

ODS Update: Women's Health Initiative Calcium and Vitamin D Trial

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ODS Update A NEWSLETTER FOR HEALTH PROFESSIONALS

Strengthening Knowledge and Understanding of Dietary Supplements

June 25, 2024

Recent Developments in Dietary Supplement Science



The Women's Health Initiative (WHI) is a long-term national health study funded by the NIH National Heart, Lung, and Blood Institute that focuses on strategies to prevent heart disease, breast and colorectal cancer, and osteoporosis in postmenopausal women. Since its inception in 1991, the WHI has made innumerable contributions to the science of women's health.

One of the WHI clinical trials explored the effects of calcium and vitamin D supplements on the risk of hip fracture, colorectal cancer, and other health outcomes. This seven-year trial included 36,282 women, 50 to 79 years of age, who received either 1,000 mg calcium (as calcium carbonate) plus 400 IU (10 mcg) vitamin D3 per day or placebo. In 2006, the initial findings for [fracture risk](#) and [colorectal cancer risk](#) were published, followed by findings for [multiple health outcomes](#) after a cumulative follow-up of 11.1 years.

Recently, researchers published a comprehensive review of the WHI findings and clinical practice implications, along with a paper detailing longer-term outcomes from the WHI calcium and vitamin D trial after a follow-up of over 20 years.

WHI review and clinical practice implications: A May 2024 review by Manson and colleagues, published in [JAMA](#), took a broad look at the results and clinical practice implications of the WHI randomized trials, including the calcium and vitamin D trial. During the seven-year trial, calcium plus vitamin D supplementation did not significantly affect hip fracture rates compared with placebo, although it did help preserve total hip bone mineral density. Supplementation did not affect the risk of total fractures or colorectal cancer, nor did it affect total mortality, cardiovascular events, or invasive breast cancer. However, among women who were adherent and took 80% or more of the study supplements, calcium plus vitamin D reduced hip fracture rates by 29%. The authors also explored whether personal dietary supplement use affected study results; all participants were allowed to take personal supplements up to 1,000 mg/day calcium and/or 600 IU to 1,000 IU/day (15 mcg–25 mcg) vitamin D in addition to study supplements. Among women who did not take additional personal calcium supplements, those who received the study supplements tended to have a lower risk of hip fracture compared with those who received placebo. Supplementation also tended to reduce hip fracture rates among women 60 years of age or older and increase rates among younger women. The authors concluded that while the results of this trial do not support routine use of calcium and vitamin D supplements for reducing fracture risk in all postmenopausal women, these supplements are appropriate for women who do not meet recommended intakes from their diet.

Long-term health outcomes from WHI calcium and vitamin D trial: In the April 2024 issue of [Annals of Internal Medicine](#), Thomson and colleagues published an analysis of long-term health outcomes from the WHI calcium and vitamin D trial. These findings were not included in the review by Manson and colleagues summarized above. Over a median cumulative follow-up of 22.3 years, women who were assigned to calcium plus vitamin D supplements had a 7% lower risk of death from cancer and a 6% higher risk of death from cardiovascular disease. There were no significant effects on other outcomes, including risks of cancer, hip fracture, cardiovascular disease, or death from all causes. However, among women who did not take

personal dietary supplements, those who received the study supplements had a lower risk of colorectal cancer, invasive breast cancer, and total cancer than those who received placebo. These findings suggest that calcium plus vitamin D supplementation may reduce postmenopausal cancer risk when it helps correct nutrient shortfalls, but this requires further study. Overall, the results from this study suggest that calcium and vitamin D supplements reduce cancer mortality and increase cardiovascular disease mortality in postmenopausal women after more than 20 years of follow-up.

Learn more about the [Women's Health Initiative](#).

Other News from ODS

ODS Director Dr. Stefan Pasiakos, along with ODS and other NIH colleagues, will be attending the American Society for Nutrition's annual meeting, NUTRITION 2024. For details, see the [June ODS Director's Message](#).

ODS Update: Recent Developments in Dietary Supplement Science is a monthly newsletter produced by ODS to raise awareness of significant advances in the scientific field of dietary supplements. [Current and past issues](#) are posted on the ODS website.

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Contact Us

Office of Dietary Supplements
National Institutes of Health
6705 Rockledge Drive (Rockledge I)
Room 730, MSC 7991
Bethesda, MD 20817

Email: ods@nih.gov
Website: <https://ods.od.nih.gov>