

About Trans Fat and Partially Hydrogenated Oils

Q. What is trans fat?

A. Most trans fat is a monounsaturated (one double bond) fatty acid. The shape of trans-fat molecules is more like cholesterol-raising saturated fat than a typical monounsaturated fatty acid. Perhaps for that reason, it increases cholesterol levels in blood and increases the risk of heart disease.

Q. Where does trans fat come from?

A. According to the Food and Drug Administration (FDA), in 1994-96 we consumed about 5.6 grams of trans fat per day. Most of that trans fat comes from the 40,000-plus foods that contain partially hydrogenated vegetable oil. Those include many stick margarines, biscuits, pastries, cookies, crackers, icings, and deep-fried foods at restaurants. Because Frito-Lay, margarine producers, and some other companies recently stopped using (or cut back on the use of) partially hydrogenated oils, we now are consuming a little less trans fat. About one-fifth (1.2 g) of the trans fat came from natural sources, especially beef and milk products (bacteria in cattle produce trans fat that gets into meat and milk). A little more occurs naturally in vegetable oils and forms when vegetable oils are purified.

Q. How is partially hydrogenated oil made?

A. To convert soybean, cottonseed, or other liquid oil into a solid shortening, the oil is heated in the presence of hydrogen and a catalyst. That hydrogenation process converts some polyunsaturated fatty acids to monounsaturated and saturated fatty acids. It also converts some monounsaturated fatty acids to saturated fatty acids. Thus, a healthful oil is converted into a harmful one. The problem arises when some of the fatty acids are converted to the “trans” form. The term “trans” comes from the fact that two parts of fatty acid molecules are on opposite sides of double bonds. In the usual “cis” fatty acids, the two parts are on the same side of the double bonds. The degree of hydrogenation determines how solid the final product will be and how much of the different fatty acids it will contain.

Q. Why are oils partially hydrogenated?

A. To increase shelf life and obtain the cooking properties of solid shortenings, oils are partially hydrogenated. That eliminates most of the unstable fatty acids—those with three or two double bonds. Partially hydrogenated oils have been used to replace butter, lard, palm oil, coconut oil, and other “hard” fats in such foods as many processed foods. Fortunately, food technologists have been figuring out increasingly better ways to make those foods taste better without hard fats.

Q. Are *fully* hydrogenated oils even worse than partially hydrogenated oils?

A. No. Surprisingly, fully hydrogenated oils appear to be innocuous. In the case of fully hydrogenated soybean oil, the hydrogenation process increases the amount of saturated fat, but most of that fat is stearic acid. Stearic acid does not raise “bad” (LDL) cholesterol levels, because the body converts it quickly to monounsaturated oleic acid (the characteristic fatty acid in olive oil).

Q. Why are partially hydrogenated oil and trans fat so bad for your health?

A. Trans fat increases the amount of “bad” (LDL) cholesterol in blood, and that increases the risk of heart disease. It also decreases the “good” (HDL) cholesterol, which may increase the risk of heart disease even more. Preliminary research suggests that trans fat might have additional harmful effects on the body. Finally, the hydrogenation process destroys some of the vitamin K in vegetable oil, which might be a problem for consumers who have marginal intakes of that vitamin.

Q. How bad is trans fat?

A. Extrapolating from estimates made by the FDA, replacing with more healthful ingredients all the trans fat that comes partially hydrogenated oils likely would save upwards of 10,000 lives a year.

Q. So should I avoid every molecule of trans fat?

A. Not necessarily. Trans fat is not a toxin that will kill everyone who eats even a tiny amount. It’s worth avoiding foods in which partially hydrogenated oil is one of the first few ingredients on the label, but not worth worrying about if partially hydrogenated oil is down near the end of the ingredient list. (Ingredients are listed in order of predominance.)

Q. With what ingredients would companies replace partially hydrogenated oil?

A. In the case of margarine, many fried foods, and some baked foods, companies often use canola oil, sunflower oil, and other liquid oils. When a solid fat cannot be avoided, companies might use palm oil, butter (though rarely, because it is expensive), beef tallow, or lard. Ideally, companies would work hard to use less of those saturated fats, perhaps mixing them with a liquid oil.

Q. How are partially hydrogenated oils and trans fat regulated?

A. Currently, the FDA considers partially hydrogenated oils to be safe and does not set any limits on their use or trans-fat content. Nor does it limit the trans-fat content of processed or restaurant foods. However, beginning January 1, 2006, the amount of trans fat in a serving of food will have to be listed on food labels. That impending labeling is spurring many companies to try to reformulate their products to reduce or eliminate the use of partially hydrogenated oils.

Q. Which companies are reformulating their products?

A. Ruby Tuesday’s and Legal Sea Foods restaurant chains have stopped using partially hydrogenated oil in their deep-fat frying. Kraft/Nabisco, one of the biggest users of partially hydrogenated oil, is marketing trans-free Triscuits and several varieties of trans-free Oreos. Voortman’s Cookies is going in the trans-free direction. Pepperidge Farm (part of the Campbell Soup Co.) is marketing a trans-free variety of Goldfish and plans to reduce trans in other products. In 2002, McDonald’s said it would switch to a lower-trans cooking oil, but as of mid-2004 has not done so. Expect many more changes before 2006, as companies try to avoid the stigma of listing trans fat on their labels.

Q. How would the Center for Science in the Public Interest’s petition affect the use of partially hydrogenated oil?

A. CSPI asked the FDA to revoke its acceptance of partially hydrogenated oil as a food ingredient. If the FDA granted CSPI's petition (following a lengthy process in which companies and consumers would be allowed to comment), companies would have to stop using such oils and the amount of trans fat in the American diet would decrease sharply. Because much of that fat likely would be replaced by more-healthy, liquid oils, the risk of heart disease should decline. However, companies could prevent the FDA from acting or could petition the FDA to allow partially hydrogenated oil as a food additive. CSPI urged the FDA, if it allowed any partially hydrogenated oil, to set low limits on the amount of trans fat it could contain.

Q. Does any nation ban or restrict partially hydrogenated oil or trans fat?

A. Denmark limits the trans-fat content of foods to two percent of the fat. (Naturally occurring trans fats are exempted from that limit.)

Q. Has partially hydrogenated oil always been used?

A. No. Civilization survived without partially hydrogenated oils for eons. It was first used commercially about 75 years ago, but its use became far more widespread beginning in the 1950s. Now it is used in many thousands of processed foods.

Q. I'm avoiding partially hydrogenated oil. What else should I worry about?

A. The main thing is to eat a diet that is based largely on whole grains, fruits, vegetables, and low-fat animal products. Try to minimize saturated fat, sodium, cholesterol, and refined sugars.