

Irreconcilable Differences Part 2 of 4**June 2010****☀ The Vital Nature of Vitamins**

The term vitamin is historically derived from the Latin term “*vitamine*” (also the current French spelling), the combination of “*vita*” meaning “life” and “*amine*”, a nitrogen-containing organic compound. When it was later determined that these disease-preventing bioactives are not amines, the English term was morphed to ‘vitamin’. As vitamins were sequentially discovered, they were given a “nickname” in addition to their chemical name, in descending order from the Roman alphabet, from A to E. The break in the sequence occurred with the discovery of Vitamin K in 1984, so named to indicate the German and Scandinavian word “Koagulation”, the major function of this compound.

☀ Progressive Vitamin D Discoveries

The first isolated vitamin D product, discovered during the 1920’s, resulted from photosynthetic irradiation of the fungus-based compound fungal sterol ergosterol. It was known as Vitamin D until the discovery that it was a combination of several substances. Further purification yielded a single compound, hence called Vitamin D₂. For a period of time it was assumed that the vitamin D produced photosynthetically in human skin from exposure to sunlight was vitamin D₂. During the 1930s, a new vitamin D compound with a side chain of cholesterol was discovered, called cholecalciferol, or to follow the numerical sequence, Vitamin D₃. Animal-based Vitamin D₃ was found to be chemically similar to the vitamin D in fish liver oils and in mammalian skin.

☀ The Invaluable Contribution of D₂

The plant-based Vitamin D₂ manufacturing process was patented in the 1920s, followed by access to large quantities of this compound. Widespread fortification of fluid milk with Vitamin D₂, initiated in the 1930’s in North America and Europe, successfully eliminated the bone-disease rickets. Present day fortification of milk with either metabolite has eradicated infantile rickets. Vitamin D₂ continues to be the metabolite used in major pharmaceutical prescriptions in North America. However, recently, Vitamin D₃ has become available, and the metabolite of choice for fortification and supplementation.

☀ D₂ or D₃?

Large quantities of animal-based vitamin D₃ is produced through irradiation of 7-dehydrocholesterol extracted from lanolin in sheep's wool. Current marketplace preference for D₃ over D₂ owes to the fact that provitamin D in mammalian skin is a D₃ metabolite. However, both D₂ and D₃ metabolites are inherently biologically inactive, until a two-step process involving first the liver, then the kidney, converts each to calcitriol, the most active form of Vitamin D. Regulatory authorities worldwide accept the biological equivalency of the two metabolites for both fortification and supplementation purposes. However, in 2006, two leading Canadian nutritionists published their disapproval of Vitamin D₂, concluding “Vitamin D₂ should not be regarded as a nutrient suitable for supplementation or fortification” while acknowledging the critical role of Vitamin D₂ to human health before Vitamin D₃ was widely available. (See Websites). As is customary, for every study that concludes Vitamin D₃ superiority, another soon surfaces to render Vitamin D₂ trump card.

☀ Niche Nimbleness

Fortification of plant-based beverages (soy, almond, oat, etc.) with Vitamin D is voluntary. The metabolite of choice by supplier and buyer of these products is exclusively plant-based D₂, so as to derive a complete plant-based product.

☀ Is a Re-think Required?

As epidemiological evidence from North America and Europe consistently and convincingly indicates a startling Vitamin D deficiency among all age groups, including re-emergence of rickets among children, is there a need to expend scarce resources discrediting either metabolite? **FF**

☀ Some Web sites

<http://www.ajcn.org/cgi/content/abstract/84/4/694> ranked 6th amongst the “50 most read AJCN articles”)

<http://www.whfoods.com/genpage.php?tname=nutrient&bid=110>

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