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Chemicals in apples slow cancer growth in lab tests, scientists report

August 30, 2000

Web posted at: 11:00 a.m. EDT (1500 GMT)



ATLANTA (CNN) -- An apple a day may keep the oncologist away.

Naturally occurring chemicals in apples slow the growth rate of human colon-cancer cells and liver-cancer cells, laboratory tests at Cornell University have demonstrated.

The stronger the concentration of apple extract, the slower the rate of reproduction among the cancer cells, the Cornell scientists reported in a recent edition of the journal Nature.

The researchers said the relatively large amounts of antioxidants found in apple extract may help to explain the cancer protection provided by a diet that includes five servings of fruits and vegetables a day.

The anti-cancer effect, a spokesman said, was strongest in extracts made from unpeeled apples, which contain more antioxidant phytochemicals. These are plant chemicals containing substances that prevent or delay deterioration caused by oxygen.

David Ringer, Ph.D., scientific program director for the American Cancer Society, said it was too early to say which substances in apples provide the protection and that the best way to lower your risk of cancer is to eat enough fruits and vegetables.

"This is an interesting finding," he said. "And the possibility of unlocking which of these nutrients provides the chemoprotective effects is very exciting." Chemoprevention is the use of natural or lab-made substances to lower risk for cancer.

"But this study wasn't designed to prove which specific nutrients in the apples protect against cancer, or how," Ringer said. "And since we don't know yet, the surest way to get that protection is to eat a wide variety of fruits and vegetables every day, and at least five servings a day. We know that from very large dietary studies."



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Ringer also said, "This (Cornell) study shows that a food that is very available provides antioxidant protection against cancer. And it points to useful directions for future research. It's information we're glad to have."

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Cancer society officials have estimated that about one-third of all cancers could be prevented by eating a healthy diet and getting enough physical activity.

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Consuming the antioxidants from fresh fruit could be a better way to get the chemical cancer protection than from taking vitamin C supplements, the Cornell scientists reported.

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"Our results indicate that natural antioxidants from fresh fruit could be more effective than a dietary supplement," said Marian V. Eberhardt, who published the study along with her colleagues from Cornell's department of food sciences.

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Beneficial chemicals are found not only in apples -- the Cornell study was funded by apple growers -- but in many plants consumed directly or used indirectly by people. Phytochemicals in tea, for example, appear to inhibit the growth of blood vessels that feed cancer cells, according to research at Tufts University, Boston.

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Scientists are at the beginning of an era in understanding the impact of phytochemicals on human health, declared Jeff Blumberg, a professor of nutrition at Tufts.

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Further testing is expected on whether the positive developments from laboratory studies will stop cancer in people.

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CNN Medical Correspondent [Linda Ciampa](#) contributed to this report.

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