

# VITAMIN NEWS

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## WHY NOT BE HONEST ABOUT IT?

In these pages we have at various times called attention to some of the obvious basic principles underlying the use and preparation of vitamin concentrates.

Today these principles, to be set forth again below, are becoming more and more obvious as new facts are established. They show that the methods in use to rate vitamin concentrates in terms of the "units" commonly used are fallacious and misleading and that the physician or layman who depends upon such statements of "unit" content is being imposed upon by the manufacturers of such materials.

Why not be honest about the matter and admit the facts? Here they are.

1. The vitamins are all now known to exist as complexes, groups or families of related and similar organic principles.

To rate any vitamin complex in terms of any one of its fractions is just as illogical as to set up as a standard for the carbohydrate component of a diet, a specified quantity of pure cane sugar. (It is just as criminal to purify vitamins as food components as to denature carbohydrates; they cease to be natural foods (1a) and become drugs, the effects of which may be quite at variance with that of the original complex, and of a narrower range of action.) (1b) (1c) (1d) (1e)

(1a) "Man commits a crime against nature when he eats the starch from the seed and throws away the mechanism necessary for the metabolism of that starch." (Time, B1, 32,2:39, July 11, 1938, quoting Dr. R. R. Williams)

(1b) "It would seem that we are not justified in considering rat units of Vitamin D in irradiated ergosterol as being equivalent to the same number of rat units of Vitamin D in cod liver oil as a curative or prophylactic remedy for rickets." (Barnes, D. J., Brady, M. J. and James, E. W., Comparative Value of Irradiated Ergosterol and Cod Liver Oil as a Prophylactic Antirachitic Agent When Given in Equivalent Dosage According to the Rat Unit of Vitamin D, American Journal of Diseases of Children, 39:45, 1930)

(1c) Irradiated Vitamin D is a different substance from cod liver oil D. (Abstract of Stoenbock, H., Kletzein, S. N. F., and Halpin, J. G., The Reaction of the Chicken to Irradiated Ergosterol and Irradiated Yeast as Contrasted with the Natural Vitamin D of Fish Liver Oil, Journal of Biological Chemistry, 97:249, 1932)

(1d) "Deprecating the promiscuous use of viosterol, Brehm points out 'It is important in treating a patient not to produce by overtreatment a more serious condition than that originally treated. Natural vitamins, when indicated, seem preferable to synthetic vitamins.'" (Modern Medicine, Viosterol during Pregnancy, page 62, October 1937)

(1e) Vitamin D factor in viosterol and cod liver oil are not identical. Ten times as many Vitamin D units in viosterol do not give as much protection as plain cod liver oil. (Abstract of DeSanctis, Adolph and Craig, J. D., A Five-Year Clinical Study of the Prophylactic Value of Antirachitic Agents, New York State Journal of Medicine 34:16, 712-714, 1934)

2. The different factors of a complex have quite a different value in serving as the vitamin for different species.

To set up as a standard unit a given quantity of a pure vitamin, therefore, can be as deceiving as to specify for the carbohydrate component of a diet a given quantity of pure cellulose. (Cellulose is carbohydrate only for such species of test animals as goats, cows and horses. Its value is zero in human nutrition.)

DO NOT BE FOOLED. These statements are not idle arguments, but are BASIC LAWS OF NUTRITION. You can ignore them only at your own risk, for it will be yourself and those who depend upon your opinions who will suffer from the consequences of ignorance.

The fetish of "scientific standardization" has been the downfall of many makers of vitamin concentrates.

Vitamin A was said to be standardizable in terms of carotene. Now we find that many patients show an A deficiency because they cannot convert carotene to Vitamin A. (2a) (2b) (2c)

Vitamin A was said to be standardizable in rat units. Now we find that in equal amounts according to rat units, Vitamin A from spinach is TEN TIMES as effective in the human as the vitamin A from fish oil. (3)

(2a) "... In several cases of Paget's disease the carotene content was normal, but the Vitamin A content was markedly subnormal. From this it is inferred that in this disease there is some liver disturbance which interferes with the conversion of carotene to the vitamin". (Endocrinology, 20,3:451, May 1936 abstracting Schneider and Widmann, The Hepato-hormonal Direction of Vitamin A Metabolism and the Etiology of Paget's Disease, Klin. Wchnschr., 14:1786, 1935)

(2b) Greaves and Schmidt found that carotene was much less assimilable and effective than Vitamin A itself and that the conversion of carotene to Vitamin A was accomplished only in the presence of normal amount of bile. (Abstract of Greaves and Schmidt, American Journal of Physiology, 111:492-502, April 1935)

(2c) Palmer points out that the conversion of carotene to Vitamin A occurs in the liver probably through the medium of an enzyme and that the ability to make this conversion is necessary to the effective utilization of carotene as Vitamin A. (Abstract of Palmer, L. S., Chemistry of Vitamin A, Journal of American Medical Association, 110,21:1751, May 21, 1938.)

(3) Friderichsen and Edmund point out that the Vitamin A factor from spinach is ten times as effective, unit for unit, in clinical tests, as the Vitamin A from fish liver oils, besides producing a more prolonged action. (Abstract of Friderichsen, C. and Edmund, Carsten, Studies of Hypovitaminosis A: II. A New Method for Testing the Resorption of Vitamin A from Medicaments, American Journal of Diseases of Children, 53:89-109, January 1937; III. Clinical Experiments in the Vitamin A Balance in Children after Various Diets, *ibid*, 53:1179-1201, March 1937)

Vitamin B was said to be standardizable in terms of pure "thiamin." Now we know that the vitamin B complex contains FOURTEEN known components besides thiamin. (4)

Vitamin C was said to be standardizable in terms of "Ascorbic Acid". After its discoverer received the Nobel prize for his work, he found that IT LACKS THE ANTIHEMORRHAGIC FACTOR, the deficiency of which is the REAL CAUSE OF SCURVY. 5a) (5b) (5c) (5d)

Vitamin D was standardized in terms of rat units, with the later finding that THE RAT VITAMIN WAS NOT VITAMIN D AT ALL, and that all the irradiated materials sold up to that point contained a new substance having toxic properties (toxisterol).(6a) (6b) (6c) (6d)

Vitamin E was not recognized as necessary for the human until of late, but it is now known to be essential, and IN PURIFIED FORMS LOSES ITS POTENCY, being most effective if the "complex" is not taken apart.(7a) (7b)

(4) Williams, Robert R. and Spies, Tom D., Vitamin B and Its Use in Medicine, pages 133-134, Macmillan Co., New York, 1938)

(5a) Elmy and Warburg have cured scorbutic patients by the use of lemon juice in cases that were not amenable to treatment with ascorbic acid. (Abstract of Elmy, A. and Warburg, E., Lancet, 233,1363, 1937)

(5b) "Dr. Szent-Gyorgyi later found, along with Vitamin C in fruit juices and adrenals, a 'permeability factor' which he calls Vitamin P, not present in synthesized C. . . ." (Time, Paprika Prize, page 55, November 8, 1937)

(5c) "Because the isolated synthetic Vitamin C lacks something that the true vitamin as found in the juices retains, the synthetic product is not proving a substitute for orange and tomato juices in preventing borderline cases of scurvy, and other less tangible but real childhood ills, Dr. Henry G. Poncher of Chicago told 70 members of the Texas and Dallas Pediatrics Society here recently at a meeting held by the organization." (Drug Trade News, M.D. Holds Synthetic Vitamin C Not Complete, 12,23:46, December 6, 1937)

(5d) "So Szent-Gyorgyi had to depend upon an occasional human. These were sufficient, however. In repeated tests he found that his citrin, or Vitamin P from lemons or red pepper in 14 days would clear up a hemorrhagic condition when pure Vitamin C from some other source was useless." (Los Angeles Times, New Lemon Vitamin Cure for Bleeding: Scientist Working Here to Separate 'Citrin' from Its 'Twin', Vitamin C, March 14, 1937)

(6a) ". . . Moderate over-irradiation under some conditions produces a substance ('toxisterol' or 'substance 248') which has a marked tendency to cause pathological calcification of the soft tissues of the body while being relatively ineffective in curing rickets. . . Some of the early reported toxic manifestations following high dosage with irradiated ergosterol were doubtless due to the presence of considerable amounts of toxisterol, perhaps as the result of technical defects in the irradiation procedure." (Sherman, H. C., Chemistry of Food and Nutrition, Fifth Edition, pages 455-456, The Macmillan Company, New York, 1937)

(6b) See reference 1c.

(6c) See reference 1e.

(6d) "Previous studies showed (a) that the liver oils of different species of fish contain forms of Vitamin D which react differently, per rat unit, on chickens. . ." (Bills, C. E., Massengale, O. N., Hickman, K. D. C. and Gray, E. LeB., A New Vitamin D in Cod Liver Oil, Abstract from Proceedings of the American Society of Biological Chemists, Journal of Biological Chemistry, 123,3:x-xi, May 1938)

Vitamin G investigations have brought to light a chemically different Vitamin "G" FOR EACH SPECIES TESTED in one series of experiments. (8a) (8b) (8c)

DO THE PROMOTERS OF THESE ABORTIONS AND FAKE PRODUCTS (THOUGH MADE IN THE GOOD FAITH OF IGNORANCE) TELL YOU ABOUT THEIR MISTAKES? NO. A THOUSAND TIMES NO!

You must be canny enough to apply the old common sense test. Use only products of known CLINICAL VALUE. ASK THE MAN WHO HAS USED THEM or make your own tests. It is not the physician anyway who has supported the business of the makers of phoney products. It is the layman who bought them "over the counter" without a prescription nine times out of ten, thinking that the "old reliable firm" back of the product knew what it was doing.

(7a) Evans and the Emersons isolated three different related principles in the Vitamin E complex and found that the complex was more effective than any of the single factors. They ask "is a mixture more effective than any of its separate constituents and what is pure Vitamin E?" Evans and his associates express the opinion that probably several closely related factors each provide the Vitamin E function in different degrees. (Abstract of Evans, H. M., Emerson, O. H., and Emerson, Gladys A., The Isolation from Wheat Germ Oil of an Alcohol,  $\alpha$ -Tocopherol, Having The Properties of Vitamin C, Jour. Biol. Chem., 113:319, Feb. 1936)

(7b) "A caution, of course, is necessary. There should be no confusion between crystalline Vitamin E and wheat germ oil. The one, like viosterol, is a single component of a natural product (synthetic in the case of viosterol); the natural product contains the natural vitamin in an environment most favorable to its best work. There is as much difference in the usefulness of crystalline Vitamin E and wheat germ oil as there is between viosterol and cod liver oil. The two, in either case, are not identical substitutes." New York Physician, November 1935 as quoted by Pacini, August J., in his Wheat Germ Oil: Vitamin E, page 41, the American Physician, Inc., New York)

(8a) The experiments demonstrated that an extract of rice bran may be separated into two fractions by means of treatment with fullers' earth. The unadsorbed fraction was the antidermatitic factor for the chick and the adsorbed portion served as the same factor for the rat. (Abstract of Lepkovsky, S. and Jukes, T. H., The Effect of Some Reagents on the 'Filtrate Factor' (A Water-soluble Vitamin Belonging to the Vitamin B Complex and preventing a Dietary Dermatitis in Chicks), Journal of Biological Chemistry, 114,1:109-116 (114), May 1936)

(8b) The filtrate factor which is potent for the chick is found in all probability to be a different factor than a human pellagra-preventive principle. (Abstract of Jukes, T. H. and Lepkovsky, S., The Distribution of the "Filtrate Factor" (A Water-Soluble Vitamin Belonging to the Vitamin B Complex and Preventing a Dietary Dermatitis in Chicks) in Certain Feeding-stuffs, Journal of Biological Chemistry, 114,1:117-121 (121), May 1936)

(8c) The fact is pointed out that pellagra in the human is caused by deficiency of a different factor than either rat pellagra or chicken pellagra. (Abstract of von Euler, Hans, The Water-Soluble Vitamins, Annual Review of Biochemistry, 5:304, 1936)

Edited by R. Lee