

News

Office of Medical Information
The University of Texas Southwestern Medical Center at Dallas
5323 Harry Hines Boulevard Dallas, Texas 75235-9060 214/688-3404

May 12, 1988

CONTACT: Tommy Joy Bosler
Office: (214) 688-3404
Home: (214) 327-1773

****UT Southwestern researchers find
a saturated fat that doesn't raise
cholesterol.

DALLAS -- There's a faint light at the end of the tunnel for beef eaters and chocoholics.

Ever since it was discovered that saturated fat raises cholesterol levels in the blood, beef and chocolate have been considered unhealthy for people trying to follow a heart-healthy diet.

Now researchers at The University of Texas Southwestern Medical Center at Dallas have reported in The New England Journal of Medicine (May 12, 1988) that one type of saturated fat, stearic acid, can be classified as cholesterol-lowering along with monounsaturated and polyunsaturated fats. Stearic acid is an important component of the fat in beef and chocolate.

"Strictly speaking, we cannot condemn all saturated fats as unhealthy any longer," said Dr. Scott Grundy, director of UT Southwestern's Center for Human Nutrition. "It will be less confusing if we think of fats as either cholesterol-raising or cholesterol-lowering. Stearic acid is a saturated fat, loaded with all the hydrogen it can hold, but it's not as bad for you as we previously thought."

There are more than two dozen types of fatty acids that can make up the fat in foods, and each food usually contains a combination of fatty acids. Each fatty acid is composed of a chain of carbon atoms with hydrogen attached and an acid group at one end. They vary in length by the number of carbon atoms and in saturation by the number of hydrogen atoms. A saturated fatty acid carries the maximum number of hydrogen atoms, enabling it to remain solid at room temperature.

Grundy and Dr. Andrea Bonanome, a research fellow at the nutrition center, conducted a study with patients at the Dallas Veterans Administration Medical Center, to compare the effects on serum cholesterol of three fatty acids: palmitic, stearic and oleic. The first two are saturated, the last monounsaturated.

"It is known that palmitic, a saturated fatty acid, raises cholesterol," said Grundy. "In our previous studies we showed that oleic, which is monounsaturated, lowered cholesterol when it was exchanged for palmitic.

"Previous studies, about 20 years ago, had suggested that stearic was more like the monounsaturates, but this issue was left up in the air. We thought it was important to determine whether stearic should be grouped with the cholesterol-raising or cholesterol-lowering fats."

Grundy and Bonanome tested 11 patients on three liquid diets that furnished 40 percent of calories as fat, 40 percent as carbohydrates, and 20 percent as protein. The diets differed only in the predominating fatty acid. Cholesterol intake was less than 100 mg. a day. The patients stayed on each diet three weeks, and their blood was tested during the last week of each period for total cholesterol, triglycerides and the lipoproteins LDL, HDL and VLDL.

Cholesterol levels were highest on the diet rich in palmitic acid. Compared to the diet high in palmitic acid, the stearic acid diet lowered total cholesterol 14 percent. Harmful LDL cholesterol was 22 percent lower.

Compared to the palmitic acid diet, the oleic acid diet lowered total cholesterol 10 percent and LDL cholesterol 15 percent.

There were no significant changes in triglycerides, VLDL or HDL levels on the three diets.

(More)

The study concluded that stearic acid appears to be at least as effective as oleic acid (monounsaturated fat) in lowering plasma cholesterol levels when either replaces the saturated fat palmitic acid in the diet.

The conclusions can have two effects, said Grundy. "In the short term, I think it means you don't have to be as worried about beef fat as we once thought. In addition, the fat in chocolate (cocoa butter) doesn't raise the cholesterol as much as other commonly used saturated fats.

"Butter, coconut oil, palm oil and palm kernel oil are at the top of the list of harmful fats. Meat fat and cocoa butter would be someplace in the middle. The unsaturated oils like olive oil and safflower oil would be at the bottom of the list of harmful fats.

"In the long run, the possibility exists of making new forms of fat using stearic acid. You could make a whipped cream substitute using stearic acid instead of palm or coconut oil, which would be better for you. You could make margarines and shortening with stearic acid and not have to alter the structure of the fat as you do in hydrogenating vegetable oils.

"It appears these new products would be just as good for lowering your blood cholesterol as the ones made with polyunsaturates. However, Dr. Bonanome and I are conducting further tests of high stearic acid diets to determine any undesirable side effects."

Bonanome added, "The aim of our research is to offer a wider choice of foods that can lower cholesterol because that makes it easier to comply with a diet.

"Although beef fat will not raise the cholesterol level as much as many people assume, this does not mean that one should overeat beef fat. Lean meat should still be chosen in preference to fatty meat. Excess fat in the diet can add unwanted pounds, and 25 percent of the fatty acids in beef fat is palmitic acid, which can raise the blood cholesterol.

"Our study was done specifically to compare the single action of palmitic, stearic and oleic acid, excluding other variables. So you should not extrapolate the results too far."

The fatty acid content of some common sources of fat and their effect on cholesterol are listed below:

Percent in	Beef Fat	Cocoa Butter	Coconut Oil	Butter Fat	Palm Kernel Oil	Olive Oil	Safflower Oil
Stearic acid	21.6	34.5	2.5	12.5	2.4	2.5	4.0
Other saturates	32.0	27.0	89.5	52.7	81.9	14.6	11.5
All Monounsaturates	43.2	35.6	6.5	31.3	13.7	72.3	23.5
All Polyunsaturates	3.2	2.9	1.5	3.5	2.0	10.6	61.0
Total percent in cholesterol-raising fatty acids	32.0	27.0	89.5	52.7	81.9	14.6	11.5

XXX

Distribution: AA,AB,AC,AC1,AF,AF1,AG,AG1,AH,AI,AK,AK1,ADM,ADM1,SL

Note: The University of Texas Southwestern Medical Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and Southwestern Allied Health Sciences School.