Grape powder blocks genes linked to colon cancer

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Grapes

Low doses of freeze-dried grape powder inhibit genes linked to the development of sporadic colorectal cancer, University of California, Irvine cancer researchers found.

The study suggests that a diet rich in grapes may help prevent the third most common form of cancer, one that kills more than a half a million people worldwide each year. Around 7 percent of all Americans develop colon cancer during their lifetimes.

Led by Dr. Randall Holcombe, director of clinical research at the Chao Family Comprehensive Cancer Center at UC Irvine, the study followed up on previous in vitro studies showing that resveratrol, a nutritional

supplement derived from grape extract, blocks a cellular signaling pathway known as the Wnt pathway. The Wnt pathway has been linked to more than 85 percent of sporadic colon cancers, which is the most common form of colon cancer.

The UC Irvine researchers conducted their study with colon cancer patients. One group was given 20 milligrams daily of resveratrol as a pill; another drank 120 grams daily of grape powder mixed in water; and a third drank 80 grams daily of grape powder.

While the supplements did not have an impact on existing tumors, biopsied colon tissue showed that Wnt signaling in the patients taking 80 grams of grape powder was significantly reduced. Similar changes were not seen in patients taking the higher dose of grape powder or the resveratrol pills.

The researchers aren't certain why the lower dose of grape powder was more effective than the higher one. However, they believe that the active components in the grapes may have different effects at low dose than they do at high dose, which is a fairly common finding in nutritional studies.

Holcombe and his colleagues will present their study results Nov. 16 at the Society for Integrative Oncology's Fourth International Conference in San Francisco.

"This is truly exciting, because it suggests that substances in grapes can block a key intracellular signaling pathway involved in the development of colon cancer before a tumor develops," said Holcombe.

The resveratrol chemical is found naturally in grape skins, wine and also in peanuts. It is unclear why resveratrol alone was not as effective, but Holcombe believes that other grape chemicals may supplement or boost

resveratrol's efficacy.

Eighty grams of grape powder equal a half glass of wine or 1 pound of grapes, which is equivalent to three dietary servings of grapes, according to the USDA. Holcombe and his colleagues are currently designing a clinical cancer prevention study to see how a daily diet of 1 pound of grapes affects Wnt signaling.

This study follows an epidemiological survey by Holcombe, Dr. Jason Zell, assistant clinical professor of medicine at UC Irvine, and Dr. Hoda Anton-Culver, chair of epidemiology and director of UC Irvine's Cancer Surveillance Program. In this study of 499 colorectal cancer patients, they found that moderate wine consumption before developing colon cancer was associated with improved survival outcomes among those patients with family history of colorectal cancer.

The researchers found that 75 percent of such patients were alive after 10 years of initial diagnosis, compared to 47 percent of such patients who did not regularly drink wine. Study results appeared in the October 2007 issue of *Nutrition and Cancer*.

"Our epidemiologic study suggests that wine consumption may influence survival among a subset of colorectal cancer patients, specifically those with family history of the disease," Zell said. "These findings could reflect unique genetic and environmental interactions among familial colorectal cancer patients, but further studies are needed to test this theory. Studies such as Dr. Holcombe's with grape powder extract and resveratrol are important as they offer potential explanations for our findings."

Holcombe said researchers have known for a long time that there is a link between diet and cancer. "These findings suggest that we should do additional research and clinical studies on grapes and other natural

products that may prove effective in helping to prevent cancer," he said.

The grape study received support from the California Table Grape Commission and the UCLA Bionutrition Unit. The authors declare no financial interest or conflicts of interest.

Source: University of California, Irvine