

were 29 to 48 days of age when placed on the experiment and each weighed 40 to 50 gm. The experimental period ranged from 30 to 35 days.

A summary of all the results discloses that in experimental rickets produced on diets high in calcium and low in phosphorus, and deficient in vitamin D, no disturbance takes place in the differential leucocyte count. No observations were made on the total leucocyte count in this avitaminosis.

6412

Avitaminosis XII. Influence of Vitamin B Deficiency on Differential Leucocyte Count of the Albino Rat During Lactation.*

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It was reported that in vitamin B deficiency of the weaned albino rat, there is produced a relative lymphopenia and corresponding polymorphonuclear leucocytosis¹ which is due to the *specific* effect of this avitaminosis² unrelated to the plane of nutrition.

In this investigation a study was made of the influence of vitamin B deficiency on the differential leucocyte count of the lactating albino rat and its nursing young. Forty-seven mothers and litters were employed, 21 of which were pathological and 26 of which served as controls. The biological methods used have been previously described.³ The experiments were set out in pairs and triads, so that the results could be interpreted as due to inanition or to the vitamin B deficiency *per se*.³

In lactation studies of the rat complicating factors arise that are not encountered in growth. For instance, since it is impossible to obtain sufficient milk from nursing rats for biological studies, the criterion of lactation performances is the character of growth of the nursing young, which is correlated with a limiting factor in

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¹ Sure, B., Thatcher, H. S., and Walker, D. J., *Arch. Path.*, 1931, **11**, 413.

² Sure, B., and Walker, D. J., *Arch. Int. Med.*, 1932, **49**, 405.

³ Sure, B., *J. Biol. Chem.*, 1932, **97**, 133.

the diet. Satisfactory technique has not yet, however, been perfected, so that it is possible to know, in the later stages of the nursing period, to what extent the nurslings are deriving their nourishment from the mother's milk and to what extent their daily nutritional requirements are being supplemented by the maternal diet which is accessible to them. For such reasons, we frequently encounter irregular results in biochemical studies of avitaminotic rats during lactation. A summary of all the results discloses that in vitamin B deficiency there is generally a relative lymphopenia and corresponding polymorphonuclear leucocytosis in the lactating albino rat and nursing young, and, while in some groups a *specific* effect of vitamin B deficiency on such changes was apparent, in the majority of cases this was due to great losses of weight associated with inanition. No noteworthy changes were observed in the monocyte, eosinophil or basophil counts.

6413

**Comparison of Bone Ash of Rachitic Rats Treated with Viosterol
and with Phosphate Ion.**

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A group of 21 albino rats, 28 to 30 days old, were placed in individual cages and fed Steenbock's rachitogenic Diet No. 2965, *ad lib.* Twenty-eight days later they were found to have X-ray evidence of florid rickets. They were then divided into 3 groups of 7 rats each.

GROUP I. Diet not changed. This was the control group.

GROUP II. Diet modified as follows: 0.3 gm. Viosterol (potency 250 D) was thoroughly mixed through 50 cc. of boiled, but partially cooled Crisco, which was in turn thoroughly rubbed into each 950 gm. of the Steenbock Diet and fed *ad lib.* This amount of Viosterol provided the animal with an equivalent of 3% of cod liver oil in the diet.

GROUP III. Diet not changed, but each day each animal was given 1 cc. of a solution of 43.4 gm. Na_2HPO_4 , 12 H_2O , in 500 cc.