

Adults with a lower vitamin D intake or low vitamin D blood levels may have a significantly increased risk of developing type 2 diabetes.

## Low vitamin D status and the risk of type 2 diabetes

Type 2 diabetes has become a significant worldwide health care challenge, as it is associated with various health problems and increased mortality risk. There is increasing evidence that vitamin D influences many non-skeletal medical conditions, including heart disease, cancer, certain autoimmune diseases and type 2 diabetes. Observational research has shown that seasonal variation in blood sugar control in the winter may be partly due to vitamin D, since vitamin D levels are generally much lower in the winter.

In a study published in the European Journal of Clinical Nutrition, researchers examined the association between vitamin D status and the incidence of Type 2 diabetes. After a thorough review of the literature, 8 observational studies and 11 randomly controlled trials were included in the review. When compared to those with a vitamin D intake of <200 IU/day, intake of >500 IU/day decreased the risk of type 2 diabetes by 13%. Compared to those with the lowest serum vitamin D levels (<14 ng/ml or 35 nmol/L), adults with the highest vitamin D status (>25 ng/ml or 62.5 nmol/L) had a 43% lower risk of developing type 2 diabetes. In two trials that included patients with glucose intolerance, vitamin D supplementation improved measures of insulin resistance. No significant effect of vitamin D on glycemic outcomes was evident in the trials that included subjects with normal glucose tolerance at baseline.

The results of this review show that vitamin D may play a role in the development of type 2 diabetes, although high-quality studies are still needed to determine a potential mechanism between vitamin D concentration and relevant glycemic outcomes.

J Mitri, M D Muraru and A G Pittas. Vitamin D and type 2 diabetes: a systematic review. European Journal of Clinical Nutrition (2011) 65, 1005–1015.