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Bowel cancer: Can calcium prevent it?



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Bowel or colorectal cancer usually occurs in the large bowel or colon. The chances of getting bowel cancer are low for most people. People can be at much higher risk if this cancer is common in their immediate family. Bowel cancer usually develops slowly over years. Small, harmless growths start in the mucus lining on the inside of the bowel. These are called polyps or adenomas. Almost all of these stay small and harmless. Some can grow though, and then the risk increases that they might develop into cancer. It has been estimated that only 1 out of 20 of these bowel polyps ever becomes cancerous. It takes about 5 to 10 years for polyps to turn into cancer.

Researchers have assumed for decades that there is a connection between diet and the risk of bowel cancer. However, it is still unclear if there are particular foods or nutrients that can prevent bowel cancer. The mineral calcium is one candidate that researchers have studied. Laboratory and animal studies show that calcium could possibly interfere with the development of cancerous cells in the bowel. Calcium occurs naturally, especially in milk and dairy products. To try to prevent bowel cancer, though, relatively high levels of calcium supplementation have been studied. It is not possible to reach levels this high through diet alone.

Research on bowel cancer prevention with calcium

The current state of scientific knowledge was described in a systematic review from the Cochrane Collaboration, an international research network. The researchers searched for all trials that tested whether calcium supplements could prevent bowel cancer. The results were limited: two trials, in which altogether more than 1,300 people took part. Both were randomized controlled trials (RCTs). The basic principle: Volunteers agree to be divided into two groups by lottery. Only one of these groups would take calcium supplements, while the other would get a calcium-free placebo or dummy supplement. Both men and women were included in both the trials. All had already had bowel polyps identified and removed in the past. You can read more about randomized controlled trials here (URL: <http://www.informedhealthonline.org/index.61.en.html>).

The people taking calcium in one trial took 1,200 mg a day

for about 4 years. In the other trial, it was 2,000 mg a day for about 3 years. After this, all participants in the trials had a colonoscopy to examine their bowels. This enabled the researchers to see how many had developed new polyps. These people could have an increased risk of developing bowel cancer later on.

Trials indicate a preventative effect

The result: Hardly anyone had developed bowel cancer in the 3 or 4 years, regardless of whether they were in the calcium group or not. There were too few to be sure that calcium had reduced the risk of getting bowel cancer. However, the results for polyps were clear. For every 100 people who took the calcium supplements, 23 developed at least 1 new bowel polyp (23%) compared to 29 who developed at least 1 new polyp in every 100 people taking placebos (29%). This difference suggests calcium has a preventative effect, but the Cochrane researchers remain cautious. A supplement that slows down the development of harmless polyps is not guaranteed to be able to prevent cancer. But more research would be worthwhile.

Calcium in combination with vitamin D

A large American trial, the Women's Health Initiative (WHI) trial, studied whether bowel cancer could be prevented with a comparatively lower dose of calcium that also included vitamin D. More than 36,200 women who had been through menopause participated in this trial. This means that their risk of bowel cancer was not particularly high. The women took the supplement for around 7 years on average. That did not appear to have a protective effect against bowel cancer.

The Cochrane researchers concluded that the WHI trial was not ideally suited to answer the question of whether or not calcium supplements can protect against bowel cancer. One reason for this is that participants took calcium only in combination with vitamin D. It is not possible to find out what influence calcium and vitamin D would have individually. You can read more about bowel cancer and bowel cancer prevention in our feature (URL:

<http://www.gesundheitsinformation.de/bowel-cancer-prevention.2>

Some researchers have found a possible risk of heart attack for people taking calcium supplements who already take in more than 800 mg of calcium per day in

their usual diet. Combining calcium supplements with vitamin D could reduce this effect. You can find out if you are getting enough calcium in your diet or too much by using our calcium calculator (URL: <http://www.gesundheitsinformation.de/calcium-calculator.569.56.en.html>)

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Glossary

bowel polyps

Bowel polyps are benign growths in the mucus membrane lining the inside of the bowel. Cancer can sometimes develop in a bowel polyp.

calcium

Calcium is an important mineral for human health. It is one of the building blocks for bones and teeth, and it is necessary for blood clotting, the muscles and the nerves. Calcium occurs in milk and milk products, as well as in green leafy vegetables. People can get a calcium deficiency if they have a chronic inflammatory bowel disease, as well as in pregnancy or during breastfeeding.

colorectal cancer

Colorectal cancer is cancer in the large bowel (including the colon) and/or the rectum. "Colo" stands for the colon, and "rectal" for the rectum. Colorectal cancer is one of the most common forms of cancer.

polyps

Polyps are growths in the mucus membranes, for example in the bowel or inside the nose. The term usually means a benign growth, although strictly speaking the term does not describe whether or not the growth is harmless.

Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

systematic review

Systematic reviews pull together the evidence on a specific question. A systematic review sets out to find all the trials that have put that particular question to the test. The quality

of the trials are then evaluated and then results analyzed and explained. Often, the results of trials can then be summarized together through a statistical method called meta-analysis.

Sources

IQWiG health information is based on research in the international literature. We identify the most scientifically reliable knowledge currently available, particularly so-called “systematic reviews”. These summarize and analyze the results of scientific research on the benefits and harms of treatments and other health care interventions. You can read more about systematic reviews and why these can provide the most trustworthy evidence about the state of knowledge here (URL: <http://www.informedhealthonline.org/index.61.en.html>) . The authors of the major systematic reviews on which our information is based are always approached to help us ensure the medical and scientific accuracy of our products.

Bolland MJ, Avenell A, Baron JA, Grey A, MacLennan GS et al. Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta-analysis. *BMJ* 2010; 341: c3691. [PubMed summary (URL: <http://www.ncbi.nlm.nih.gov/pubmed/20671013>)]

Wactawski-Wende J, Kotchen JM, Anderson GL, Assaf AR et al (Women's Health Initiative Investigators). Calcium plus vitamin D supplementation and the risk of colorectal cancer. *N Engl J Med* 2006; 354: 684-696. [Full text (URL: <http://www.nejm.org/doi/full/10.1056/NEJMoa055222>)]

Weingarten MA, Zalmanovici A, Yaphe J. Dietary calcium supplementation for preventing colorectal cancer and adenomatous polyps. *Cochrane Database of Systematic Reviews*: Version 2010, Issue 9. CD003548 [PubMed summary (URL: <http://www.ncbi.nlm.nih.gov/pubmed/18254022>)]

The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at [**www.informedhealthonline.org**](http://www.informedhealthonline.org)

Disclaimer

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