

# Do vitamin D supplements offer kidney-related benefits for individuals with high diabetes risk?

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A recent clinical trial described in *CJASN* has examined the potential of vitamin D supplementation for protecting the kidney health of

individuals with pre-diabetes.

In the [general population](#), low blood vitamin D levels have been associated with higher risks of various diseases, including type 2 diabetes and [kidney disease](#). Sun H. Kim, MD, MS (Stanford University School of Medicine) and her colleagues conducted a secondary analysis of the Vitamin D and type 2 diabetes (D2d) study to evaluate the effects of vitamin D supplementation on [kidney](#) health in individuals with pre-diabetes, a condition that increases risk for type 2 diabetes, which in turn is the leading cause of kidney disease.

The study randomized 2,423 adults with overweight/obesity and pre-diabetes to vitamin D<sub>3</sub> 4000 IU per day or placebo, for a median treatment duration of 2.9 years. "The D2d study is unique because we recruited individuals with high-risk pre-diabetes, having 2-out-of-3 abnormal glucose values, and we recruited more than 2,000 participants, representing the largest vitamin D diabetes prevention trial to date," said Dr. Kim.

During the trial, there were 28 cases of kidney function worsening in the vitamin D group and 30 in the placebo group, and the average change in kidney function during follow-up was similar in both groups. "Our results did not show a benefit of vitamin D supplements on kidney function. About 43% of the study population was taking outside-of-study vitamin D, up to 1000 IU daily, at study entry, though. Among those who were not taking any vitamin D on their own, there was a suggestion for vitamin D lowering the amount of urine protein over time, which means that it could have a beneficial effect on kidney health. Additional studies are needed to look into this further."

Dr. Kim added that vitamin D supplementation is popular, and it's difficult for clinical trials of vitamin D supplementation to show a benefit if the population studied is not vitamin D deficient. "The

majority of the study population had sufficient blood vitamin D levels and normal kidney function," she said. "Benefits of vitamin D might be greater in people with low blood [vitamin D](#) levels and/or reduced kidney function."

**More information:** Sun H. Kim et al, Effect of Vitamin D Supplementation on Kidney Function in Adults with Prediabetes, *Clinical Journal of the American Society of Nephrology* (2021). [DOI: 10.2215/CJN.00420121](#)

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