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Omega-3 fatty acids, vitamin D3 do not reduce frailty risk, study shows

Key takeaways

- Despite their anti-inflammatory properties, omega-3 fatty acid and vitamin D3 supplements had no effect on reducing frailty risk in older adults.
- While it is possible the supplements could benefit older adults who are more vulnerable and unable to live in communities, researchers encouraged proven strategies for frailty prevention.

Supplementation with vitamin D3 and omega-3 fatty acids did not significantly reduce frailty risk in older adults, a study published in *JAMA Network Open* found.

Noting chronic inflammation is a hypothesized mechanism of frailty, **Ariela R. Orkaby, MD,** an assistant professor of medicine at Harvard Medical School, and colleagues had looked toward the supplements as preventive strategies due to their anti-inflammatory properties.

Despite their anti-inflammatory properties, omega-3 fatty acid and vitamin D3 supplements had no significant effect on reducing frailty risk in older adults. *Source: Adobe Stock*

"Specifically, low serum 25-hydroxyvitamin D levels are associated with frailty, potentially as a marker of poor nutrition or through a direct effect on muscle and bone health, both of which are closely linked with frailty," they wrote.

A 2019 *JAMA Network Open* study previously found that global estimates on the incidences of frailty — a syndrome associated with declines in stress tolerance and negative health outcomes — and prefrailty were 43.4 and 150.6 new cases per 1000 person years, respectively, among community-dwelling adults aged 60 years and older.

For the current analysis, Orkaby and colleagues conducted a prespecified ancillary of the VITAL trial, a randomized clinical trial that assessed 25,871 participants for frailty through a 36-item index, which included measures of cognition, mood and function.

The VITAL trial participants were older, community-dwelling adults (men aged 50; women aged 55), 25,057 of which possessed sufficient data needed for a frailty index calculation. The eligible participants had a median age of 62.2 years.

Participants were recruited from November 2011 to March 2014 and followed up to Dec. 31, 2017. They were given questionnaires measuring health and lifestyle status starting at baseline, 6 months afterwards, and then annually.

The participants were divided into four treatment groups: vitamin D3 and omega-3 fatty acids (n = 6251); vitamin D3 only (n = 6246); omega-3 only (n = 6278); and placebo only (n = 6282).

Orkaby and colleagues reported that neither vitamin D3 nor omega-3 fatty acids had a significant impact on either total frailty scores or the changing of frailty scores. All four study groups had a median frailty score of 0.08.

While the researchers reported that at baseline, women had a higher frailty score than men and Black individuals had higher frailty scores than participants of other races, there was no interaction between vitamin D3 and age, race or sex.

Notably, a subgroup analysis saw age favoring placebo in adults aged 67 years and older, though the researchers wrote these results "should be interpreted with caution."

Orkaby and colleagues reasoned one explanation for the supplements' lack of benefits was due to the health of the baseline participants, who had a frailty index score of 13%.

"In the general population of older adults of similar ages, prevalence rates of frailty approach 25%, and the rate in those with CVD can be as high as 60%," they wrote. "It is possible that persons who will benefit the most from supplementation with vitamin D3 and omega-3 fatty acids are more vulnerable individuals, such as those no longer able to live in the community."

Concluding that omega-3 fatty acids and vitamin D3 are not recommended routines to assist in frailty risk reduction for the study group's demographic, Orkaby and colleagues said proven preventive strategies, including regular exercise and the Mediterranean diet, "should be encouraged for older adults."

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References:

- Ofori-Asenso R, et al. *JAMA Netw Open*. 2019;doi:10.1001/jamanetworkopen.2019.8398.
- Orkaby A, et al. *JAMA Netw Open*. 2022;doi:10.1001/jamanetworkopen.2022.31206.

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