

News

Office of Medical Information
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CONTACT: Heidi Harris Cannella
Office: (214) 688-3404

****Beef fat and cocoa butter not as bad
for cholesterol level as butter fat

DALLAS--Just in time for Valentine's Day, researchers here have concluded that stearic acid, one of the primary fatty acids found in beef fat and cocoa butter, does not raise harmful low-density lipoprotein (LDL) cholesterol.

Dr. Margo Denke, assistant professor of internal medicine, and Dr. Scott Grundy, director of the Center for Human Nutrition and holder of the Distinguished Chair in Human Nutrition at The University of Texas Southwestern Medical Center at Dallas, looked at the effect of four common food fats--beef tallow, cocoa butter, butter fat and olive oil--on the cholesterol levels of 10 middle-aged men. The results of their findings were published in the December 1991 issue of The American Journal of Clinical Nutrition.

"We wanted to discover to what extent beef fat and cocoa butter should be called cholesterol-raising fats," Denke said. "In dietary recommendations, beef fat, cocoa butter and butter fat are usually equated because they are all high in saturated fatty acids. We were testing the hypothesis that stearic acid doesn't have an effect on cholesterol, and we found that it doesn't."

(More)

The study was a follow-up to one Grundy published in 1988 that for the first time classified the saturated fat stearic acid as a cholesterol-safe fat. Denke explained that the new study compared natural fats in the diet, while the original study compared synthetic fats.

In Denke's and Grundy's study, conducted at the Dallas Department of Veterans Affairs Medical Center, 10 men, ages 51 to 72 with moderately-high to very-high cholesterol levels, were fed a liquid diet containing 40 percent of calories from the test fat (butter fat, beef tallow, cocoa butter or olive oil) for three weeks each. In each study phase, only one fat was used.

Butter fat raised LDL levels the most, to an average of 164 milligrams per deciliter (A level above 160 mg/dL is considered high-risk for heart disease.) Beef tallow led to a significantly lower LDL level than butter--156 mg/dL, as did cocoa butter--148 mg/dL. The lowest level of LDL, 140 mg/dL, was observed in the olive-oil diet, which was "significantly different from both butter fat and beef tallow," Denke said.

"These results suggest that fats naturally high in stearic acid may not have the cholesterol-raising potential once thought based on their total saturated-fat content," she said. "But because cholesterol levels during the beef-fat phase were significantly higher than with olive oil, beef fat still must be classified as a cholesterol-raising fat. The high stearic acid content of beef fat does not prevent the palmitic acid, a harmful saturated fat also found in beef, from increasing LDL. Cocoa butter, on the other hand, should be considered only mildly hypercholesterolemic."

One surprising finding of the study was its dispute of the hypothesis that stearic acid does not raise cholesterol because it is poorly absorbed by the body and thus excreted. In their study, Denke and Grundy found that stearic-acid absorption was relatively high.

"The failure of stearic acid to raise the cholesterol level is more likely due to its metabolism within the body," Denke said. "One possibility that has been shown in laboratory animals is that stearic acid is rapidly converted into oleic acid, a monounsaturate."

More than two dozen fatty acids make up the fat in food. Saturated fats, which include tropical oils and butter, are well-documented dietary factors in elevated cholesterol levels. Monounsaturates, like olive and canola oils, have been shown by Grundy in previous studies to lower cholesterol levels when replacing saturated fats in the diet. Polyunsaturates, such as corn oil and safflower oil, have the same effect as monounsaturates, but their safety in large amounts has not been proven.

Dietary fat is a combination of all three kinds of fats, in varying degrees, with the predominant fatty acid determining the fat's classification. Butter fat, for instance, is composed of 13 percent stearic acid, 53 percent other saturates, 31 percent monounsaturates and 4 percent polyunsaturates, while beef fat and cocoa butter are composed of 22 percent and 35 percent stearic acid, respectively. They both contain significant percentages of other saturates, too.

"The take-home message to consumers is that you can eat lean, red meats, but fatty red meats will still raise blood cholesterol, just not as much as we once thought," Denke said. The stearic acid apparently has a moderating effect.

"A treat with chocolate also can fit into a cholesterol-lowering diet," she said.

With Valentine's Day just around the corner, it's good to know that occasionally indulging in chocolates and celebrating with a prime-rib dinner won't hurt your heart.

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NOTE: The University of Texas Southwestern Medical Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences, Southwestern Allied Health Sciences School, affiliated teaching hospitals and outpatient clinics.