

## Strawberries, Raspberries Halt Cancer in Rats

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*By Anne Harding*

BOSTON (Reuters Health) - If animal studies are correct, black raspberries and strawberries may be "very, very powerful" inhibitors of cancer growth, an Ohio researcher reported here this month at the American Chemical Society's annual meeting.

People should make berries one of their daily fruit servings, or at least try to eat berries two or three times a week, Dr. Gary D. Stoner of Ohio State University told Reuters Health.

Animal studies by Stoner and his colleagues found the berries were potent inhibitors of cancer development in rodents given cancer-promoting chemicals. The team is now planning studies in people to investigate the effect of berries on both esophageal and colon cancer.

Stoner and his team are studying squamous cell carcinoma (SCC) of the esophagus, which makes up 95% of cases of esophageal cancer worldwide. Overall, survival is very poor, with 10% of patients living 5 years after diagnosis.

Esophageal SCC is particularly common in China, Japan, the Transkei region of South Africa, Iran, France and Puerto Rico. Men are more likely than women to develop the disease, and African Americans also face an increased risk compared with whites.

Smoking, alcohol, salt, and hot and spicy foods are known to promote the development of esophageal SCC. Fungal toxins and chemicals called nitrosamines--both found in the Chinese diet--and vitamin and mineral deficiencies have also been implicated.

To investigate strategies for blocking esophageal SCC growth, Stoner and his team fed rats two types of cancer-promoting nitrosamine chemicals. While chemicals called isothiocyanates proved to be the best way to stop tumors from forming in the first place, strawberries and black raspberries from an Ohio farm worked best for preventing tumors from growing.

Isothiocyanates are found in many foods, including cruciferous vegetables like broccoli and wasabi, a pungent Japanese condiment.

Rats that consumed 5% to 10% of their diet as freeze-dried black raspberries and strawberries showed dramatic reductions in the growth of precancerous cells and tumor progression, the researchers found. And in other animal tests, Stoner told Reuters Health, the berries reduced colon cancer growth by 80%.

The Ohio Department of Agriculture supported the research Stoner presented at the meeting.

Eating berries could be a way to help people at risk of esophageal SCC protect themselves from the disease, Stoner said.

But there are obstacles. For one, he pointed out, berries are a seasonal food in most of the world, which has also made it difficult to conduct epidemiological studies of their effects on cancer. And in some countries where esophageal SCC is a major problem--like China--people rarely eat berries. Finally, berries are expensive.

One way to get around these problems, Stoner said, might be to use extracts of the freeze-dried berries. He and his colleagues have been able to develop some potent berry extracts, he added.

Stoner and his team have completed Phase I trials to investigate the toxicity of the berries and whether berry components reach the bloodstream. People who ate two large bowls of berries a day showed no toxic effects, and many fruit components were absorbed into the blood, according to Stoner.

The researchers, in partnership with a food company, are now launching Phase II clinical trials to investigate whether berries have a cancer-protecting effect on esophageal cancer among people in China and the US. They also plan to investigate the effect of berries on colon cancer.

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