

THE NATURALLY OCCURRING STANDARD

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ABSTRACT

The Naturally Occurring Standard (NOS) is being established initially for the purpose of identifying, certifying, labeling, and verifying the naturally occurring vitamins and nutrients in all food products including bulk food materials, nutritional supplements and fortified foods and for the purpose of expressing a clear distinction between naturally occurring vitamins and nutrient containing products and those that contain synthetic vitamins and nutrients. The current quantitative and qualitative standards for vitamins and other essential nutrients, such as those listed by RDA's, RDI's, and DV's for understanding nutrient activity, label disclosure and other nutrient details related to food supplements and fortified foods are originally based upon synthetic quantities mostly developed upon animal research studies conducted over 60 years ago. There is no qualitative or quantitative standard currently available for understanding non-synthetic, naturally occurring vitamins and nutrients potencies for the purpose of labeling or publication as related to our fortified foods and dietary supplements. This situation is confusing in general not only for natural food supplement and food product developers, but also for consumers who should be informed about the distinction that exists between naturally occurring vitamins and nutrients obtained only and directly from food and botanical sources created by nature as opposed to man-made synthetic vitamins and nutrients produced in laboratories. Therefore, a new standard, the NOS, is being developed as related to naturally occurring vitamins and nutrients. The NOS will also help to support a platform for a program of related research and development to establish a "Naturally Occurring Daily Intake" that may be established as a quantitative consumer guide and standard for naturally occurring vitamins and nutrients as an alternative reference to the current RDI and DV standards that refer primarily to synthetic vitamins and nutrients.

INTRODUCTION

As director/practitioner at the Hippocrates Health Institute, a residential therapeutic center where patients generally reside for twenty-one days, I pioneered clinical research directly relating to the absorbability of supplemental nutrients. For the past twenty years, we have observed 18,000 patients' blood microscopically. From this emerged 11,750 individuals who were consuming one or many varieties of isolated chemical nutritional supplements. We found it to be almost unanimous that these cases showed little to no absorption of any of these purported nutrients. This determination was easily made with acute observation of crystalline particulate in the blood, reflected on the screen. Dr. Treadway and I consider this to be of paramount concern and have moved forward with further research and concrete plans to establish whole food nutrient standards that will lay the groundwork in differentiating chemical-vs.-whole and thorough effectiveness –vs.- the often irrelevant, stimulating or depressing effects that laboratory derived nutrients provoke.

BACKGROUND AND DISCUSSION

Production of synthetic vitamins began in earnest in the late 1930's and 1940's and today the majority of vitamin dietary supplements and vitamin fortified foods commercially available are derived from synthetics. These synthetic vitamins are man-made in chemical laboratories and are not from nature although the product labeling of these substances is often associated with the word "natural." For example, some vitamin products that use synthetic vitamins may have a label that indicates "natural." Part of this use of the word "natural" may be due to the fact that a legal "natural" label designation under some provisions and conditions may be permitted when there is at least a 10% natural base of food or botanicals in the product and therefore, this use may represent an abuse of the word "natural."

The older RDA's (Recommended Dietary Allowances) and current DV's (Daily Values), as related to synthetic vitamins and supported by our government, tend to perpetuate the use of synthetic vitamins and the notion that synthetic vitamins are, somehow, "natural" based upon the assumption that synthetic nutrient chemical structures are similar to those found in nature. Isolated chemical compounds that resemble "parts" of complete, complex vitamin factors are not the same as real, complex vitamins in their full matrix as found in nature. In this way, the NOS will challenge the definition of what a "vitamin" really is.

The history of vitamins and nutrients points to the origin of vitamin use for vitamin deficiency diseases before there was a modern understanding of what a vitamin is. Hundreds of years ago, as a practical matter, the British Navy discovered that the ingestion of limes or other citrus fruit by their naval personnel was useful to prevent scurvy which we now know as a vitamin C deficiency disease. Before the British Navy implemented the

regular use of citrus fruit to prevent scurvy there was a large percentage loss of British navel personnel each year to the dreaded disease. Similar situations related to deficiency diseases such as pellagra or beriberi, we now know as B vitamin deficiency conditions, were prevented by the use of rice polish and were established historical treatments of vitamin deficiency diseases. Later, when chemical analysis of foods and their compounds became available, it was discovered that certain foods contained “vitamins” or complex groups of natural compounds that were responsible for the biological action that prevented specific vitamin deficiency diseases. This brings us to the question of what a vitamin really is. Can a vitamin be defined as only one or two active compounds found in a food and then be chemically copied and medically administered with an expectation that the supposed vitamin copied is the whole vitamin? Is it just an isolated fraction?

An assumption of the NOS is that all synthetic vitamins are not natural and are only parts (fractions) of a whole vitamin. This means that a part cannot be the whole and a fraction of a vitamin is not a real, whole vitamin, but only part of the whole vitamin matrix. For example, many assume that ascorbic acid, a part of the whole vitamin known as vitamin C, is actually vitamin C and so they call ascorbic acid “vitamin C.” Ascorbic acid is an important component of vitamin C, but there are other components and therefore ascorbic acid is not vitamin C. Ascorbic acid is only a part of a complete matrix known as vitamin C. The phrase “vitamin C” came about after Albert Szent-Gyorgyi, the Nobel Prize winner, isolated a substance from the adrenal glands. He called it hexuronic acid. At around the same time, W.A. Waugh and Charles King isolated a vitamin from lemon and showed that it was nearly identical to hexuronic acid. In 1932, this vitamin, known as Vitamin C, became the first (fraction of a vitamin) to be synthesized in a laboratory. Real, whole vitamin C is not only ascorbic acid, but includes a matrix of compounds, some known such as bioflavonoids, tannins and others and some that are still unknown.

Synthetic vitamins and nutrients have been shown to exhibit toxic effects when ingested. These toxic reactions are similar to some adverse drug reactions or “side effects” that are often associated with drugs which are also synthetic chemical compounds. The adverse effects of large doses of synthetic vitamin E, synthetic carotene, synthetic vitamin D, synthetic vitamin C, and many other synthetic nutrients is well known. The fact that there is a distinction between synthetic vitamins and nutrients and “natural” or naturally occurring vitamins and nutrients is accepted and recognized by various institutions and organizations and also by certain large commercial pharmaceutical corporations who manufacture synthetic vitamins and nutrients and who rightfully support the restriction of these substances in the same manner as drugs are restricted.

While there is currently no official, U.S. government regulated definition for the term “natural” pertaining to the natural products industry, the Food and Drug Administration (FDA) refers to natural ingredients as “ingredients extracted directly from plants or animal products as opposed to being produced synthetically.”

We support the FDA statement especially as related to the distinction between natural (naturally occurring) and synthetic vitamins and nutrients. We also agree with a statement

from the Codex Alimentarius court proceedings as conducted in Europe related to the definition of natural vitamins as opposed to synthetic vitamins and nutrients as reported by the Alliance for Natural Health on July 12, 2005 and partially represented and quoted as follows:

“The ban on non-positive list of vitamins and minerals does not apply at all to vitamins and minerals normally found in or consumed as part of the diet which therefore are not banned as of 1 August 2005. Where the FSD does apply (which is to vitamins and minerals derived from "chemical substances" i.e. not naturally derived) ...Court has stated that the Directive is to be interpreted as applying only to "food supplements containing vitamins and/or minerals derived from a manufacturing process using 'chemical substances,'" not other food supplements (paragraph 63 of the judgment). It is evident that there is recognition by FDA and the legal associates of Codex Alimentarius among other highly recognized authorities, institutions and corporations globally who recognize that there is a definite distinction between natural (naturally occurring) vitamins and nutrients and synthetic vitamins and nutrients. The knowledge of the distinction between natural and synthetic vitamins and nutrients, although recognized by certain leading persons and organizations in the food industry, seems to be missing from the general public domain and therefore this knowledge needs to be brought forward in a broad public manner and disseminated in an organized program of public awareness and education. The establishment of the NOS will help to support such a consumer education program.

The NOS, as proposed, is a standard that may be used to certify food and food supplement potencies for vitamins and other nutrients. The potencies of fortified food and vitamin and nutrient products once certified as “NOS” would indicate to the end user or consumer that the products or raw materials in question contain labeled potencies of nutrients that are derived only from naturally occurring, food-derived sources. This certification process might be similar in structure to the current certification protocols associated with “organic” foods. However, the difference for the NOS certification, as opposed to other certification programs, such as the “organic food” certification program, is that the NOS certification of food and food supplement products will be focused upon the distinction between natural vitamins and nutrients and synthetic vitamins and nutrients. Certification will depend upon the exclusive use of only naturally occurring nutrients and their potencies as derived strictly from naturally occurring, food-derived sources being used in the raw materials or finished food products and labeled accordingly.

As an example of how the NOS would work as a certification tool for vitamin supplements we should first observe the current situation. Most commercially available vitamin supplement lines today use some synthesized forms of vitamins or nutrient materials added directly or indirectly (spiked in a medium such as yeast or other materials). NOS certified supplements would, presumably, contain no synthetic nutrients of any kind added directly or indirectly. An NOS certified vitamin and nutrient product would tend to have listed potencies that would be generally quantitatively lower potency, based upon current standards such as RDI's and DV's, than synthetic containing products due to the nature of popular high potency vitamin supplements that are dependent upon synthetic quantities. These synthetic potency products are often manipulated to reflect higher concentrations of

nutrient potencies (synthetic potencies) than are found naturally occurring in foods or food and botanical concentrates.

The difference between products which contain vitamin and nutrient potencies derived from synthetics and those potencies that are naturally occurring can be distinguished on a product label through the process of NOS certification and logo attachment upon the labeled product allowing the end user or consumer to choose between an NOS (naturally occurring nutrient containing) and non-NOS (synthetic nutrient containing) products.

Any NOS certified supplement product would be expected to mention the phrase “naturally occurring” or the equivalent on the label when referring to the labeled potency claim(s) and should reference the food or botanical source of the claimed naturally occurring source. If either of these pieces of information is missing from the vitamin, nutrient, or mineral food supplement or fortified food label related to any particular nutrient, then a consumer could be fairly confident that the product potencies of the vitamins, for example the B vitamins, are synthetic and not naturally occurring or derived only from naturally occurring food sources. There may be many more details and exceptions to consider, but the NOS certification approach will provide a general guide to help the health professional or consumer to distinguish between natural and synthetic vitamin and nutrient products and materials.

Because of the mass marketing of synthetic vitamins as “natural” or the equivalent of real, natural vitamins over the last 70 years the general public has become confused about real, natural vitamins as opposed to those that are synthetic. The significant difference between real, natural vitamins and nutrients, as made by nature and man-made synthetic vitamins and nutrients can be the difference between healthy nutrition and disease causing toxicity.

Today the vast majority of vitamins ingested through vitamin supplementation and fortified foods are synthetic compounds made in a laboratory and divorced from nature. Synthetic vitamins are similar to drugs because they are synthesized chemical compounds. Many synthetic vitamin compounds have proven to have toxic side effects. For example, it has been found that synthetic vitamin A can cause birth defects and studies on synthesized beta-carotene (provitamin A) have shown that this synthetic “vitamin” may contribute to heart attacks and cancers. Similar studies on the side effects of synthetic vitamin E illustrate the point that synthetic vitamins have a net negative effect on health. Although synthetic vitamins may be used as drugs for successful emergency treatment, many who support natural vitamin and nutrient supplementation oppose synthetic vitamin and nutrient use for long-term daily intake.

Supporters of truly natural vitamins and nutrients historically have been opposed to the development of the synthetic vitamin and nutrient paradigm citing the dangers of allowing synthetic vitamins and nutrients to enter our mainstream processed foods and supplementation market. One of the pioneers and noteworthy proponents of naturally occurring vitamins and nutrients was Dr. Royal Lee who used his personal time and

resources to relate the problems associated with synthetic vitamins to educate the public on the dangers of synthetic vitamins. He also presented his research and made his case for avoidance of synthetic nutrients to the commercial food processing industry and to associated U.S. government agencies.

Because synthetic vitamins may be viewed as toxic chemical compounds similar to drugs, the establishment of the NOS and NOS certification of products becomes urgent and vital for the identification of natural products. It is also critical for the self regulation and protection of our food supplement industry and the consumers who support it. This is also a timely consideration due to the encroachment of draconian legislation efforts aimed at the control of all synthetic nutrients.

SUMMARY

Today there are two main categories of vitamin supplements generally available commercially. They are as follows:

1. Supplements containing chemical vitamins (such as USP man-made vitamins or nutrients) added to a natural base. This category is related to the direct addition of synthetic vitamins and nutrients to a product and represents a majority of the supplements and fortified foods available today.

2. "Food Grown" or "Food Based" supplements. In this category, product potencies are often derived by adding (spiking) chemical, synthetic vitamins and nutrients into a base such as yeast, algae, other bacteriums or a mixture of various materials and then using that artificially potentized (spiked) material base or a portion of that base for all or part of the labeled potency of the product. These labeled products may have a generally misleading label claim referring to the spiked base as the "food" source. (This category represents the indirect addition of synthetic vitamins and nutrients). The indirect addition of synthetic nutrients, in this case, is apparently for label claims of "Food Source" which can be legally made if the base that the synthetics are added to (spiked into or "grown" within such as yeast or other materials) is referred to as natural "food."

The establishment of the NOS will help to create a new category of NOS vitamin and nutrient food supplements which represent a food inherent, naturally occurring vitamin and/or nutrient food supplement, bulk food material or fortified food with labeled potencies derived only from food and botanical extract sources with related, labeled and assayed potency values.

All NOS supplement potencies, as labeled, will be derived directly from food and botanical concentrates with a minimum quantitative standard. The NOS certification cannot be issued if synthetic vitamins, inorganic minerals or synthetic nutrients of any kind have been added to the NOS supplement applicant product either directly or indirectly.

The NOS may be developed and used by the food industry as a consumer standard for all

food supplements or fortified foods. The NOS symbol printed on dietary supplements or food product labels will alert the consumer that the product has only naturally occurring nutrient values and verified potencies. This will help the consumer to make a more informed choice.

CONCLUSION

In order to remove public confusion and to clarify what real vitamins and nutrients are as opposed to synthetic vitamins and nutrients we propose using the NOS standard for the food and food supplement industry and for every producer of a food or a food supplement product as well as for every nutritional or botanical product. Our proposal is aimed at bringing a full disclosure to the consumer. In this regard, we propose that anytime a vitamin content or potency is claimed in a food or food supplement product the label should clearly state if the vitamin or nutrient is “naturally occurring” or not. The term “naturally occurring vitamin (or nutrient)” such as “naturally occurring vitamin A” should not be used on the product label if, in fact, the vitamin or nutrient is not naturally occurring within the product ingredients as claimed on the label. In this manner, it then can be understood by the consumer that if the product ingredient(s) do not contain vitamins or nutrients that are “naturally occurring” then it may be assumed that these ingredients have been added or “fortified” into the product and that these fortified synthetic chemical versions of vitamins and nutrients may be understood as distinctly non-natural as opposed to any naturally occurring vitamins and nutrients.

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