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Vitamin D3 Facts

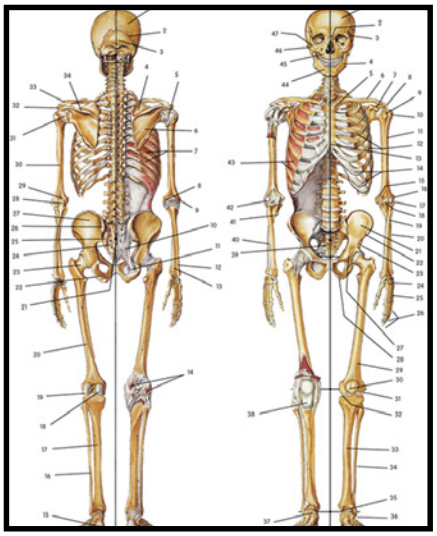
Support for the Skeletal and Immune Systems❖

D3 + K2 = Bone Health + More

Our bones are vibrant, living organs. A complex matrix of minerals, collagen, fat, blood vessels, nerves and more, the bones perform many vital functions. They give us our shape, protect our internal organs and along with the muscles, make it possible for us to move.

Providing storage for minerals is another critical function of our bones, especially the long bones of the arms and legs. Production of red and white blood cells occurs within the bone marrow. A healthy skeletal system positively impacts many aspects of our health.

99% of the calcium in our bodies exists in the bones. For bones to be healthy and able to perform their many vital functions, their calcium levels must be maintained. Two of the most important nutrients in accomplishing this are Vitamin D and Vitamin K. Data suggests that the D3 form of Vitamin D and the K2 form of Vitamin K may be better absorbed.



Vitamin D3

The body must keep calcium levels in the blood within a narrow range. The calcium regulation system accomplishes this vital function. Vitamin D3 is a key component of this system.

Vitamin D3 occurs naturally in certain foods including eggs and fish. Milk and orange juice are examples of foods often fortified with D3. Vitamin D3 is also derived from lanolin. D3 is the form of Vitamin D3 the body makes when exposed to sunlight.

The amount of Vitamin D3 to take as a supplement has been the subject of debate. The current Recommended Daily Allowance (RDA) is 400 IUs (International Unit). A recent study states that the safe upper limit should be raised from 2,000 IUs to 10,000 IUs per day[1]. The amount of Vitamin D from food and sunlight exposure should also be considered. To determine if Vitamin D3 levels are within a healthy range, blood tests can be performed.

Another vital role for Vitamin D3 is as a potent immune system modulator performing a variety of functions[2]. Maintaining a strong immune system is important to everyone. Vitamin D3 immune support is expressed in many ways. The immune response includes production of different types of white blood cells which requires that mineral integrity be supported. Bone mineralization is directly influenced by Vitamin D3. These are two significant reasons to assure healthy Vitamin D3 levels.

Vitamin K

Equally important to Vitamin D in bone mineralization, Vitamin K also plays a central role in other body functions including the growth of cells[3]. There are three forms of Vitamin K: Vitamin K_1, produced by plants, is found in green-leafy vegetables like broccoli and spinach; Vitamin K_2 which is produced by bacteria in our intestines, and Vitamin K_3 that is synthetically produced. Vitamin K_2 can also be produced outside of the body by the natto bacterium (Bacillus subtilis natto)[4].

In terms of bone health, there are Vitamin K-dependent proteins that play a key role in bone mineralization. Studies now show that Vitamin K_2 has a very positive impact on bone health[5]. In fact, randomized studies show that K_2 is effective in preventing fractures[6].

There is significant research-based evidence showing the superiority of Vitamin K_2 versus Vitamin K_1 for bone health. Vitamin K_2 is more available biochemically and stays in the blood stream longer than K_1. These facts make K_2 much more effective in supporting bone mineralization[7].

Vitamin K also plays a pivitol role in boosting immune activity through its influence on the growth of the various cells of the immune system.

Sublingual Vitamins

Supplements come in many forms. Sublingual vitamins are designed to allow absorption through the mucous membranes of the mouth directly into the bloodstream. The sublingual form is taken under the tongue. This form is preferred by some consumers for several reasons, such as having trouble swallowing pills.

Vitamin D and Vitamin K can be absorbed sublingually. The D_3 and K_2 forms of these fat soluble vitamins are thought to be better absorbed. Therefore, using Vitamin D and K in the efficient sublingual form may maximize the positive impact on bone health. **MICHAEL'S® Vitamin D_3 with Vitamin K_2** is a powerful ally in supporting a strong skeletal system.

Sources Cited:

[1] Hathcock J.N. *et al.* American Journal of Clinical Nutrition. Jan 2007 85: 6-18

[2] Linus Pauling Institute. http://lpi.oregonstate.edu/infocenter/vitamins/vitaminD/

[3] Linus Pauling Institute. http://lpi.oregonstate.edu/infocenter/vitamins/vitaminK/

[4] Suttie J.W. Handbook of Vitamins. Machlin LJ. Ed. New York: Marcel Dekker. 1984. Pp. 147-198.

[5] Knapen M.H. et al. Osteoporosis International. 2007 Jul. 18 (7): 963-72.

[6] Iwamoto J. et al. Nutrition Research. 2009 Apr. 29 (4): 221-8.

[7] Schurgers L.J. Blood. 2007: 109 (8) Pp. 3279-3283.

Vitamin D3 5000 IU with Vitamin K2

Supplement Facts

Serving Size: One (1) Sublingual Tablet

Amount Per Serving		% Daily Value
Vitamin D_3 (as Cholecalciferol) (from Lanolin)	125 mcg (5000 IU)	625%
Vitamin K_2 (Menaquinone 7, MK-7) (from Geraniol [Pine])	90 mcg	75%

OTHER INGREDIENTS: Xylitol, Sorbitol, Vegetable Magnesium Stearate, Microcrystalline Cellulose, Dicalcium Phosphate, Silicon Dioxide, Natural Peach Flavor and Natural Apricot Flavor.

30 & 90 Counts

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