decreased capacity to assimilate injected glucose. Preliminary to a study of factors influencing the distribution of injected glucose, it was desirable to know whether this effect of amytal was a quantitative one affecting all tissues or whether its effect was limited primarily to certain tissues.

A comparison of glycogen formation in the unanesthetized and anesthetized (amytal) animal has been made in experiments on 8 dogs. Samples of liver and muscle tissue frog glycogen determinations were quickly removed under light ethylene anesthesia. One hour later glucose was injected at the rate of 3 gm. per kilo of body weight per hour for a period of 3 hours. One hour later when the blood sugar had returned to approximately its original value, samples of tissue were removed from the opposite side for analysis.

It was found that approximately the same increase in muscle glycogen had occurred in animals with or without amytal anesthesia. (Table I.) However, the increase in liver glycogen was over twice

[1] Hines, H. M., Boyd, J. D., and Leese, C. E., *Am. J. Physiol.*, 1926, lxxvi, 293.