

## **Diet, Exercise Slow Prostate Cancer As Much As 30%**

**A low-fat, high-fiber diet and regular exercise can slow prostate cancer cell growth by up to 30 percent, according to a new study by researchers at UCLA's Jonsson Cancer Center and UCLA's Department of Physiological Science.**

"This is the first study to directly measure the effects of diet and exercise on inhibiting prostate cancer cell growth," said Dr. William Aronson, a researcher at UCLA's Jonsson Cancer Center and senior author of the study. "We used a new method, developed by our research team, to evaluate how effectively these lifestyle changes might help slow the growth of prostate cancer cells, and we are extremely encouraged by the results."

The research is published in this month's issue of the peer-reviewed *Journal of Urology*.

"It's too early to say that diet and exercise can prevent prostate cancer from developing or progressing, but our study strongly suggests that a low-fat diet and exercise regimen appears to favorably affect the levels of hormones or growth factors that influence prostate cancer growth," said Aronson, who also is an associate clinical professor in the Department of Urology at the UCLA School of Medicine. "Based on the results of our study, we have begun a new clinical trial at UCLA to evaluate new nutritional programs that men with prostate cancer may hopefully use in the future to prevent the progression of their disease."

The new research method developed by the UCLA research team involved evaluating serum obtained from study volunteers who adhered to a low-fat, high-fiber diet and exercise regimen. The serum -- blood from which red blood cells and clotting factors have been extracted, leaving behind hormones and growth factors -- was combined with prostate cancer cells in test tubes and evaluated to see how it affected the cells' growth.

Aronson called the method "a novel and more direct way to evaluate the potential of specific diets to affect prostate cancer development or progression."

Researchers collected serum samples from two groups of healthy men -- a short-term group and a long-term group. The short-term group included 13 overweight men aged 42 to 73 who had neither been eating a healthy diet nor exercising regularly. These men participated in a strict 11-day diet and exercise regimen in which they ate a low-fat, high-fiber diet and exercised regularly. The long-term group included eight men aged 38 to 74 who had eaten a healthy diet and exercised regularly for more than 14 years.

Meals in the 11-day diet regimen contained less than 10 percent of calories from fat, 15 to 20 percent of calories from protein (primarily non-animal sources with limited amounts of fish and fowl) and 70 to 75 percent of calories from carbohydrates (primarily vegetables, fruits, legumes and whole grains). Alcohol, tobacco and caffeinated beverages were not permitted.

The exercise component involved walking at a quick pace for 30 to 60 minutes four to five days a week, and once or twice a week at a slower pace for 40 to 60 minutes. A "quick pace" was defined as a training heart rate of 70 to 85 percent of a person's maximum heart rate on a treadmill exercise tolerance test.

At the end of the 11-day regimen, prostate cancer cells immersed in serum from the short-term group showed a 30 percent slower growth rate than the cells that had been immersed in baseline serum samples taken prior to the regimen.

Prostate cancer cells exposed to serum from the long-term group showed a 40 percent reduction in prostate cancer cell growth when compared to baseline samples from the short-term group. Baseline serum samples were not available for the long-term group, although their medical histories indicated long-term adherence to low-fat, high-fiber diets and regular exercise.

Additional health benefits for the short-term group included significant weight loss and lower cholesterol, although on average they still remained overweight.

Prostate cancer is the second leading cause of cancer deaths in American men, second only to lung cancer. About 198,100 men in the United States will be diagnosed with prostate cancer this year, and an estimated 31,500 men will die from the disease, according to the American Cancer Society.

The theory that a high-fat diet and sedentary lifestyle may increase prostate cancer risk already has been established. The rate of prostate cancer deaths is 15 times higher in the U.S. than in Asian countries, which have the lowest rates of prostate cancer deaths and where men traditionally adhere to a low-fat diet.

However, Chinese and Japanese men who immigrate to the United States and consume a typical high-fat Western diet develop an increased risk of prostate cancer compared to men in their native countries. This suggests that environmental factors such as a high-fat Western diet may contribute to prostate cancer development, Aronson said.

"For patients whose prostate cancer has not responded to radiation or surgery, or for patients undergoing the 'watchful waiting' strategy where treatment is delayed while tumors are monitored closely, it would be extremely useful if we could find ways as simple as diet and exercise to help them effectively control their disease," Aronson said.

The UCLA study was limited in that researchers were not able to separate the exercise and dietary components, which makes it difficult to attribute the results to the diet, the exercise or a combination of the two, Aronson said.

"However, most health agencies recommend both diet and exercise, and we feel this is the best approach for prostate cancer prevention," he said. "Obesity is an epidemic in the United States due to poor diet and inactivity, and we desperately need to reduce the

number of prostate cancer deaths in this country. It's clear that eating a healthy diet and exercising regularly is an important step in the right direction."

Members of the research team included Christopher Tymchuk, who has a doctorate in physiology; R. James Barnard, who has a doctorate degree in physiology and holds a professorship in the Department of Physiological Science at the UCLA College of Letters & Science; and Dr. David Heber, director of the UCLA Center for Human Nutrition.