

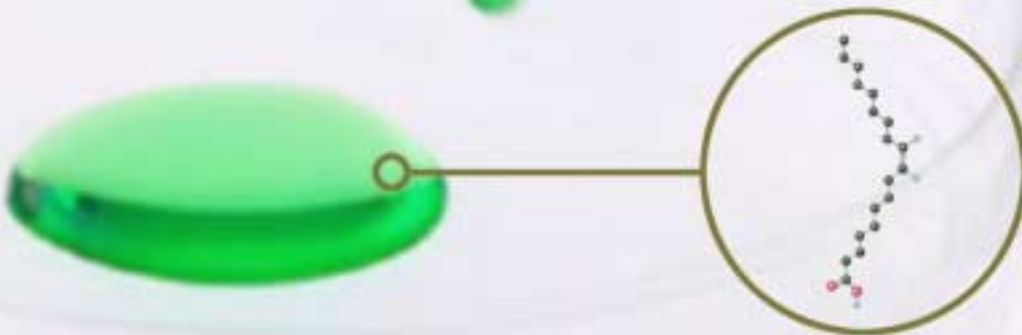
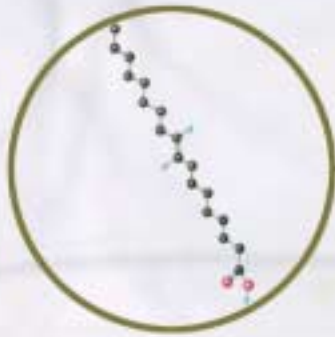
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The Experts' FORUM

FEATURE ARTICLE:

CHEWING THE FAT ABOUT TRANS FATS!

BY HELEN BISHOP-MACDONALD



Chewing the Fat about Trans Fats!

By Helen Bishop MacDonald



With the recent passage of a bill aimed at severely reducing the amount of trans fatty acids in the Canadian diet, confusion abounds in the minds of Canadians, who aren't sure just what trans fatty acids are in the first place, and how to avoid them in the second.

So I ask you to bear with me for a brief moment of biochemistry so that we can first define just what these little devils are. *Trans* fatty acids are fatty acids containing at least one trans double bond (a *trans* double bond is a double bond in fatty acids between two carbon atoms that have changed geometry relative to the *cis* double bonds found most commonly in nature). The hydrogen atoms in the double bond in the *trans* form are located on either side of the carbon atoms, while those in the *cis* form are located on the same side. This may not sound like a big deal, but trust me, to the average body, it's really important.

In fact, the human body had never been routinely exposed to trans fats until about the late 1920s when margarine and shortening were introduced as replacements for butter and lard...mostly because they were cheaper. Credit (or blame) for creation of the stuff goes all the way back to 1860 when a French chemist by the name of Hippolyte Mege-Mouries, competing for a prize offered by

Napoleon the Third for developing an edible synthetic fat, was able to take a liquid oil and convert it into a spreadable fat. Food scientists soon figured out that if they added a catalyst and hydrogen to vats of oil under conditions of elevated temperature and constant agitation, they could produce what seemed to them the perfect synthetic fat. What they didn't know was that in the process they were also producing trans fatty acids.

And so today we find ourselves in a dietary pickle: the products long touted as being better for the heart than the natural products they were designed to replace, are in fact much worse. Governments and health professionals are turning themselves inside out trying to convince the public to reduce their intake of these nasties, if not avoid them altogether. The problem is...trans fatty acids are everywhere. Some of the obvious sources are potato chips, cookies, pastries, donuts, crackers, that type of thing. Unfortunately they're also in so-called dairy replacements like coffee creamers and whipped toppings.

Alright, so they're ubiquitous...what's the problem? The problem is quite simply that trans fatty acids not only **raise** the "bad" cholesterol (low-density lipoproteins or LDLs), they also **lower** the "good" cholesterol (high-density lipoproteins or

HDLs). Perhaps worse than that, the ratio of total cholesterol: HDL cholesterol is raised to the point that risk of cardiovascular disease is significantly increased.

What to do? The easy answer is to replace the hydrogenated fats with natural vegetable oils. Trouble is, as you well know, it won't work. Aside from problems with cutting them into flour or pastry, they oxidize rapidly and have a pitiful shelf-life. Even more worrying is the fact that these oils are great sources of linoleic acid, an essential fatty acid that is great in small doses. Canadians, unfortunately, are already wallowing in the stuff and at high doses it is thought to be carcinogenic. In addition, the ratio of linoleic acid to alpha-linolenic acid, which is considered by experts ideally to be around four to one, is currently about 10 to one in the average Canadian diet. Upping the amount of linoleic acid by using vegetable oils to replace hydrogenated fats will only exacerbate the problem.

Well then let's go back to the originals...butter and lard. In my view, that is exactly what should be done. Unfortunately the old bogeyman "saturated fats" raises its ugly head and food processors are fearful of replacing one dietary no-no with another. There are a couple of reasons why the argument against dairy fat as a food ingredient just doesn't hold water: first, while milk fat is a source of saturated fat, a significant proportion of the saturated fatty acids are short and medium chain fatty acids or stearic

acid, which won't influence low-density lipoprotein concentrations. Of those that do elevate cholesterol levels, a good portion of the elevation is due to increases in HDL level...which is a good thing. Second, dairy fat, in fact the fat of all ruminant animals, is a good source of conjugated linoleic acid (CLA), which has been shown to be anti-carcinogenic. So butter or cream or whole milk as an ingredient not only won't increase the risk of heart disease, it will lower the risk of various cancers.

There is, however, one final argument to consider and that is that dairy and beef fats also contain trans fatty acids. And it's true; they do. In fact, the conjugated linoleic acid just mentioned, is a trans fatty acid! There is, however, a big distinction to be made between industrial or artificially produced trans fatty acids and those resulting naturally from bio-hydrogenation in a ruminant animal. Most of the trans fats found in the North American diet (80-90%) come from partially hydrogenated vegetable oils. The remainder come from ruminant fats and most of those are 18 carbon monounsaturated fatty acids. Between 60 and 80% of that is vaccenic acid (20% of which is converted into conjugated linoleic acid), the rest being actual CLA. These natural trans fats not only are not associated with increased risk of heart disease, they actually fight cancer.

So there you have it. When wondering what type of fat is best in product formulation, you can't beat natural!