

# News

The University of Texas Health Science Center at Dallas  
5323 Harry Hines Boulevard Dallas, Texas 75235 (214)688-3404

March 11, 1985

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

\*\*\*Monounsaturated fats shown as effective  
as polyunsaturates in lowering cholesterol

DALLAS--In the fight against heart disease, olive oil may be a better weapon than popular polyunsaturated oils like corn oil and safflower oil.

A new study comparing the effects of different types of fats on cholesterol levels in the blood showed that both monounsaturates (such as olive oil) and polyunsaturates result in markedly lower cholesterol levels than saturated fats (fats found in meats, egg yolks, butter and cream). But monounsaturates are preferable because they are just as effective as polyunsaturates, do not have the possible side effects of polyunsaturates and may actually be superior in lowering certain types of cholesterol.

"We knew that the rate of cardiovascular disease was very low in the Mediterranean region where people cook primarily with olive oil. Unfortunately, a thorough clinical comparison of monounsaturates and polyunsaturates had not been made, so no one knew whether monounsaturates lowered cholesterol levels as effectively. We now know they do," said Dr. Scott M. Grundy, professor of Internal Medicine and Biochemistry and the director of The Center for Human Nutrition at The University of Texas Health Science Center at Dallas.

Grundy's partner in the research effort was Dr. Fred H. Mattson of the Department of Medicine, University of California--San Diego in La Jolla, California. The clinical studies were conducted at the Veterans Administration Medical Centers in Dallas and San Diego.

In the tests, 20 patients consumed liquid diets in which the predominant fatty acid type was saturated, monounsaturated or polyunsaturated. The fats totaled 40 percent of the calories in each diet, roughly equal to the percentage of fats in an average American diet. Each diet was consumed for four weeks; during the third and fourth weeks blood samples were taken and analyzed for total cholesterol and total triglycerides. They were also analyzed for the lipoproteins LDL-C, HDL-C, and VLDL-C, which are various combinations of protein with cholesterol or triglycerides.

Grundy and Mattson found that monounsaturates and polyunsaturates had almost identical effectiveness in reducing the levels of total cholesterol in the blood. A high blood cholesterol level results in a gradual accumulation of fatty deposits in blood vessels throughout the body. This narrows the vessels, reducing the blood flow to the heart and posing a direct risk of heart disease.

But recent research into cholesterol metabolism has described several types of lipoproteins that carry cholesterol through the blood and has shown that the lipoproteins are either harmful or harmless.

For example, the cholesterol carried in low density lipoprotein (LDL) is delivered to the cells for storage. A high level of LDL in the blood accelerates the development of fatty deposits that clog arteries. Both the monounsaturated and polyunsaturated diets lowered the harmful LDL cholesterol about 17 percent from the level produced by the saturated fat diet.

In addition to lowering total cholesterol and LDL cholesterol, the diet highest in polyunsaturated fat frequently lowered the high density lipoprotein (HDL) level. HDL transports cholesterol from the body's tissues to the liver where it can be converted for use by the body or processed for elimination. A high level of HDL

(More)



*Monounsaturated fats lower cholesterol--add one*

cholesterol, indicating that cholesterol is being used efficiently, is desirable. The fact that polyunsaturates lowered the HDL cholesterol level seems undesirable, according to Grundy.

The monounsaturated fat diet reduced the HDL cholesterol level less often than the polyunsaturated diet. Although the results in this area of the test were not conclusive, they were promising.

"We think the results of the overall tests prove that monounsaturated fats are as effective as polyunsaturates in lowering cholesterol levels in the blood," Grundy said. "We will be studying the HDL aspect further. It would indicate several advantages of olive oil over polyunsaturates."

The American Heart Association currently recommends that cholesterol intake should be reduced to 250-300 milligrams per day and that total fat in the diet should be limited to 30 percent of daily calories. The group also suggests limiting saturated fats to less than 10 percent of calories and increasing polyunsaturated fats to a maximum of 10 percent of calories.

However, the nutrition committee of the American Heart Association is reluctant to advocate an increase in polyunsaturated fats (for example, to 15-20 percent of total calories) because no sizable population has consumed such large quantities of polyunsaturated fats for a long period of time. Therefore, the long-term safety of polyunsaturates has not been proven.

Monounsaturated fats have now been shown to have the same cholesterol-lowering advantage and several other possible advantages over polyunsaturates. Monounsaturates have a demonstrated history of use in the Mediterranean region, where olive oil is the primary source of dietary fat and where coronary heart disease is low.

"Furthermore," says Grundy, "monounsaturated fats are synthesized normally by the body and are less likely to have some of the side effects that have been postulated to occur with polyunsaturated fats, like promoting the development of cancer, suppressing the immune system and changing the cell membranes drastically. So we think that all these side effects could be avoided by the use of monounsaturates. Another big advantage is that monounsaturates have a more stable shelf life, so they don't go rancid nearly as fast as polyunsaturates. And then in our study we learned that they didn't lower the HDL as often as polyunsaturates.

"We're not saying that monounsaturates should replace the polyunsaturates completely. The body requires a small amount of polyunsaturated oil--it's what we call an essential fatty acid. Polyunsaturates also serve as a source of the prostaglandins in the body. Prostaglandins are extremely active biological substances which affect organs as diverse as the prostate gland or the uterus, the brain, lung, kidney, thymus and pancreas, and therefore are really quite important. Our problem with polyunsaturates is giving large amounts."

Olive oil is currently the best source of monounsaturated fat for human consumption. It is 71 percent oleic acid. Peanut oil is second, with 46.5 percent oleic acid. Following is a comparison of several common dietary sources of fat:

Type	% Saturated	% Mono- Unsaturated	% Poly- Unsaturated
Butter	66.0	30.0	4.0
Corn Oil	12.5	27.6	57.9
Olive Oil	17.1	72.3	10.6
Peanut Oil	17.4	48.1	31.5
Safflower Oil	8.2	13.1	77.7
Soybean Oil	15.6	23.4	61.0

Concluded Grundy, former head of the Nutrition Committee of the American Heart Association, "The kind of very low-fat, high-carbohydrate diet favored in the Orient probably just isn't realistic for many Americans. But it appears that it would be prudent to limit the calories supplied by fats to 30 percent of the daily total. At this level, saturates should be kept below 10 percent of total calories, monounsaturates should be at 10-15 percent of calories, and polyunsaturates from 5-10 percent."

#

Distribution: AA, AB, AC, AF, AG, AH, AI, AK, SL