than 50 calories per pound. With any caloric intake, however, the largest and most consistent gains were made when the children were given the dextrose diet. To achieve a similar gain from the fat diet, from 250 to 500 additional calories per day were needed. Undoubtedly, during the first few days of the dextrose diet, a considerable portion of the weight gain could be ascribed to water retention; the gain thus made was not subsequently lost, however, and the very high nitrogen retentions observed indicate that this first water storage was soon replaced by nitrogenous tissue. When the children became normal in weight, a change to the general hospital diet did not occasion any loss of weight.

No child showed a glycosuria at any time during the study. One of the 5 children excreted more than 100 mg. of "acetone bodies" daily when given the "fat diet". Sugar tolerance curves at the end of each dietary period were as predicted; the highest rise of blood sugar after the fat diet, the lowest after the dextrose diet. No ill effects of any kind were observed from the ingestion of these large amounts of dextrose.

It is concluded that a diet rich in protein, minerals and vitamins, low in fat and containing its carbohydrate largely in the form of dextrose is best suited to produce rapid and consistent gain in weight of undernourished children. The caloric intake should be above 50 calories per pound of body weight.

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Retention of Calcium by Infants Fed Evaporated Milk Containing Cod Liver Oil Concentrate.

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This report concerns the quantities of calcium retained and the growth in length and weight of 5 white infants fed evaporated milk containing the unsaponifiable fraction of cod liver oil (Zucker concentrate) in an amount which allowed 400 U.S.P. units of vitamin D to the reconstituted quart. When the experiment was started one infant was 11 weeks, one 6 weeks, and the remaining 3 infants 10 to 20 days of age. The vitamin D intake of the youngest infants was 245 units daily; the maximum intake was 400 units a day. The intakes and retentions of calcium per kilogram of body weight are

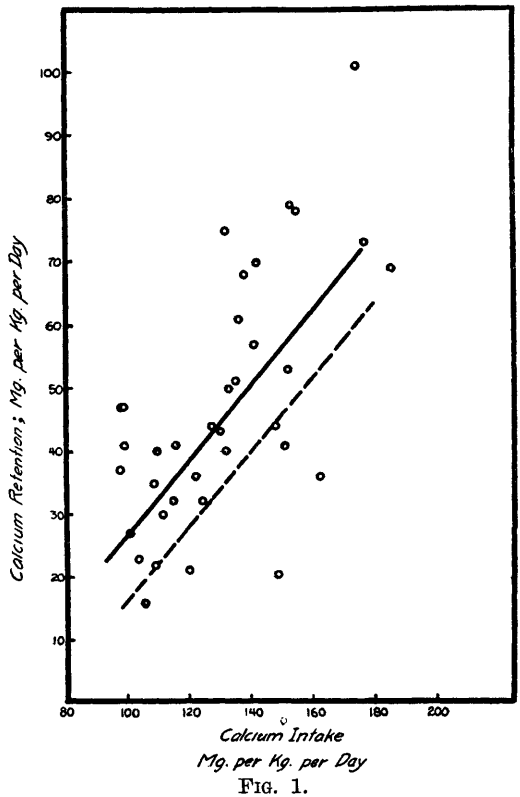

FIG. 1.

plotted on the chart. For comparison are shown average values from former observations. The solid line shows the average calcium retentions of infants given 340 U.S.P. units of vitamin D daily as cod liver oil and represents 200 periods of study of 24 infants; the dotted line shows the average retentions from 135 U.S.P. unit milk (60 to 135 units daily) as determined from 40 periods of study of 7 infants. The quantities of calcium retained from any given intake of the 400 unit milk were within the range observed in infants to whom 340 units of vitamin D as cod liver oil were given daily, and the average values for each intake range is approximately the same as that of the large control group, but about 10 mg. per kilo higher than the average retentions observed when 135 unit milk was given a similar group of infants.[1]

The serum calcium values varied from 10.4 to 12 and the serum phosphorus from 5.7 to 7.2 mg. per 100 cc.; the average values were 11.0 and 6.3 mg. per 100 cc., respectively. The rate of growth of

[1] Jeans, P. C., and Stearns, G., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 1159.

each infant, both in length and weight, was above the Kornfeld[2] average, and equal to the average rate of growth of the infants given 340 units of vitamin D daily. No infant developed rickets; dentition was early and muscular development excellent.

It is concluded that milk containing cod liver oil concentrate (Zucker) sufficient to allow 400 U.S.P. units of vitamin D to the reconstituted quart, allows high retentions of calcium, prevents the development of rickets, and permits excellent growth and development of the infants.

[2] Kornfeld, W., *Z. für Kinderheilkunde*, 1929, **48**, 202.