

Calcium may only protect against colorectal cancer in presence of magnesium

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High magnesium intake has been associated with low risk of colorectal cancer. Americans have similar average magnesium intake as East Asian populations. If that were all that were involved, observers might expect both groups to have similar risk for colorectal cancer.

However, the United States has seen a much higher colorectal cancer incidence rate than East Asian populations. Furthermore, when East Asians immigrated to the United States, their incidence rates for colorectal cancer increased. This led researchers at Vanderbilt University to suspect there was something else at work.

Calcium supplementation has been shown to inhibit colorectal carcinogenesis although high calcium may simultaneously be preventing the body from absorbing magnesium. United States patients have a higher calcium intake and higher colorectal cancer incidence. "If calcium levels were involved alone, you'd expect the opposite direction. There may be something about these two factors combined – the ratio of one to the other – that might be at play", said Qi Dai, M.D., Ph.D., assistant professor of medicine at Vanderbilt University.

Dai and colleagues examined this hypothesis in a large clinical trial and found indeed that supplementation of calcium only reduced the risk of adenoma recurrence if the ratio of calcium to magnesium was low and remained low during treatment. "The risk of colorectal cancer adenoma recurrence was reduced by 32 percent among those with baseline calcium to magnesium ratio below the median in comparison to no

reduction for those above the median," said Qi.

The implications for prevention of adenoma recurrence or reduced risk of primary colorectal cancer is that designing a personalized diet/supplementation regimen that takes the ratio of both nutrients into account may be better than supplementing with one or the other alone.

About one in eighteen individuals will develop colorectal cancer in their lifetime and 40 percent will die within five years of diagnosis, mainly due to diagnosis at a late stage. The understanding of how dietary factors affect colorectal cancer may lead to the prevention of cancer recurrence and possibly prevention of the initial cancer.

Source: American Association for Cancer Research

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