

Vitamin D and Omega 3 supplements do not reduce risk of systemic inflammation: study

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Vitamin D and marine omega-3 fatty acids—also known as fish oil—are purported to have many health benefits, including reducing systemic inflammation. Signals of systemic inflammation are tied to diseases of aging and obesity, including cardiovascular disease, heart failure, osteoporosis, diabetes mellitus, some cancers, and neurodegenerative diseases such as Alzheimer's disease. While many consumers take supplements with the intention of lowering their inflammation and preventing disease, an analysis of the VITamin D and OmegA-3 Trial (VITAL) by investigators at Brigham and Women's Hospital indicates that neither vitamin D nor omega-3s were effective at reducing systemic inflammation. The team's results are published in *Clinical Chemistry*.

"People commonly think that these supplements can prevent inflammatory diseases, but when a patient asks their doctor, 'Should I take this supplement?' doctors often don't know what to advise because there haven't been large scale [clinical trials](#). VITAL provides a large dataset to address these questions," said corresponding author Karen Costenbader, MD, MPH, director of

the Lupus Program in the Division of Rheumatology, Inflammation and Immunity. "In this case, there isn't a strong message that either supplement will reduce risk of [systemic inflammation](#), at least not the biomarkers of disease."

The VITAL study is a randomized, double-blind, placebo-controlled trial in which investigators tested the effects of supplements of vitamin D (2000 IU/day), omega 3s (1 gm/day) or both. For this analysis, Costenbader and colleagues tested levels of three known biomarkers of inflammation at the start of the trial and after one year of taking supplements or a placebo. They were interleukin-6 (IL-6), tumor necrosis factor-receptor 2, and high sensitivity C-reactive protein (hsCRP).

The team found that neither supplement reduced the biomarkers at one year. Surprisingly, among those taking the vitamin D supplement, instead of decreasing, IL-6 levels rose by 8.2 percent. The investigators also report that among participants who had lower fish intake at the start of the trial, hsCRP levels did decline for those taking the omega-3 supplement.

The authors note that they analyzed biomarkers for only a subgroup of the original trial's population—approximately 1,500 of the over 25,000 participants—but they carefully selected a representative sample. In addition, VITAL only tested one formulation each of vitamin D and omega-3 supplements. A multitude of supplements are available.

"While the bottom line is that we didn't see a reduction in markers of inflammation for those who took either supplement, we did see that people whose fish intake was low at baseline had a reduction in one of the biomarkers of inflammation," said Costenbader. "It will be interesting and important to see the results of future VITAL analyses, especially those that look at risk of diseases rather than biomarkers."

More information: Costenbader, K et al. "The Effects of One Year of Vitamin D and Marine Omega-3 Fatty Acid Supplementation On Biomarkers of Systemic Inflammation in Older U.S. Adults" *Clinical Chemistry* DOI: [10.1373/clinchem.2019.306902](https://doi.org/10.1373/clinchem.2019.306902)

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