Butter, as anyone who has not been living in a cave for the past two decades has probably heard, contains a lot of saturated fat, which increases the levels of cholesterol in the blood. Margarine, on the other hand, is made from vegetable oils, which contain cholesterol-lowering polyunsaturated fat. So switching to a diet with only vegetable fats should lower cholesterol levels, right?

“Wrong,” says Margaret A. Flynn, a nutritionist at the University of Missouri. When she performed the experiment with a group of 71 faculty members - switching in both directions – she found that “basically it made no difference whether they ate margarine or butter.” The reason, according to a growing group of nutritionists, could be partially hydrogenated fats. Recent studies suggest that such fats might actually alter cholesterol levels in the blood in all the wrong ways, lowering the “good” high-density lipoprotein and increasing the “bad” low-density lipoprotein.

Partially hydrogenated fats are made by reacting polyunsaturated oils with hydrogen. The addition of hydrogen turns the oils solid, and some of their polyunsaturated fat is turned into trans monounsaturated fats. Monosaturated fat is generally perceived as good, but things are not so simple. “Trans monounsaturates act in the body like saturated fats,” says Fred A. Kummerow, a food chemist at the University of Illinois. Almost all naturally occurring monounsaturated fat is of the cis variety, which is more like polyunsaturated fat.

Flynn’s study is not the first to raise questions about trans fatty acids. Over ten years ago a Canadian government task force noted the apparent cholesterol-raising effects of trans fats and requested margarine manufacturers to reduce the amounts – which can easily be done by altering the conditions of the hydrogenation reaction.

Two Dutch researchers, Ronald P. Meninsk and Martijn B. Katan, published a study that showed eating a diet rich in trans fats increased low-density lipoprotein and decreased levels of high-density lipoprotein. In an editorial accompanying the study, Scott M. Grundy, a lipid researcher at the University of Texas Southwestern Medical Center, Dallas, wrote that the ability of trans fatty acids to increase low-density lipoprotein “in itself justifies their reduction in the diet.” Grundy called for changes in labelling regulations so that cholesterol-raising fatty acids, including trans monounsaturates, are grouped together.

James I. Cleeman, co-ordinator of the National Cholesterol Education Program, disagrees. “To raise a red flag is premature,” he says. “Meninsk’s audience is the research community – the public needs usable simplifications.” Cleeman points out that the subjects in Meninsk and Katan’s study ate relatively large amounts of trans fats. He believes more typical consumption levels should be investigated before any change in recommendations is warranted.

Furthermore, Cleeman notes that studies like Flynn’s are hard to interpret because subjects were allowed to eat as they pleased. Flynn’s study found considerable variability among subjects in their blood lipid profiles. “The only way to study the question properly is in a metabolic ward,” Cleeman says. “Trans fats are a wonderful example of an issue that’s not ready for prime time.”

Edward A. Emken, a specialist on trans fats at the Agricultural Research Service in Peoria, Ill., also downplays the concern but for different reasons. Although Mary G. Enig, a nutritional researcher at the University of Maryland, has estimated American adults consume 19 grams of...
trans fats per day, Emken thinks that figure is too high. According to his calculations, eliminating fatty acids from the diet will for most people make only a tiny change in lipoprotein levels. “If you’re hypercholesterolemic, it could be important, but if you’re not, then it is not going to affect risk at all,” he concludes.

Emken, together with Lisa C. Hudgins and Jules Hirsch, has performed a study that finds no association between levels of trans fats in fat tissue in humans and their cholesterol profiles. To Emken that suggest trans fats are not a major threat for most people.

Nevertheless, trans fats seem destined for more limelight. “How can one defend having cholesterol and saturated and unsaturated fats listed on food labels but not allow public access to trans information when such fats behave like saturates?” asks Bruce J. Holub, a biochemist at the University of Guelph, Ontario. At the very least one has to ask whether cholesterol-free claims should be allowed on high-trans products.” Tim Beardsley.