

Despite promise, vitamin D and calcium do not reduce colorectal cancer risk

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Dennis Ahnen, MD, investigator at the University of Colorado Cancer Center, and colleagues, show no reduced risk of colonic polyps with vitamin D and/or calcium supplements. Credit: University of Colorado Cancer Center

The *New England Journal of Medicine* reports results of a 2,259-person study conducted at 11 academic medical centers showing that dietary supplementation with vitamin D and/or calcium after removal of pre-cancerous colorectal adenomas (aka polyps) does not reduce risk of developing future adenomas. Despite promising findings in models of the disease and in previous, smaller trials, the study offers strong evidence against the usefulness of these supplements in the prevention of future polyps.

"After a patient has colonic polyps removed it would be great to be able to offer a way for that patient to reduce his or her risk of developing future polyps or colorectal cancer. Unfortunately, this trial shows that taking [vitamin D](#) or [calcium](#) is probably not very useful in this setting," says Dennis J. Ahnen, MD, investigator at the University of Colorado Cancer Center and professor of gastroenterology at the Denver VA Medical Center, one of the paper's co-authors.

The study included patients 45 to 75 years old who had [colonic polyps](#) removed and no remaining polyps at the time of trial enrollment. Participants agreed to take daily dietary supplements of vitamin D, calcium or both. According to standard of care in these cases, participants had follow-up colonoscopy 3-5 years after the initial examination. In all, 43 percent of patients showed additional polyps at the time of the second screening. There was no significant difference in the frequency of new polyps over the next 5 years between patients in a control group and patients who had taken one or both supplements.

"In addition to knowing what works, it's important to discover what doesn't work," Ahnen says. "This way we can both move on to researching additional, promising strategies and also avoid prescribing treatments that have no effect."

In lab studies, vitamin D has been shown to slow the growth of cancer cells through inhibiting the growth of new blood vessels required to feed a cancer's growth, and also by directly causing the death of cancer cells. In addition, vitamin D supplementation in mouse models of cancer lower the risk of developing the disease.

"This shows that what works in a dish and even what works in animal models doesn't always work in humans," Ahnen says.

Similar is true of [calcium supplementation](#): In population studies, people with higher calcium intake have lower incidence of colorectal cancer, and previous, smaller human trials have shown promise for calcium in the prevention of [colorectal cancer](#).

"This was particularly surprising," Ahnen says, "since one of our own previous trials showed that calcium supplementation could modestly reduce the risk of new polyp formation."

Ahnen points out that this study specifically examined the possible effects of these supplements against the formation of new precancerous [polyps](#) and that, "it could be that vitamin D and/or calcium work later in the process of carcinogenesis to prevent dangerous cancers, but not their precancerous predecessors."

Overall, though, the authors write that they have "no ready explanation" for these negative findings that seem to controvert the promise of many previously published studies.

"More work is required," says Ahnen. "But at least in this setting, at this dose, with this population and measuring these outcomes, vitamin D and calcium supplementation did not appear useful."

Provided by University of Colorado Denver

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