How Industrial Fats & Oils are Made

- Manufacturers start with the cheapest seeds (usually soy or canola), extracting the oil at very high temperatures and pressures; the last fraction of oil is removed with hexane, a toxic solvent.
- At this point, the oils are a brown, smelly, rancid gunk. They are subjected to steam for cleaning. This destroys all the vitamins and natural antioxidants, but pesticides and solvents remain.
- Additional refining involves more heating, addition of chemicals, drying, degumming, deodorization and the addition of dangerous industrial antioxidants. In all, the fragile liquid oils are heated five times before they are bottled.
- To make hardened fats manufacturers use a process called partial hydrogenation. The oils are mixed with a finely ground nickel catalyst and then put in a reactor where at high temperatures and pressures, they are flooded with hydrogen gas. The molecular structure is rearranged—what goes into the reactor is a liquid oil, what comes out is a smelly, lumpy, gray semi-solid.
- Soap-like emulsifiers are mixed in to remove all the lumps; the oil is steam cleaned (again!) to remove the horrible odor; the oil is then bleached to get rid of the gray color; synthetic vitamins and artificial flavors are mixed in; the mixture is packaged in blocks or tubs and promoted to the public as a health food.

THE FUTURE OF TRANS FATS

In 2013 the FDA determined that *trans* fats were no longer "Generally Recognized as Safe (GRAS)," and the Institute of Medicine determined there is no safe level of *trans* fat consumption. The industry must phase out *trans* fats by 2018. They will be largely replaced by other industrial products, such as "interesterified fats." No clinical trials exist on metabolism of interesterified fats, just as there were none on the *trans* fats.

"Partially hydrogenated" oil on a food label indicates the presence of *trans* fats. Companies must list *trans* fats on food labels only if there is more than half a gram per "serving," so many labels indicate zero *trans* fats even though they may be present in considerable quantities.

Good Fats, Bad Fats

The GOOD FATS are traditional fats and oils that mankind has used for thousands of years. These are mostly saturated animal fats. Saturated fats are actually very healthy, needed for proper growth, fertility, healthy babies, cell function, hormone production and optimal function of the heart, lungs and kidneys. They also provide important vitamins A, D and K2.

- Butter and ghee for cooking and spreading
- Cream and whole milk
- Egg yolks
- Lard (pig fat) and bacon grease for cooking
- Tallow (beef fat) for frying
- Duck fat and goose fat (good sources of K2)
- Coconut oil
- Palm oil
- Olive oil for salad dressings
- Sesame seed oil and flaxseed oil (cold pressed) in small amounts
- Cod liver oil in small amounts for vitamins A and D

Anything that contains industrial fats and oils is a BAD FAT:

- Cooking oils
- Margarine
- Spreads
- Shortening
- Artificial whipped cream
- Non-dairy creamers
- Snack foods (chips, pretzels, cookies)
- Cake frosting
- Fried foods
- Commercial mayonnaise
- Dips
- Commerical salad dressings
- Commercial nut butters and spreads
- All fast food, including pizza
- Most restaurant food

Industrial Fats & Oils

The Dangers of Industrial Seed Oils and Partially Hydrogenated *Trans* Fats

THE WESTON A. PRICE FOUNDATION®

for

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IN FOOD, FARMING AND THE HEALING ARTS

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What are Industrial Fats & Oils?

Industrial fats and oils—also called vegetable oils—came on the market with the invention of the stainless steel roller press in the 1890s. This technology allowed manufacturers to squeeze oil out of hard seeds. Prior to that time, the only plant-based oils came from oily fruits like the olive, coconut and palm fruit, and very oily seeds like flax seed and sesame seeds, which could be extracted using a slow-moving stone press.

The first seeds that manufacturers used to produce vegetable oil were cottonseeds—a waste product of the cotton industry. The manufacturer—Proctor and Gamble—used very clever marketing strategies to advertise the liquid oils for cooking and salad dressings and the industrially hardened (partially hydrogenated) shortenings (such as Crisco) for cooking and baking. They promoted the idea that their cottonseed oil products were safer and healthier than traditional fats and oils like butter, lard, tallow and coconut oil.

Soon manufacturers learned to extract oil from corn, soybeans, safflower and other seeds. Today, 80 percent of all vegetable oil comes from soybeans. They are the basic ingredient in cooking oils, margarine, spreads and shortenings used in the home, and in cookies, pastries, chips, bars, snack foods and commercial fried food.

Since vegetable oils contain no cholesterol (only animal foods contain cholesterol) and are very low in saturated fat, the vegetable oil industry created the false impression that foods containing cholesterol and saturated fat were bad for us, but the vegetable oils were good.

Unfortunately, it is becoming increasingly evident that the industrial fats and oils—whether liquid or solid—cause many health problems in adults and children. Moreover, the traditional fats, especially animal fats, are critical for good health, for fertility and for having healthy children. While there are many unhealthy ingredients in the modern diet, those that have the most serious adverse effects are the industrial fats and oils.

Dangers of Liquid Vegetable Oils

Liquid polyunsaturated vegetable oils cause uncontrolled reactions in the body.

CANCER: Polyunsaturated liquid vegetables oils are very fragile. They easily become rancid, breaking down into compounds called free radicals and aldehydes. These compounds are highly carcinogenic, and especially cause cancer in the presence of carcinogens like industrial chemicals and pesticides.

HEART DISEASE: Although liquid vegetables oils may lower cholesterol levels temporarily, they cause heart disease in other ways; rancid oil molecules initiate damage in the arteries that can lead to plaque build up. They also increase uric acid levels in the blood, a marker that is strongly associated with heart disease.

PREMATURE AGING: Highly reactive vegetable oils cause damage all over the body that can lead to premature aging, especially excessive wrinkling of the skin.

IMMUNE FUNCTION: Polyunsaturated oils interfere with the immune response.

LIVER DAMAGE: Polyunsaturated vegetable oils depress the liver's ability to detoxify.

DEPRESS LEARNING ABILITY: In children, consumption of liquid vegetable oils can depress learning ability.

REPRODUCTIVE ORGANS AND LUNGS: Liquid vegetable oils can be especially damaging to the reproductive organs and the lungs. The lungs need saturated fat to function properly.

POOR GROWTH IN CHILDREN: Children need animal fats like butter to grow strong and tall. Vegetable oils do not supply needed fat-soluble vitamins as animal fats do.

WEIGHT GAIN AND OBESITY: When the body processes polyunsaturated oils, more fat ends up in the fat cells and isn't easily released for energy, signaling the body to find more energy. This makes us feel hungry more frequently, often craving more junk food containing polyunsaturated oils.

Dangers of *Trans* Fats

Hardened industrial fats contain *trans* fats, which inhibit reactions in the body, including enzymes and receptors.

CANCER: Consumption of *trans* fats is associated with increased rates of cancer in many studies; *trans* fats interfere with enzymes the body uses to protect itself against cancer.

DIABETES: *Trans* fatty acids interfere with the insulin receptors in the cell membranes, thus triggering type II diabetes.

HEART DISEASE: *Trans* fats raise the levels of atherogenic lipoprotein-a (Lp(a)) in humans.

IMMUNE FUNCTION: *Trans* fats interfere with both B and T cell functions, thus reducing the immune response.

FERTILITY AND REPRODUCTION: *Trans* fats interfere with enzymes needed to produce sex hormones; they decrease the levels of testosterone in male animals and increase the level of abnormal sperm.

LACTATION: In animals and humans, consumption of *trans* fats lowers the overall fat content in mother's milk, thus compromising the nourishment to the infant. In addition, *trans* fats can cross the mammary gland into mother's milk and interfere with neurological and visual development of the infant.

DEVELOPMENT AND GROWTH: *Trans* fats can cross the placenta, creating many problems for the developing fetus including low birth weight and interference with brain development.

OBESITY: Women who consume *trans* fatty acids have a greater likelihood for obesity than women who do not consume *trans* fats, even though caloric intake is the same.

SOURCES AND FURTHER INFORMATION

westonaprice.org/know-your-fats/
Nourishing Fats by Sally Fallon Morell

Why Butter is Better

VITAMINS: Butter is a rich source of easily absorbed vitamin A, needed for a wide range of functions, from maintaining good vision to keeping the endocrine system in top shape. Butter also contains all the other fat-soluble vitamins (D, E and K_2), which are often lacking in the modern industrial diet.

MINERALS: Butter is rich in important trace minerals, including manganese, chromium, zinc, copper and selenium (a powerful antioxidant). Butter provides more selenium per gram than wheat germ or herring. Butter is also an excellent source of iodine.

FATTY ACIDS: Butter provides appreciable amounts of short- and medium-chain fatty acids, which support immune function, boost metabolism and have anti-microbial properties; that is, they fight against pathogenic microorganisms in the intestinal tract. Butter also provides the perfect balance of omega-3 and omega-6 essential fatty acids. Arachidonic acid in butter is important for brain function, skin health and prostaglandin balance.

CLA: When butter comes from cows eating green grass, it contains high levels of conjugated linoleic acid (CLA), a compound that gives excellent protection against cancer and also helps the body build muscle rather than store fat.

GLYCOSPINGOLIPIDS: These are a special category of fatty acids that protect against gastro-intestinal infections, especially in the very young and the elderly. Children given reduced fat milks have higher rates of diarrhea than those who drink whole milk.

CHOLESTEROL: Despite all of the misinformation you may have heard, cholesterol is needed to maintain intestinal health and for brain and nervous system development in the young.

WULZEN FACTOR: A hormone-like substance that prevents arthritis and joint stiffness, the Wulzen factor ensures that calcium in the body is put into the bones rather than the joints and other tissues. The Wulzen factor is present only in raw butter and cream; it is destroyed by pasteurization.

The Weston A. Price Foundation

- Provides a reliable source of accurate nutrition information.
- Provides a strong voice against imitation foods.
- Does not receive funding from any government agency, nor from the meat and dairy industries.
- Campaigns for a return to healthy traditional fats.
- Warns consumers about the dangers of modern soy foods.
- Promotes access to unprocessed whole milk products from pasture-fed animals.
- Keeps members informed through *Wise Traditions*, a lively quarterly journal.
- Maintains two popular websites: westonaprice.org and realmilk.com.
- Helps consumers find healthy, farm-fresh foods through a system of local chapters.

Local chapter and membership information is posted at westonaprice.org, or call (703) 820-3333.

SOURCES AND FURTHER INFORMATION
Nourishing Fats by Sally Fallon Morell
westonaprice.org/know-your-fats/

Butter is Better!

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Butter and Your Health

HEART DISEASE: Butter contains many nutrients that protect against heart disease including vitamins A, D, K_2 and E, lecithin, iodine and selenium. A Medical Research Council survey showed that men eating butter ran half the risk of developing heart disease as those using margarine (*Nutrition Week* 3/22/91 21:12).

CANCER: The short- and medium-chain fatty acids in butter have strong anti-tumor effects. Conjugated linoleic acid (CLA) in butter from grassfed cows also gives excellent protection against cancer.

ARTHRITIS: The Wulzen or "anti-stiffness" factor in raw butter and also vitamin K2 in grass-fed butter, protect against calcification of the joints as well as hardening of the arteries, cataracts and calcification of the pineal gland. Calves fed pasteurized milk or skim milk develop joint stiffness and do not thrive.

OSTEOPOROSIS: Vitamins A, D and K_2 in butter are essential for the proper absorption of calcium and phosphorus and hence necessary for strong bones and teeth.

THYROID HEALTH: Butter is a good source of iodine, in a highly absorbable form. Butter consumption prevents goiter in mountainous areas where seafood is not available. In addition, vitamin A in butter is essential for proper functioning of the thyroid gland.

DIGESTION: Glycospingolipids in butterfat protect against gastro-intestinal infection, especially in the very young and the elderly. Arachidonic acid in butter helps build a healthy gut wall.

GROWTH & DEVELOPMENT: Many factors in butter ensure optimal growth of children, especially iodine and vitamins A, D and K_2. Lowfat diets have been linked to failure to thrive in children—yet lowfat diets are often recommended for youngsters!

ASTHMA: Saturated fats in butter are critical to lung function and protect against asthma (*Thorax*, Jul 2003;58(7):567-72).

OVERWEIGHT: CLA and short- and medium-chain fatty acids in butter help control weight gain.

FERTILITY: Many nutrients contained in butter are needed for fertility and normal reproduction.

SKIN: Arachidonic acid and vitamins A and D in butter help maintain healthy skin.

HOW TO PURCHASE BUTTER

BEST: Raw butter from grass-fed cows.

GOOD: Pasteurized butter from grass-fed cows.

STILL GOOD: Regular pasteurized butter from supermarkets—still a much healthier choice than margarine or spreads.

FOR SOURCES, contact the Weston A. Price Foundation and request our Shopping Guide; visit realmilk.com; or contact your nearest local chapter, posted at westonaprice.org.

Bad Things in Margarine, Shortenings and Spreads

TRANS FATS: These unnatural fats in margarine, shortenings and spreads are formed during the process of partial hydrogenation, which turns liquid vegetable oil into a solid fat. *Trans* fats contribute to heart disease, cancer, bone problems, hormonal imbalance and skin diseases; infertility, difficulties in pregnancy and problems with lactation; and low birth weight, growth problems and learning disabilities in children. Recently a U.S. government panel of scientists determined that man-made *trans* fats are unsafe at any level. (Small amounts of natural *trans* fats occur in butter and other animal fats, but these are not harmful.)

FREE RADICALS: Free radicals and other toxic breakdown products are the result of high temperature industrial processing of vegetable oils. They contribute to numerous health problems, including cancer and heart disease.

SYNTHETIC VITAMINS: Synthetic vitamin A and other vitamins are added to margarine and spreads. These often have an opposite (and detrimental) effect compared to the natural vitamins in butter.

EMULSIFIERS and PRESERVATIVES: Numerous additives of questionable safety are added to margarines and spreads. Most vegetable shortening is stabilized with preservatives like BHT.

HEXANE and OTHER SOLVENTS: Used in the extraction process, these industrial chemicals can have toxic effects.

BLEACH: The natural color of partially hydrogenated vegetable oil is grey so manufacturers bleach it to make it white. Yellow coloring is then added to margarine and spreads.

ARTIFICIAL FLAVORS: These help mask the terrible taste and odor of partially hydrogenated oils, and provide a fake butter taste.

MONO- and DI-GLYCERIDES: These contain *trans* fats that manufacturers do not have to list on the label. They are used in high amounts in so-called "low-*trans*" spreads.

SOY PROTEIN ISOLATE: This highly processed powder is added to "low-*trans*" spreads to give them body. It can contribute to thyroid dysfunction, digestive disorders and many other health problems.

STEROLS: Often added to spreads to give them cholesterol-lowering qualities, these estrogen compounds can cause endocrine problems; in animals these sterols contribute to sexual inversion.

The Many Vital Roles of Cholesterol

- Cholesterol is produced by almost every cell in the body.
- Cholesterol in cell membranes makes cells waterproof so there can be a different chemistry on the inside and the outside of the cell.
- Cholesterol is nature's repair substance, used to repair wounds, including tears and irritations in the arteries.
- Many important hormones are made of cholesterol, including hormones that regulate mineral metabolism and blood sugar, hormones that help us deal with stress, and all the sex hormones, such as testosterone, estrogen and progesterone.
- Cholesterol is vital to the function of the brain and nervous system.
- Cholesterol protects us against depression; it plays a role in the utilization of serotonin, an important "feel-good" chemical.
- Bile salts, needed for the digestion of fats, are made from cholesterol.
- Cholesterol is the precursor of vitamin D, which is formed by the action of ultraviolet (UV-B) light on cholesterol in the skin.
- Cholesterol is a powerful antioxidant that protects us against free radicals in the cell membrane and therefore against cancer.
- Cholesterol, especially LDL-cholesterol (the so-called bad cholesterol), helps fight infection and toxins.

How to Avoid Heart Disease

- Don't worry about your cholesterol—the stress of unnecessary worry can contribute to heart disease.
- Do not take cholesterol-lowering drugs—they contribute to heart failure and have many unpleasant side effects.
- Avoid processed food, especially foods containing refined sweeteners, processed vegetable oils and *trans* fats.
- Eat the meat, fat and organ meats of grass-fed animals.
- Eat plenty of wild-caught seafood.
- Do not consume protein powders, lean meat, egg whites without the yolks or skim milk. High-protein diets lacking the nutrients supplied by animal fats can deplete vitamin A, leading to heart disease.
- Eat liver at least once a week to ensure adequate levels of vitamin B12, vitamin B6, folate, iron and copper.
- Take cod liver oil and consume plenty of butter from grass-fed cows to ensure adequate levels of vitamins A, D and K2.
- Maintain a healthy weight—neither too heavy nor too thin.
- Engage in moderate exercise in the outdoors.
- Do not smoke; avoid exposure to environmental toxins.

SOURCES AND FURTHER INFORMATION
The Cholesterol Myths by Uffe Ravnskov, MD, PhD
ravnskov.nu/cholesterol.htm
westonaprice.org/moderndiseases

Cholesterol Myths & Truths

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Myths & Truths

MYTH: People with high cholesterol are more prone to heart attacks.
TRUTH: Young and middle-aged men with cholesterol levels over 300 are slightly more at risk for heart attacks. Those who have cholesterol levels just below 300 are at no greater risk than those whose cholesterol is very low. For elderly men and for women of all ages, high cholesterol is associated with a longer lifespan.

MYTH: Cholesterol and saturated fat clog arteries.
TRUTH: There is very little cholesterol or saturated fat in arterial plaque or "clogs." Most of the material is a calcium deposit akin to lime, and most of the fatty acids are unsaturated.

MYTH: Eating saturated fat and cholesterol-rich foods will cause cholesterol levels to rise and make people more susceptible to heart disease.
TRUTH: Many studies show no relationship between diet and cholesterol levels; there is no evidence that saturated fat and cholesterol-rich food contribute to heart disease. As Americans have cut back on saturated fat and cholesterol-rich foods, rates of heart disease have gone up.

MYTH: Cholesterol-lowering drugs have saved many lives.
TRUTH: In two recent trials, involving over ten thousand subjects, cholesterol-lowering did not result in any improvement in outcome.

MYTH: Countries that have a high consumption of animal fat and cholesterol have higher rates of heart disease.
TRUTH: There are many exceptions to this observation, such as France and Spain. Furthermore, an association (called a "risk factor") is not the same as a cause. In wealthy countries where people eat a lot of animal foods, many other factors exist that can contribute to heart disease.

Dangers of Statin Drugs

Modern cholesterol-lowering drugs act by inhibiting an enzyme (HMG-CoA reductase) needed for the formation of cholesterol in the liver. These HMG-CoA reductase inhibitors, called statins, are sold as Lipitor, Mevacor, Pravacol, Zocor, etc.

WEAKNESS and MUSCLE WASTING: This is the most common side effect of statin drugs, occurring in as many as one in three users. Muscle aches and pains, back pain, heel pain, weakness and slurring of speech result from statin interference with the production of Coenzyme Q_{10} (Co-Q_{10}) needed for the muscles to function.These side effects are more common in active people and may not show up until three years after commencement of treatment.

HEART FAILURE: Rates of heart failure have doubled since the advent of statin drugs. The heart is a muscle that depends on a plentiful supply of Co-Q_{10}.

POLYNEUROPATHY: Tingling and pain in the hands and feet as well as difficulty walking occur frequently in those taking statins, conditions often blamed on "old age" rather than on the drug.

COGNITIVE IMPAIRMENT: Many patients have reported memory loss and brain fog, including total global amnesia (episodes of complete memory loss). The implications for pilots and those driving cars and trucks are profound.

CANCER: In every study with rodents to date, statins have caused cancer. Most human trials are not carried out long enough to detect any increase in cancer rates, but in one trial, breast cancer rates of those taking a statin were 1500 percent higher than those of controls.

DEPRESSION: Numerous studies have linked low cholesterol with depression.

If It Isn't Cholesterol, What Causes Heart Disease?

Many scientists have put forth valid theories for the epidemic of heart disease in western societies. They include:

DEFICIENCY OF VITAMINS A, D and K2: Back in the 1930s, Weston A. Price, DDS, observed that rates of heart attack rose during periods of the year when levels of these fat-soluble vitamins in local butter went down. Modern science confirms the role these vitamins play in preventing CHD.

DEFICIENCIES OF VITAMINS B_6, B_{12} and FOLATE: Kilmer McCully, MD, PhD, demonstrated that these deficiencies lead to elevated levels of homocysteine, a marker for heart disease.

TRANS FATTY ACIDS: Fred Kummerow, PhD, and many others have linked heart disease to the replacement of saturated fats with *trans* fatty acids; saturated fats actually protect against heart disease in many ways.

MINERAL DEFICIENCIES: Deficiencies of magnesium, copper and vanadium have been linked to heart disease.

MILK PASTEURIZATION: J.C. Annand, a British researcher, observed an increase in heart disease in districts that implemented pasteurization compared to those where milk was still sold unpasteurized.

STRESS: Heart attacks often occur after a period of stress, which depletes the body of many nutrients, especially vitamin A.

Unfortunately, little funding is available for scientists to study these theories; most research on heart disease is funded through the National Heart, Lung and Blood Institute, which is firmly committed to the flawed hypothesis that cholesterol and saturated fat cause heart disease.