

From VOA Learning English, this is **Science in the News**. I'm Faith Lapidus.

And I'm Mario Ritter. Today we tell about herbs and spices, and some of their many uses.

People have been using herbs and spices for thousands of years. Generally, herbs come from the green leaves of plants or vegetables. Spices come from other parts of plants and trees. Some herbs and spices are valued for their taste. They help to sharpen the taste of many foods. Others are chosen for their smell. Still others were used traditionally for health reasons.

When people think of improving their diet, they often talk about eating more fruits and vegetables. Others want to eat more fish and less red meat, in addition to reducing the amount of food they eat. But, they can improve their diets even more with just a simple addition.

American researchers have found that a diet rich in spices can help reduce the harmful effects of eating high fat meals. Researchers at Pennsylvania State University reported the findings.

Penn State Associate Professor Sheila West led an investigation of the health effects of a spice-rich diet. Her team knew that a high-fat meal produces high levels of triglycerides, a kind of fat, in the blood.

She said, "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."

As part of the study, her team prepared meals on two separate days for six men between the ages of 30 and 65. The men were overweight, but healthy. The researchers added about 30 milliliters of spices to each serving of the test meal, which included chicken curry, Italian herb bread and a cinnamon biscuit. The meal for the control group was the same, but it did not include any spices.

Ann Skulas-Ray also served on the research team. She said the team used paprika, rosemary, oregano, cinnamon, turmeric, black pepper, cloves and garlic powder. She said these spices were chosen because they had demonstrated strong antioxidant activity under controlled conditions in a laboratory.

During the experiment, the researchers removed blood from the men every 30 minutes for three hours. They found that antioxidant activity in the blood of the men who ate the spicy meal was 13 percent higher than it was for the men who did not. In addition, insulin activity dropped by about 20 percent in the men who ate the spicy food.

Sheila West says many scientists think that oxidative stress leads to heart disease, arthritis and diabetes. And what exactly is oxidative stress? Think of an apple that has been cut in half and set aside for half an hour or so. The cut side of the apple turns brown. That is a simple explanation of what happens when oxidative stress comes in contact with the inside and outside of our bodies.

Professor West says, "Antioxidants, like spices, may be important in reducing oxidative stress and thus reducing the risk of chronic disease." She adds that the level of spices used in the study provided the same amount of antioxidants found in 150 milliliters of red wine or about 38 grams of dark chocolate.

Other scientists are helping to uncover the secrets of spices and herbs. For example, Purdue University researchers in Indiana say red pepper may help people lose weight. They say this could be especially true for people who do not usually add peppers to their food.

The researchers reported on the effects of dried and ground cayenne red pepper in the journal *Physiology & Behavior* in 2011. They found that small changes in diet, like adding the pepper, may reduce the desire to eat.

Most chili peppers contain capsaicin -- a substance that makes chili peppers taste hot and spicy. Other studies have shown that capsaicin can reduce hunger and burn calories, the energy stored in food.

Twenty-five people of normal weight took part in the study, which lasted six weeks. Thirteen of them liked spicy food. The 12 others did not. The researchers decided how much red pepper each group would receive. One and eight tenths grams of the pepper was given to each person who liked spicy food. The others received three tenths of a gram.

The people who did not normally eat red pepper showed a decreased desire for food. That was especially true for fatty, salty and sweet foods. Purdue University Professor Richard Mattes said the effect may be true only for people who do not usually eat red pepper. He said the effectiveness of the pepper may be lost if spices are normally part of a person's diet and that more studies must be done.

Other research shows that capsaicin helps suppress the buildup of body fat. A study published in the American Journal of Clinical Nutrition found that capsaicin may help to reduce abdominal fat. Study organizers said the reduction possibly takes place because the spice changes some proteins found in fat, causing them to break down the fat.

Scientists have become so interested in the health value of spices that recent discoveries are helping to move spices from traditional medicine into real science.

Researchers in Virginia discovered that curcumin, a substance found in turmeric, stopped the Rift Valley Fever virus from reproducing in infected cells. The sometimes deadly virus is carried by mosquitos. It can affect human beings and some farm animals like cattle and goats.

Aarthi Narayanan is an assistant professor at George Mason University in Virginia. She was the lead investigator in a study of curcumin last year. She says her team of researchers found the spice may interfere with the way some viruses cause human cells to stop reacting to an infection. She hopes the team can discover drug treatments to defeat several kinds of viruses. And, she says, it is possible curcumin will be part of those cures.

A study published in the Journal of Biological Chemistry found that curcumin improves the effectiveness of chemotherapy in breast cancer patients. And it has possibilities for development into a drug that can help with chemotherapy.

Turmeric comes from a tropical plant common to India. Scientists have been examining its medical possibilities for many years.

Studies show that turmeric's qualities may help protect against damage to the body's tissues and other injuries. Researchers also said turmeric may reduce evidence of damage in the brains of patients with mild or moderate Alzheimer's disease. For this reason, the researchers designed a study that examined results from a mental-performance test of older Asian adults.

The study involved curry, which contains turmeric. The adults tested were 60 to 93 years old. Those who sometimes ate curry did better on the tests than individuals who rarely or never ate curry. This was also true of those who ate it often or very often.

One spice that often is at the top of a healthy spices list is cinnamon. It comes from the inner bark of several trees and is used in both sweet and savory cooking. For centuries, cinnamon has been used in traditional medicine. Now, it is earning respect in the medical field.

German researchers found that cinnamon can reduce blood sugar by ten percent. They were not sure why, but said it could be that substances in cinnamon activate enzymes that excite insulin receptors. Research also shows the spice can help lower levels of cholesterol and triglycerides, blood fats that may cause diabetes.

Registered dietician Wendy Bazilian says spices are being considered more seriously because the added taste they bring helps people reduce the salt, fat and sugar in their cooking. She has written a book called, "The Super Foods Rx Diet", on how people can lose weight by basing their diet on what she calls "super nutrients". She says she likes oregano, for example, because she considers it a mini salad. She says "one teaspoon has as much antioxidant power as three cups of chopped broccoli."

But, she says do not get rid of the broccoli. Instead, eat both.

Herbs and spices are not used just to lessen unwanted chemical effects. They make food taste better. Some spices also destroy bacteria. Spices have long been used to keep food safe to eat. Spices have influenced world history.

This Science in the News program was written by Milagros Ardin. Our producer was June Simms. I'm Faith Lapidus.

And I'm Mario Ritter. Join us again next week for more news about science on the VOICE OF AMERICA.