# Genetic study casts further doubt that vitamin D prevents the development of type 2 diabetes

October 1 2014


Credit: Darren Lewis/public domain

A large genetic study, published today in *The Lancet Diabetes & Endocrinology* journal, has concluded there is no evidence of a causal link between a person's vitamin D levels [1], and whether they develop type 2 diabetes.

The findings of the study, conducted by scientists at the University of Cambridge, challenge evidence from earlier observational studies which

suggest that higher concentrations of circulating vitamin D might prevent type 2 diabetes. This evidence led to speculation that the development of type 2 diabetes is associated with vitamin D insufficiency. However, because the research was observational, it couldn't directly examine the cause-effect relationship between the two conditions.

Dr Nita Forouhi, at the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge School of Clinical Medicine, UK, and colleagues examined the link between diabetes risk and vitamin D by assessing the genes that control blood levels of vitamin D.

The authors found no association between different gene variants that control vitamin D levels and the risk of developing type 2 diabetes. Moreover, the study also examined the link between vitamin D status and several physiological characteristics of type 2 diabetes, such as glucose and glycated haemoglobin, and also found no evidence of a causative link.

According to Dr Forouhi, "Our findings suggest that interventions to reduce the risk of type 2 diabetes by increasing concentrations of vitamin D are not currently justified. Observational studies that show a strong and consistent higher risk of type 2 diabetes with lower levels of vitamin D may do so because they have thus far not been able to adequately control for distorting or confounding factors, such as physical activity levels, that may be related both to vitamin D levels and to the risk of type 2 diabetes."

"Our findings are in agreement with the results of randomised controlled trials, which provide a classic way to assess cause-effect relationships, and which have generally shown that type 2 diabetes was not prevented in individuals taking vitamin D supplements."

"While our current findings do not provide support for a causal role of

vitamin D in the development of type 2 diabetes, we are far from done with this topic. Further research is yet needed with both better clinical trials and better observational studies with more precise measurement of important factors that may affect vitamin D and disease relationships. Until then, we need to be cautious about vitamin D's potential role in the prevention of type 2 diabetes and stick to things that are proven to work – diet and exercise."

Writing in a linked Comment, Dr Brian Buijsse, from the German Institute of Human Nutrition Potsdam-Rehbruecke, Germany, explains "[These results] need careful interpretation, and long-term randomised trials of vitamin D supplementation, which are underway, remain important. The results of a meta-analysis of 35 short-term trials, however, do not offer much hope that vitamin D supplementation can be used to prevent type 2 diabetes...The sky is becoming rather clouded for vitamin D in the context of preventing type 2 diabetes."

**More information:** [1] Vitamin D levels were measured by circulating 25-hydroxyvitamin D levels. This is the best indicator of vitamin D status. Vitamin D insufficiency is defined by levels of 25–hydroxyvitamin D of less than 50 nmol/L.

*The Lancet Diabetes & Endocrinology*, www.thelancet.com/journals/lan … (14)70184-6/abstract

Provided by Lancet