K35 ULTRA-D COMPLEX™

An advanced concentrated source of emulsified vitamin D with cofactors and substrates to support vitamin D utilization and metabolism.

BENEFITS OF PRODUCT

- Healthy Immune Regulation!
- Healthy Bone Function!
- Much More!

Ultra-D Complex™ is an advanced vitamin D formula. It contains a concentrated 2,000 IU dosage of vitamin D in a natural base of cod liver oil *without an offensive fishy taste*. The use of natural cod liver oils is believed to provide natural sources of vitamin D, A, K, EPA, and DHA that are necessary for the most effective impact of vitamin D on human physiology. The conversion of vitamin D (cholecalciferol) into active vitamin 25(OH) D includes many cofactors such as magnesium, biotin, pantethine, calcium, and boron, which are all included in the Ultra-D Complex™ formula. Along with vitamin D, these cofactors support immune system separately or through strengthening the physiological effects of vitamin D. Calcium and magnesium are of importance in intracellular metabolic functions regulated mainly via hormonal signals. Magnesium - a predominantly intracellular ion,[57] is involved in modulating cellular events during inflammation.[58] Magnesium deficiency may lead to peripheral resistance to vitamin D.[59] Vitamin A has important role in the immune system and its deficiency is associated with altered immune function and cytokine dysregulation, [60,61] such as impaired Th1 response.[62] Vitamin B6 has synergistic beneficial effects on the immune system and sugar metabolism via different pathways. Studies show that a vitamin B6 deficiency can decrease antibody production and suppress the immune response. B6 participates in the maintenance of glutathione status (as a cofactor for glutathione reductase). It is shown that its deficiency can reduce cell numbers in lymphoid tissues and cause functional abnormalities in the cell mediated immune response. [63,64]

Vitamin B-6 is important in hemoglobin synthesis and increases the amount of oxygen carried by hemoglobin.[64] B6 participates in sugar metabolism and helps maintain blood sugar within a normal range.[65,66] Glyco-Modulating effects of vitamin D and B6 are consistent with lipid modulating effects of Biotin and pantethine in dysglycemic states.[67]

EPA and DHA show anti-inflammatory activities by regulation of pro-inflammatory substances such as PGE2, LTB4, TNF-alpha, IL-1, and lipooxigenase (LOX), so that they can be protective against inflammatory problems including cardiovascular, neurodegeneration and diabetes (DMT1).[68,69,70,71]

Supplement Facts

Serving size 1 teaspoon
Servings per container 48

Amount Per Serving		% Daily Value
Calories	8	
Calories from fat	8	
Total Fat	0.9 g	1%*
Saturated fat	0.2 g	1%*
Polyunsaturated fat	0.3 g	†
Monounsaturated fat	0.3 g	†
Cholesterol	5.3 mg	2%*
Vitamin A	650 i.u	13%
Vitamin D	2000 i.u	500%
Vitamin B6	1 mg	50%
Biotin	150 mcg	50%
Calcium	10 mg	1%
Magnesium	5 mg	1%
Pantethine	3 mg	30%
Boron	500 mcg	†
Genistein (soy isoflavone)	10 mg	†
Rosemary Leaf extract	10 mg	†
EPA (Eicosapentaenoic Acid)	105 mg	†
DHA (Docosahexaenoic Acid)	95 mg	†
Total Omega-3	230 mg	†

† Daily Values are based on a 2,000 calorie diet.
* Daily Value not established

Other Ingredients: Filtered water, cod liver oil, calcium citrate, magnesium citrate, citric acid, boron citrate, xanthan gum, Lo Han® fruit extract, potassium sorbate, natural flavor, cholecalciferol, pyridoxal 5 phosphate.

DIRECTIONS

Take 1 teaspoon once a day, preferably or as directed by your healthcare professional.

Statements in this flyer have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Formula Info Page

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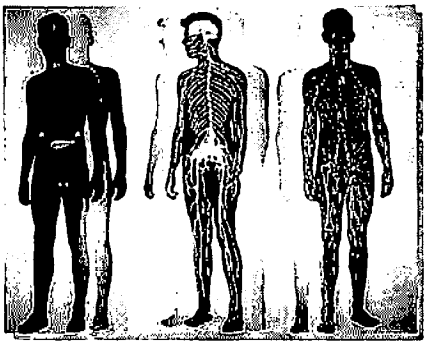
DIETARY SUPPLEMENTS

This product also provides genistein and carnosic acid to help improve vitamin D utilization and metabolism.
Genistein can optimize the 1,25 hydroxy D3 synthesis and therefore promote increased utilization of vitamin D into an active form.[1] Carnosic acid from rosemary leaf extract has demonstrated the ability to potentiate the effects of vitamin D.[2]



SUMMARY OF VITAMIN D RESEARCH

Vitamin D and Autoimmune Diseases

Autoimmune diseases are now classified as T-Helper 1 or T-Helper 2 subset dominant to indicate if either the cell-mediated or humoral immune system has become overactive. The balance of TH-1/TH-2 cells appear to be strongly influence by regulatory T-cells. Vitamin D appears to have some influence on the activity of regulatory T-cells and the balance of TH-1/TH-2 cells.[24] [25] [26] [27] Vitamin D appears to help against autoimmune mediated thyroid dysfunction.[28] [29] Vitamin D appears to be helpful for autoimmune induced diabetes.[30] Numerous papers have been published linking autoimmune to vitamin D.[31] [32] [33] [34]

Vitamin D and Chronic Muscle Pain

Vitamin D deficiencies may cause chronic diffuse nonspecific musculoskeletal pain that is associated with both muscle and bone pain.[35] [36] In a study in which 150 patients presented to a hospital in Minneapolis with complaints of chronic nonspecific musculoskeletal pain, 140 had vitamin D deficiencies when evaluated with a serum 25(OH) D test.[37] Ethnicities with darker skin appear to be at more risk for vitamin D insufficiencies in general, but specifically as it relates to chronic nonspecific musculoskeletal pain. The study found that 16% of Asians, 24% of Anglo Americans, 40% of Hispanics and Native Americans, and 50% of African Americans with chronic nonspecific musculoskeletal pain demonstrate severe vitamin D deficiencies.[38]

Vitamin D and Diabetes

Individuals with hypovitaminosis D are at higher risk of insulin resistance and metabolic syndrome.[39] Research has demonstrated preventative roles for vitamin D for type I diabetes mellitus.[40] [41]

Vitamin D and Neurodegenerative Disorders

Vitamin D has demonstrated many influential roles in neurodegenerative disease such as multiple sclerosis.[42] [43] Vitamin D supplementation has exhibited diminished relapse rates.[44] [45] [46]

Vitamin D Bone Metabolism and Osteoporosis

The link between vitamin D and healthy bone metabolism is well-known. Vitamin D is important for regulation of both calcium and phosphorus absorption and metabolism.[47] There is a direct relationship between serum 25 (OH) D levels and bone in health in both males and females for all age groups.[48]

Vitamin D in Pregnancy, Infancy, and Childhood

Associations with vitamin D insufficiency during pregnancy and low birth weight have been published.[49] Research has also shown that there are increased maternal bone density losses during pregnancy when vitamin D deficiency is present.[50] Adequate maternal vitamin D status is important for proper tooth and metabolism and also reduces the risk of the development of type I diabetes.[51] Inadequate vitamin D intake in infancy can lead to unhealthy bone metabolism and increased risk of fractures.[52]

Vitamin D and Cancer Risk

Although vitamin D is not a treatment for cancer, there have been studies published on associations of vitamin D with reduced cancer risk. According to a review by Holick, there are currently thoughts that UVB and vitamin D reduce the risk of seventeen types of cancer.[53 54 55 56]

VITAMIN D DOSAGES AND DEFICIENCIES

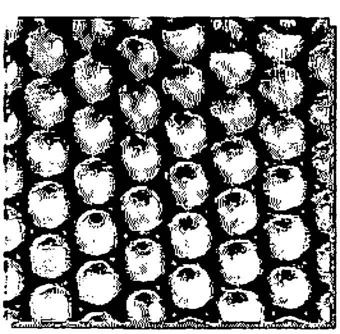
Vitamin D Dosages

Current vitamin D dosage guidelines are based solely on the maintenance of bone health and do not account for the influence of vitamin D for other physiological functions.[3] Many experts on Vitamin D research have considered the current dosage requirements for vitamin D to be obsolete.[4] Levels as twenty times the RDA for vitamin D have been shown to be safe when used for several months.[5 6 7] The primary source for vitamin D for most people is solar ultraviolet-B (UVB). In the absence of exposure to sunlight, a minimum of 1000 IU of vitamin D3 is required to maintain a healthy concentration of 25-hydroxyvitamin D3 in the blood.[8] However, despite exposure to adequate sunlight, the prevalence of vitamin D deficiency is high.[9 10 11 12 13] Dietary sources of vitamin D include sources such as fatty fish which, in conjunction with other societal factors, has led to gross deficiency in the United States.[14 15 16 17 18]

Factors that can cause Vitamin D deficiencies

Many factors are involved with the promotion of vitamin D deficiencies, which include a lack of sunlight exposure and inadequate consumption of vitamin D rich foods such as oily fish. Gastrointestinal inflammatory disorders reduce absorption of vitamin D. Cortisol elevations or use of cortisone can deplete vitamin D levels. Ethnicities with darker skin and individuals with obesity are more at risk for vitamin D insufficiencies.[19 20 21] Also, as individuals become older, they become less efficient in photo production to use sunlight to process vitamin D.[22 23]

EMULSIFICATION DESCRIPTION



Vitamin D is first dissolved in cod liver oil. Oil-In-Water Encapsulation Technique is utilized in the emulsion process. The emulsion is then stabilized with xantham gum. Physiologically, emulsification occurs as a principal step toward fat digestion and absorption on a daily basis along with every meal involving the biliary system. Bioavailability of vitamin D has also been shown to be increased when emulsified. Vitamin D is absorbed in the jejunum and in lesser amounts in the ileum. Emulsified Ultra-D Complex guarantees the homogenized, well dispersed Vitamin D- containing droplets in jejunum, which is even more important in those with biliary malfunction.

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