

# Fried, grilled or baked foods? they may affect type 2 diabetes risk

September 2 2016, by Serena Gordon, Healthday Reporter

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(HealthDay)—Changing the way you cook could help reduce your risk

of getting type 2 diabetes, a new study suggests.

Boiling, steaming and poaching look like the safest way to go, researchers say.

When you fry, grill or bake foods—also called dry-heat cooking—foods produce substances called advanced glycation end products (AGEs).

Higher levels of AGEs have been linked to [insulin resistance](#), stress on the body's cells and inflammation, according to the study authors. These are troublemakers in terms of diabetes risk.

Insulin is a hormone that helps blood sugar from food get into cells for energy. Without insulin, or with insulin resistance, too much sugar remains in the blood. This can lead to serious problems for the heart, eyes, kidneys and other organs.

"When you look at people with chronic diseases like type 2 diabetes or dementia put on a high-AGE diet or a low one, those on the low-AGE diet show signs of decreasing inflammation," said the study's lead author, Dr. Jaime Uribarri. He's a professor of medicine at the Icahn School of Medicine at Mount Sinai in New York City.

For this study, however, the researchers wanted to see if a low-AGE diet could offer protection to people already at risk of developing type 2 diabetes. Conversely, the researchers believed that a regular Western diet, which is generally high in AGEs, might contribute to the risk of type 2 diabetes.

The researchers randomly assigned study participants to one of two diet groups. The regular-AGE diet group included 49 people; the low-AGE diet group had 51.

All were at least 50 years old. And they had at least two of the following five health concerns (or were on medications for these problems): a large waist circumference (40 inches for men, 35 for women); [high blood pressure](#); low HDL (good) cholesterol; high triglycerides (another type of blood fat); or elevated fasting [blood sugar](#) levels.

Those in the low-AGE group were given instructions on how to lower the AGE content in their foods. They were told to avoid frying, baking or grilling foods. Instead, they were encouraged to boil, steam, stew or poach their meals—in other words, cook with water.

Some examples of the changes made included substituting boiled eggs for fried eggs, poached chicken instead of grilled chicken, or beef stew instead of grilled steak, according to the study.

The study volunteers completed a three-day food record so the researchers could take into account the types of foods they ate. The researchers specifically asked that the participants not change the types of foods they ate, just the preparation of those foods. They also were instructed to try to eat the same amount of calories a day.

A dietitian checked in with the low-AGE group twice a week, and met with each person every three months to review their cooking methods and to encourage low-AGE cooking.

The regular-AGE group was instructed to continue cooking as they already did. The study lasted one year.

In the low-AGE group, "all the parameters in stress and inflammation we tested for improved. And we showed that insulin resistance came down," Uribarri said. "These findings are highly suggestive of a cause-and-effect relationship, but our study needs to be demonstrated again in a larger study with different sites, different populations and different habits."

Body weight dropped slightly in the low-AGE group, and no side effects were seen, the authors said.

"We imagine the more you [cook with low-AGE methods], the better. We think it will be proportionate," Uribarri said.

But one specialist thinks just switching cooking techniques isn't enough to curb [diabetes risk](#).

"We know that we have AGEs that are increased by cooking, but many foods themselves are also high in AGEs. So, in addition to changing how we cook, we also want to change what we're eating," said Samantha Heller. She's a senior clinical nutritionist at New York University Langone Medical Center in New York City.

"I think it's more important to focus on the quality of your food choices. Vegetables and other plant foods aren't as high in AGEs," she noted.

But, Heller added, nutrition experts often emphasize making small changes. And switching to lower-AGE [cooking methods](#) for at least some of your meals may be one way to start making small, healthy changes.

Study results were recently published in *Diabetologia*.

**More information:** Learn about healthier cooking options from the [American Heart Association](#).

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Citation: Fried, grilled or baked foods? they may affect type 2 diabetes risk (2016, September 2) retrieved 7 May 2024 from

<https://medicalxpress.com/news/2016-09-fried-grilled-foods-affect-diabetes.html>

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