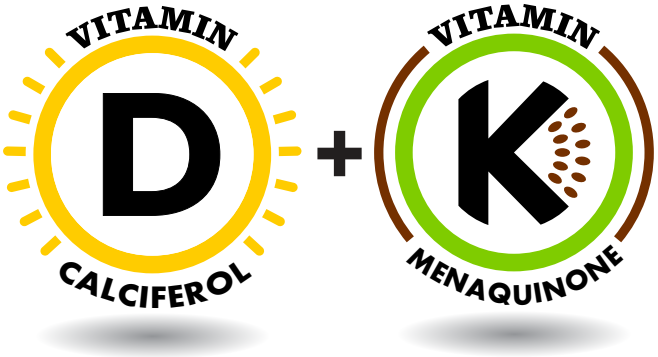
Health Science News Page

Exclusive Information from the Dr. Rath Research Institute

Issue: 2130

VITAMINS D3 AND K2: UNDERSTANDING THE SYNERGY



In the previous Health Science News Page, we discussed the benefits of vitamins D and K when applied individually. While these two fat-soluble vitamins have several health benefits, they work the best when combined.

Vitamin D by itself is important for maintaining strong bones, a healthy cardiovascular and immune system, and has anti-cancer properties. The two different types of vitamin D are D2 (ergocalciferol) present in plant-based products such as mushrooms, and D3 (cholecalciferol) present in animal products and fatty fish. It is well known that vitamin D is needed for effective absorption of calcium from the digestive system and promoting its mobilization towards the bones. It also helps in regulating the calcium-phosphorus ratio required for healthy bones. Vitamin D3 works together with vitamin K2 in maintaining calcium balance in the body affecting activation of bone protein (osteocalcin) responsible for the incorporation of calcium in the bones. In clinical trials a combination of vitamin D3 and vitamin K2, especially subtype MK-7, increased bone density in postmenopausal women with osteoporosis compared to each vitamin taken individually and a placebo.

Besides bone health, the interaction between vitamins D and K regarding cardiovascular health receives growing research interest. Vitamin K has been known for its role in blood coagulation, as an antioxidant, and the immune system functions among many others. Its subtype K1 (phylloquinone) is present in leafy greens and K2 (menaquinones) is found in fermented foods. Both vitamins K1 and K2 are necessary for blood clotting.

A special attention has been turned towards interaction of vitamin K and vitamin D in the aspect of regulating calcium deposition in the blood vessels. Increased vascular calcification and blood vessel hardening has severe consequences such as heart attacks or strokes. In this aspect Vitamin K2 plays an important role in preventing calcium from depositing in the blood vessels and channeling it to the bones by activating a specific protein (matrix GLA). Clinical trials conducted in diabetes type 2 patients with heart disease showed that a combination of vitamin D3 and vitamin K2 had desirable effects on carotid artery thickness and insulin metabolic markers. Positive cardiovascular effects have been shown in studies in postmenopausal women and healthy populations. However, more studies are warranted. It has been shown that vitamin K2 subtype MK-7 has a higher bioavailability and may be of particular importance in cardiovascular health to ensure that calcium and other minerals are not depositing in the blood vessels and reach the bones where they are most required.

Immune modulating actions and cardio-respiratory protective properties of vitamin D3 have been the highlight of many research studies during the current pandemic. Low levels of vitamin D3 are also noted in severely ill COVID-19 patients with other comorbidities. However, administrating only vitamin D3 may not be the best solution. As described above vitamin D3, when taken alone without vitamin K2, exacerbates the deposition of calcium in blood vessels and in other soft tissues too, including the lungs. This can cause acute lung damage and respiratory distress. Moreover, vitamin K2 is necessary for blood clotting, and has an anti-inflammatory role. The deficiency of vitamin D3/K2 could lead to blood clots and widespread inflammation. Respiratory failure, thrombosis, cytokine storm, and multiple organ damage have disastrous outcomes in COVID-19 patients. Although clinical trials are still underway, many vitamins including vitamin D3/K2 are already being given in ICU settings to reduce the severity of COVID-19.