

Low vitamin D level is linked to greater chance of risk factors for Type 2 diabetes

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A new study presents more evidence of a possible link between low vitamin D levels and a higher risk of Type 2 diabetes and heart disease. The results to be presented at The Endocrine Society's 94th Annual Meeting in Houston.

The study found an inverse relationship between the level of vitamin D in the blood and the presence of the metabolic syndrome, which is a group of risk factors that increases the risk of heart disease and Type 2 diabetes. People with the highest blood levels of vitamin D had a 48 percent lower risk of having the metabolic syndrome than did those with the lowest vitamin D levels, the authors reported.

"This association has been documented before, but our study expands the association to people of diverse racial and ethnic backgrounds," said the lead author, Joanna Mitri, MD, a research fellow at Tufts Medical Center in Boston. "These include minority groups that are already at higher risk of diabetes."

Furthermore, all study participants were at risk of developing diabetes because they had prediabetes, abnormally high [blood sugar levels](#) that are not yet high enough to be classified as diabetes. Prediabetes affects an estimated 79 million Americans ages 20 or older, according to 2010 statistics from the Centers for Disease Control and Prevention.

Mitri and her co-investigators conducted the study using data from participants of the Diabetes Prevention Program, a large, now-completed

study funded by the National Institutes of Health. They divided study subjects into three groups based on plasma 25-hydroxyvitamin D level, which is the most common way used to measure vitamin D status in the body, according to Mitri. The Institute of Medicine recommends a 25-hydroxyvitamin D level of 20 to 30 ng/mL as adequate for healthy people.

In the new study, the group with the highest levels of vitamin D had a median vitamin D concentration of 30.6 [nanograms](#) per milliliter, or ng/mL, and those in the lowest group had a median vitamin D concentration of 12.1 ng/mL. The risk of having the metabolic syndrome with a high vitamin D level was about one half the risk with a low vitamin D level, Mitri said.

The researchers also found an association between vitamin D status and some of the individual components of the metabolic syndrome, which includes a large waist size, low HDL ("good") cholesterol, high triglycerides (fats in the blood), high blood pressure and high blood glucose (sugar). Study participants with the best vitamin D status had a smaller waist circumference, higher HDL cholesterol and lower blood sugar.

Mitri cautioned that their research does not prove that vitamin D deficiency causes Type 2 diabetes, or even that there is a link between the two conditions.

"However, the [metabolic syndrome](#) is common, and progression to [Type 2 diabetes](#) is high," she said. "If a causal relationship can be established in ongoing and planned studies of vitamin D, this link will be of public health importance, because [vitamin D](#) supplementation is easy and inexpensive."

Provided by The Endocrine Society

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