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DESBIO Datasheet | D3-K2 Liposomal

PROTECTION
Protects skeletal and cardiovascular health

LIPOSOMAL
Liposomal delivery system

EASILY ABSORBED
Well-absorbed Vitamins D3 and K2 in a great-tasting vanilla liquid

Why D3-K2 Liposomal?

This great-tasting, vanilla-flavored formula provides vitamins D3 and K2 in a well-absorbed liposomal delivery system. Vitamins D and K are two fat-soluble vitamins that are unique because they can both be produced by the body itself. Vitamin D is produced via sunlight exposure on human skin, and Vitamin K is produced in the human gut by colonic bacteria. Despite the body's ability to synthesize adequate amounts of both of these nutrients, limited sunlight exposure and poor diet have made deficiency of Vitamins D and K a widespread issue, making supplementation necessary. More recently, the inter-relationship between Vitamins D and K on both bone and cardiovascular health has received close attention, and research suggests that taking these two nutrients together may provide the greatest benefit.

Bone and Heart Health: The Missing Link

Cardiovascular disease and osteoporosis are two of the most common age-related diseases in the United States. Previously it was thought that these two conditions were unrelated and simply a result of the aging process. It is now becoming more apparent, however, that the coexistence of these two conditions may actually be closely interrelated, and the key mechanism at work may be aberrant calcium metabolism, otherwise known as calcification.

Ho Does Calcium relate to Cardiovascular Disease?

Studies are now examining the connection between bone mineral density and cardiovascular disease. In a study of osteoporotic fractures (SOF), an increase in bone mass density (BMD) loss at the hip was associated with a 1.3-fold increase in chronic heart disease (CHD) mortality among white women 65 years of age and older.[1] In healthy individuals, homeostatic mechanisms ensure that calcium deposits are maintained in the skeleton and teeth with serum levels remaining relatively constant. However, when these tightly regulated mechanisms become disrupted, calcium can be displaced from the bones and become deposited in the soft tissues of the arterial walls, forming calcified plaques in the vascular system (including the aorta) and in other areas such as the breasts. This calcium "leaching" or calcification causes these tissues to harden and is a major risk factor for the progression of cardiovascular disease.

The D3-K2 Relationship

Vitamin D promotes calcium absorption and bone mineralization, and improved bone density is often a welcome effect of vitamin D supplementation. However, increased intake of Vitamin D increases the risk of elevated serum calcium and abnormal deposition of calcium in arteries and heart valves may result. This potential risk of over-calcification is where Vitamin K2 provides a valuable buffering system. Vitamin K2 has a unique role as a dependent cofactor for carboxylation of the human matrix GLA protein (MGP), a major inhibitor of arterial calcification. Vitamin K2 as menaquinone-7 has been shown to be effective for maintaining calcium balance by helping keep calcium in the bones and out of the vascular media.

Vitamin D3 – Vitamin D is synthesized in human skin when the compound 7-dehydrocholesterol is exposed to UVB light. Once thought to only be functional in regulating calcium metabolism for bone health, it is now known that active Vitamin D3 plays a role in immunity and the prevention of the abnormal cellular differentiation that can lead to neoplasms. Vitamin D as its active form, calcitritiol, optimizes calcium utilization and bone density via several different mechanisms. It stimulates the intestinal absorption of dietary calcium, encourages the reabsorption of calcium filtered by the kidneys, and, when dietary calcium is insufficient to maintain normal serum calcium levels, stimulates the mobilization of calcium from bone.[2] Vitamin D receptors are also found on both B- and T-cells of the immune system and may have the ability to adapt and modulate immune function. Likewise, Vitamin D deficiency is associated with diseases of the immune system, such as autoimmunity disorders.[3] Vitamin D is also being studied as potential influential factor in blood pressure regulation and

Supplement Facts

Serving Size: 0.5 ml (approximately 10 drops)
Servings Per Container: 60

Amount per Serving		% DV†
Vitamin D3 (as cholecalciferol)	2000 IU	500%
Vitamin K2 (as menaquinone-7)	20 IU	25%

†Percent daily values (%DV) are based on a 2,000 calorie diet. ‡Percent daily values not established.

OTHER INGREDIENTS: Purified water, natural flavors, potassium sorbate

Suggested Use: As a dietary supplement, take one serving per day for cardiovascular, skeletal, and immune system health, or as directed by your healthcare professional. For best results combine with ***Vitalyze***, ***Elevate RxS*** (mood), ***Focus*** (mood), and/or ***Vascuflow RxS*** (cardiovascular health)

Warnings: If pregnant or breast feeding or currently taking anti-coagulant drugs or other medications, consult with healthcare provider before use.

DESBIO nutraceutical

Quality Nutraceutical Formulated Exclusively for Healthcare Professionals

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Serving Healthcare Practitioners for Over 20 Years

cancer prevention. When NHANES 2005 to 2006 analyzed Vitamin D levels in adult US participants, the overall prevalence rate of Vitamin D deficiency was 41.6% among US adults.[4] These findings have led NY practitioners to implement regular Vitamin D screening and recommend daily Vitamin D supplements, especially among those living in northern latitudes.

Vitamin K2 (as menaquinone-7) – The Vitamin K2 menaquinones and the Vitamin K1 phylloquinones make up the two sub categories of Vitamin K molecules. The primary role of Vitamin K1 is regulation of blood clotting via the production of blood clotting factors II, VII, IX, and X. Vitamin K2, on the other hand, is critical for bone density and acts as a dependent cofactor for carboxylation of the human matrix GLA protein (MGP), a major inhibitor of arterial calcification. There are two forms of Vitamin K2 used in supplements, menaquinone-4 and menaquinone-7. Menaquinone-7 is seen as the preferred form since it appears to have a longer half-life in the body. Among Japanese populations with high dietary intakes of vitamin K2, reduced incidence of bone fractures and bone density issues has been observed.[5] The effects of Vitamin K2 on bone-density markers also appear to be fast-acting. A short-term study of 20 elderly women with vertebral fractures randomly allocated to receive Vitamin K2 at 45 mg/day for two weeks found a reduction in serum undercarbozylated osteocalcin (a major bone-loss marker) when measured at 14 weeks.[6]

Liposomal Delivery – D3-K2 Liposomal also utilizes a liposome delivery method, the paramount transport system for delicate nutrients. Liposomes are microscopic vesicles made up of phospholipids, the same structures that make up our cell membranes. These small, bubble-like complexes work to encapsulate nano-particle sized nutrients, supporting their intact delivery directly to target cells. The unique structure of the liposome allows the encapsulated nutrient to bypass the digestive tract, allowing for mega-doses of nutrients even at moderate intake.[7]

[1] Farhat GN, C. J. The link between osteoporosis and cardiovascular disease. *Clinical Cases in Mineral and Bone Metabolism* 5, 19–34 (2008).
[2] *National Institute of Health*, http://ods.od.nih.gov/.
[3] Aranow, C. Vitamin D and the immune system. *Journal of investigative medicine : the official publication of the American Federation for Clinical Research* 59, 881-886, doi:10.231/JIM.0b013e31821b8755 (2011).
[4] Forrest, K. Y. & Stuhldreher, W. L. Prevalence and correlates of vitamin D deficiency in US adults. *Nutrition research* (New York, N.Y.) 31, 48-54, doi:10.1016/j.nutres.2010.12.001 (2011).
[5] Koitaya, N. et al. Effect of low dose vitamin K2 (MK-4) supplementation on bio-indices in postmenopausal Japanese women. *Journal of nutritional science and vitaminology* 55, 15-21 (2009).
[6] Miki, T. et al. Vitamin K(2) (menaquinone 4) reduces serum undercarboxylated osteocalcin level as early as 2 weeks in elderly women with established osteoporosis. *Journal of bone and mineral metabolism* 21, 161-165, doi:10.1007/s007740300025 (2003).
[7] What is a Liposome?, http://www.news-medical.net/health/What-is-a-Liposome.aspx.

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*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.