



VITAMIN NEWS



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VITAMIN D

Since offering our observations on Vitamin D in Vitamin News of April, 1934, quite a number of new facts have appeared.

The use of the synthetic Vitamin D (irradiated ergosterol, etc.) has been shown to be highly inferior to Vitamin D from natural sources. Even the natural vitamin varies as much as 15 to 1 in its potency for different species when taken from different sources. (See Country Gentleman, April 1935, page 108.) The statement is made that Vitamin D from tuna fish, in equal amounts as regards effect on the rat, is but 1/15th as effective to produce the Vitamin D effect when given to the chick. Dr. Steenbook (Journal of Biological Chemistry, July 1932, pages 249-264) states that irradiated ergosterol must be given in quantities of 40 to 120 times the equivalent amount of cod liver oil Vitamin D (calculated in rat units) to produce the same degree of bone calcification. He further concluded that ergosterol and yeast when irradiated are inefficient sources of Vitamin D for the chicken, which was the animal experimented upon.

No doubt we can prepare to accept a new law of vitamin therapy that a vitamin effect can be produced in different species by entirely different chemical principles.

Steenbook has stated his opinion that the antirachitic substance in cod liver oil and viosterol are different chemically. (Journal of Biological Chemistry, 97:249.)

The use of cod liver oils rich in Vitamin A with added viosterol has not been found particularly better than the cod liver oil alone, thus exploding the idea that the use of Vitamin A with viosterol would afford results comparable with the cod liver oil. (American Journal of Diseases of Children, Vol. 46, page 250.)

The synthetic vitamin is very much more toxic than the natural product, as one can infer from the statement above, where 40 to 120 times are necessary to get the same result - the toxicity then being evidently 40 to 120 times that of the natural vitamin.

In the Archives of Internal Medicine, September 1932, page 433, Dr. Spies states that severe and persistent damage can be produced to such vital organs as the aorta, lungs and kidneys by repeated administration of toxic doses of viosterol.

Several cases of persistent hematuria and albuminuria in children have come to the writer's attention where the only possible relevant circumstance that could be found in the case history was a long continued heavy dosage of viosterol. (The use of "Catalyn" and our Vitamin A tablets was instrumental in clearing up the condition in each case. The hematuria case has required the continued administration of the "A" tablets, however, to prevent recurrence.)

It is particularly unfortunate that the rat was selected as the test animal for Vitamin D. It must be recalled that the rat is one of the few species that is able to manufacture its own supply of Vitamin C (by the action of its specialized intestinal flora,) and it is possibly because of this circumstance that it can use the synthetic vitamin so successfully.

Vitamin C is an important co-operative factor in the assimilation of calcium. "C" deficiency is known to be accompanied by a decalcification of bone, and the action of "D" is purely that of increasing the affinity of the blood for that element. It is probable that Vitamin C causes the diffusion of the blood calcium to the bones and teeth, as distinguished from the supply to the nerve and muscle tissue, accomplished by another principle. (We believe by our Vitamin F.)

Vitamin D, therefore, can only increase the blood calcium, and other factors must be present to insure its distribution. Too much "D" without its cooperating factors can cause a reversal of the flow of calcium to the tissues needing it, and we believe that this is what takes place in senility, osteomalacia, scurvy, etc. It has definitely been shown that the toxic action of "D" is due entirely to a too high blood calcium.

It has also been shown that in pregnancy toxicosis from the administration of "D" is practically impossible because of the mobilization at this time of the hormonal promoters of calcium diffusion that are necessary for this physiological emergency, to store in the bones all ingested calcium against the fetal requirements. The renal threshold for calcium automatically rises to prevent loss of the element, and the renal ammonia synthesizing function is called upon to supply a substitute alkali base to take the place of the Ca molecule in salts eliminated.

The albuminuria of pregnancy is due to the deficiency of vitamins (A and C in particular) in the kidney. The abnormal renal demand for these vitamins is also the basic cause of the hyperemesis. "Catalyn" supplies these vitamins in the proper form, and 3 or 4 tablets a day are recommended. Any physician who observes the course of a pregnancy where the vitamin supply is sufficient will never forget the difference between physiological and pathological childbirth.

Edited by Royal Lee