

# Vitamin D supplementation likely improves survival of cancers of the digestive tract, says researcher

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For more than 100 years, it has been believed that sunlight and vitamin D deficiency were associated with the risk for many deadly cancers

including colorectal, prostate and breast. But some scientists remained skeptical that this nutrient provides any benefit for reducing cancer risk and morbidity and mortality and several randomized controlled trials that have supported this doubt.

However, in a new commentary in *JAMA Network Open*, Michael F. Holick, Ph.D., MD, professor of medicine, pharmacology, physiology & biophysics and [molecular medicine](#) at Boston University Chobanian & Avedisian School of Medicine, explores the controversy as to whether improving vitamin D status has any benefit for reducing risk of developing cancer as well as improving relapse-free and mortality outcomes.

He believes the results of the [Kanno et al study](#) ("Effect of Vitamin D Supplements on Relapse of Digestive Tract Cancer with Tumor Stromal Immune Response: A Secondary Analysis of the AMATERASU Randomized Clinical Trial") support the significant body of associated evidence and [clinical studies](#) concluding that improvement in vitamin D status through vitamin D supplementation can be an effective strategy for improving survival outcomes of cancers especially of the digestive tract including [colorectal cancer](#).

"We now recognize that there are a variety of variables that can influence how vitamin D prevents and responds to cancer. For example, being at a normal weight and taking vitamin D improves your ability to survive cancer. Other factors include the patient's genetic makeup and how the patient utilizes and breaks down vitamin D," explains Holick, corresponding author of the piece.

The study by Kanno provides further insight. The p53 gene produces the p53 protein to prevent cells from becoming malignant. Cancer cleverly mutates this gene and the mutated p53 protein helps the cancer to grow and become immune to cancer therapy.

Kanno and the team found that patients whose [immune system](#) is on high alert and produces antibodies to control the production and release of this mutated p53 protein were more likely, by more than 2.5 fold, to improve their chances of surviving the cancer if they also took daily 2,000 IUs vitamin D3 compared to patients who had the antibodies but did not take vitamin D supplementation. Those patients who did not produce the antibodies received no survival benefit by taking the vitamin D supplement.

Holick believes it would be worthwhile to conduct a retrospective analysis for serum p53 antibodies and the immunohistochemical presence for p53 in histologic cancer samples of breast, prostate and other cancer studies that found no benefit when they evaluated the potential impact of vitamin D supplementation on improving cancer survival.

More importantly, Holick believes future studies evaluating vitamin D supplementation for the prevention and improvement of cancer outcomes should now include not only many of the variables mentioned above, but also include a measurement for p53 antibodies in the blood and immunohistochemical presence of p53 in cancer tissue samples.

According to Holick, it is important to recognize that most of the studies that have shown that vitamin D3 supplementation improves cancer survival provided patients with at least 2,000 IUs vitamin D3. This amount of vitamin D3 substantially improves the vitamin D status (serum concentration of 25-hydroxyvitamin D) to a concentration above 30 ng/mL. This amount of vitamin D3 was not reported to cause any toxicity

"It is well-documented that in order to achieve a circulating concentration of 25(OH)D above 30 ng/mL requires a vitamin D intake of at least 2,000 IUs daily, an amount that cannot be achieved from diet

alone but requires vitamin D supplementation. Although vitamin D is the sunshine vitamin you cannot get enough [vitamin D](#) from sun exposure unless you expose more than 20% of your [body surface](#) to sunlight almost daily like the Maasai and Hazda do in equatorial Africa," said Holick.

**More information:** The Death D-Fying Vitamin D3 for Digestive Tract Cancers—The p53 Antibody Connection, *JAMA Network Open* (2023).

Provided by Boston University School of Medicine

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