

Magnesium Deficiency Reduces Effectiveness of Vitamin D

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Magnesium deficiency is an important factor in the results obtained from vitamin D. According to Dr. Carolyn Dean, MD, ND, magnesium expert and medical director of the nonprofit Nutritional Magnesium Association, the effectiveness and benefits of vitamin D are greatly undermined in the absence of adequate levels of magnesium in the body. Magnesium acts with and is essential to the activity of vitamin D, and yet most Americans do not get their recommended daily allowance (RDA) of this important mineral.

Extensive research has shown that vitamin D deficiencies play a major role in the development of dozens of diseases, including a variety of cancers, such as breast cancer, prostate cancer and colon cancer, as well as diabetes, heart disease, arthritis, osteoporosis, psoriasis and mental illness.

“While many people are beginning to realize the amazing health benefits that vitamin D has to offer in the prevention of disease, they may not be getting the full benefits from vitamin D without also supplementing their diets with magnesium, which is a vital nutrient that works synergistically with vitamin D,” says Dr. Dean.

“Adequate levels of magnesium in the body are essential for the absorption and metabolism not only of vitamin D but of calcium as well,” Dr. Dean stated. “Magnesium converts vitamin D into its active form so that it can help calcium absorption.

“Magnesium stimulates a particular hormone, calcitonin, which helps to preserve bone structure and draws calcium out of the blood and soft tissues back into the bones, preventing osteoporosis, some forms of arthritis and kidney stones,” she continued.

Dr. John Cannell, executive director of the nonprofit Vitamin D Council, concurs with Dr. Dean’s findings, recognizing the importance of magnesium as a nutrient that is required for proper vitamin D metabolism, while additionally citing several studies that illustrate this point.

The journal *Magnesium Research* published a number of studies with the following findings:

- Magnesium is essential for the metabolism of vitamin D.
- Magnesium influences the body’s utilization of vitamin D by activating cellular enzyme activity.
- Enzymes are protein molecules that stimulate every chemical reaction in the body. All the enzymes that metabolize vitamin D require magnesium.
- Magnesium has a possible role in vitamin D’s effect on the immune system.

Another study published in the *European Journal of Pediatrics* states: “Low magnesium has been shown to alter, by way of decreasing, production of vitamin D’s active form ...”

Several studies related to bone health published in the *Journal of Physiological Biochem-*
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istry and in the Clinical Nutrition point out that magnesium is also necessary for vitamin D's beneficial actions on bone.

Since pathologists first began examining the heart, they realized that a connection existed between deposits of calcium and heart disease. Vitamin D inhibits calcium deposition in arteries, and magnesium converts vitamin D into its active form so that it can prevent calcium buildup in cholesterol plaque in arteries. The combination of magnesium and vitamin D helps prevent clogged arteries by drawing calcium out of the blood and soft tissues back into the bones where it is needed to build healthy bone structure.

Dr. Dean concludes, "The many studies pointing to the importance of these two nutrients to both the prevention of heart disease and osteoporosis, and the fact that magnesium can be found to increase the effectiveness of vitamin D, make finding out about how magnesium can improve the general health and well-being of anyone a vital imperative that shouldn't be ignored."