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Antioxidant spices reduce negative effects of high-fat meal

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Eating a diet rich in spices, like turmeric and cinnamon, reduces the body's negative responses to eating high-fat meals, according to Penn State researchers.

"Normally, when you eat a high-fat meal, you end up with high levels of triglycerides, a type of fat, in your blood," said Sheila West, associate professor of biobehavioral health, Penn State, who led the study. "If this happens too frequently, or if triglyceride levels are raised too much, your risk of heart disease is increased. We found that adding spices to a high-fat meal reduced triglyceride response by about 30 percent, compared to a similar meal with no spices added."

West and her colleagues prepared meals on two separate days for six men between the ages of 30 and 65 who were overweight, but otherwise healthy. The researchers added two tablespoons of culinary spices to each serving of the test meal, which consisted of chicken curry, Italian herb bread, and a cinnamon biscuit. The control meal was identical, except that spices were not included. The team drew blood from the participants every 30 minutes for three hours. They reported their findings in the current issue of the *Journal of Nutrition*.

"In the spiced meal, we used rosemary, oregano, cinnamon, turmeric, black pepper, cloves, garlic powder and paprika," said Ann Skulas-Ray, postdoctoral fellow. "We selected these spices because they had potent antioxidant activity previously under controlled conditions in the lab."

When the meal contained a blend of antioxidant spices, antioxidant activity in the blood was increased by 13 percent and insulin response decreased by about 20 percent.

According to West, many scientists think that oxidative stress contributes to heart disease, arthritis and diabetes. "Antioxidants, like spices, may be important in reducing oxidative stress and thus reducing the risk of chronic disease," she said, adding that the spice dose they used provided the equivalent amount of antioxidants contained in 5 ounces of red wine or 1.4 ounces of dark chocolate.

Skulas-Ray noted that adding two tablespoons of spices to meals did not cause stomach upset in the participants. "They enjoyed the food and had no gastrointestinal problems," she said. But, she added, "The participants were notified ahead of time that they would be eating highly spiced foods and they were willing to do so."

In the future, West plans to investigate whether she can get the same results by adding smaller doses of spices to meals.

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