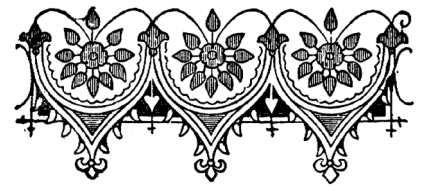


Health & Wellness



The Seedy Side of Seed Oils



Dr. Kate Thomsen and Silky

There are many questions about nutrition on the Lifestyle Questionnaire that I ask my patients to fill out prior to each visit. An overwhelming majority of patients check the box "confused about nutritional advice". And why shouldn't they be? There are so many studies with conflicting conclusions. There are so many kinds of research – each with its own strengths and weaknesses. There are different interpretations that can be made from a single study. And there are the funding issues and vested interests. Dietary and lifestyle research is even more difficult to interpret because of the many variables among individuals that can't be controlled for in these types of research studies. With that in mind, I want to review the controversial topic of seed oils and what the health concerns may be.

Prior to the early 1900's there was no such thing as edible seed oils. Now seed oils (aka vegetable oil) is the third most consumed food in the world, after rice and wheat. Vegetable oils account for 10 – 20% of our daily total calories. This is a very significant alteration in our human diet occurring in only the last 100 years. During these same years we have also seen the dramatic rise in chronic disease (heart disease, cancer, diabetes, autoimmunity, inflammatory bowel disease...) It has been postulated that our growing consumption of seed oils has contributed to this chronic disease explosion.

The late 18th century saw the start of the Industrial Revolution where machines were first used in manufacturing. The cotton gin was in use and, like other machine applications, required lubricants. Animal fats were expensive and the wasted cottonseed had oils that were unused until extraction of these oils became possible. Viola – seed oil! But this seed oil was quite toxic if ingested. Two brothers, Proctor and Gamble invented a way to refine and partially hydrogenate the cottonseed oil making it edible

and calling it Crisco. A more solid fat like lard, Crisco, introduced in 1911, had a high smoke point, did not absorb the odors from foods, and made fabulous pastries. More edible seed oils followed as the extraction processes improved and liquid corn oil, soybean oil, sunflower oil, safflower oil, and peanut oils were soon on the market. The food industry referred to them collectively as "vegetable oils" as opposed to animal oils (and because it sounded healthy) but they are more accurately called seed oils.

Crisco became the deep fat frying oil of choice in homes and especially during the rise of the fast food restaurants with their famous french fries. In the 1950s, the cholesterol/saturated fat connection to heart disease was gaining recognition and partially hydrogenated oils, like margarine and Crisco, were advertised as heart healthy alternatives. Since then, we have been on a trajectory of "anything that is not saturated fat or cholesterol" is "heart healthy" including partially hydrogenated oils, unlimited refined carbohydrates, and seed oils. (really? These have turned out to not be heart healthy.) Researchers were finding that trans fats were created during the partial hydrogenation process and these appeared to be "heart un-healthy". Crisco contained about 50% trans fats. As early as 1957 a biochemist named Fred Kummerow had research showing artery clogging and dysfunctional blood flow dynamics resulting from artificial trans fat intake. For decades, he pursued industry and government to remove trans fats from the food supply. He wasn't the only one but he was the most persistent. A 1993 paper from the Nurses Health Study showed that for every 2% increase in calories from trans fats, the risk of heart disease almost doubles.

In 2009 Kummerow filed a citizen's petition with the US FDA to ban partially hydrogenated fats from the American diet. Four years later, with no response, he filed a lawsuit to force a decision on his petition. It was 2018 and he was 98 years old. Three months later the FDA finally responded and determined that "trans fatty acids are not generally recognized as safe for any use in food". Finally!! This was 61 years after his early research and 25 years after the Nurses Health Study was published.

There are some trans fats in seed oils too. These occur when the seed oil extraction process uses heat. Canola oil, for example is 3.6% trans fats but the label reports

trans fats as zero because regulators have allowed food manufacturers to report zero trans fats if there is no more than 0.5 grams per serving.

It is important to realize how long it takes for public health policy to sort through their various vested interests and how many unnecessary deaths can be caused by inertia and conflicts of interest. We all have to think for ourselves now that our regulatory agencies are captured by industry.

Remember Olestra? In the 1990s the food industry came up with this synthetic, non-absorbed fat that could make our junk food calorie free. (Junk food for weight loss!!!!). I distinctly remember this one line in the commercial: "may cause loose stools and the inability to control them". That was not a market winner.

Palm oil is a seed oil that is semi solid at room temperature, is not hydrogenated and so contains no trans fats. It became very popular in the early 2000s and consequently the tropical environments where it was being harvested suffered deforestation and species endangerment. Public outcry has slowed the food industry from continuing to grow that market. They switched their focus to soybean oil. Soybean oil is about 50% omega 6 fatty acid, linoleic acid – a high amount. It now makes up about 14% of the average American's calories.

There are 2 "essential fats" for humans – omega 3 fatty acids and omega 6 fatty acids. In nutrition, "essential" means that it must be diet derived; it cannot be made from other fats in the body. These 2 omega fats compose a large percentage of every cell membrane in the body. They are crucial for cell membrane structure (which supports receptors for cell communication) and function (allowing themselves to be removed and be turned into inflammatory and anti-inflammatory messages). Omega 3 fatty acids (EPA and DHA in fish oil) produce anti-inflammatory messages. Omega 6 fatty acids (found in seed oils) generally produce inflammatory messages. Seed oils (grape seed, sunflower, corn, soy, cottonseed, peanut, safflower, olive, avocado...) contain varied amounts of the omega 6 linoleic acid – and there is concern that this particular fat is associated with health risks. Too many omega 6 fats cause instability of the cell membranes making them more susceptible to damage from air, heat and light. This is called oxidative damage. Oxidative stress causing inflammation is thought to be the

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Average Linoleic Content of Seed Oils

Remember, the "lesser of the bad oils" (avocado and olive) are often adulterated with cheaper oils— do your homework; buy quality oils)

Grapeseed oil	71%	Peanut oil	30%
Sunflower oil	68%	Canola oil	21%
Corn oil	56%	Avocado oil	13%
Soybean oil	55%	Olive oil	12%
Cottonseed oil	53%	Palm oil	10%
Rice bran oil	30%	Cultured Oil	3%

(Reference: Jeff Nobbs, Zero Acres Farms)



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cause of all chronic diseases. High omega 6 levels in the "exposed/external" cell membranes (skin and eyes) have long been associated with oxidative damage from exposure to air and light.

Early humans are thought to have had an omega 6:omega 3 ratio of 1:1. Currently the "6:3 ratio" ranges from 10:1 to 50:1. In my practice I definitely see the imbalance shifted towards the inflammatory omega 6s before our interventions. An imbalanced ratio has been associated with prostate cancer, breast cancer, cardiac death, skin cancers, asthma, and inflammatory joints. Obesity has been associated with an elevated 6:3 as the inflammatory omega 6s can upregulate some cannabinoid receptors causing cravings for sweet, salty and oily foods.

As mentioned above the rise in chronic inflammatory diseases has paralleled our increased exposure to linoleic acid – a fat essentially unknown to the human body 100 years ago. 6 in 10 Americans has a chronic disease. This is a 700% increase from the prevalence in 1935. Vegetable oils are in almost all processed foods as well as hygiene products and cosmetics. Where whole foods (eg, avocado) contain 0.5 – 1 or 2 grams omega 6 fats per serving, 1 Tbsp of seed oils will contain 7 – 10 grams. The average American consumed 9.5 grams omega 6 fats/day in 1909 and 40 grams/day in 2020. Soybean is the main source accounting for 45% of US dietary omega 6 intake.

Heating these omega 6 fats creates toxic by-products like aldehydes. Vegetable oil used for deep fat frying in restaurants is reused

multiple times. Each successive heating forms more toxic oxidative by-products. To avoid getting trans fats in your liquid seed oils (by-product of heat used in extraction processing) buy oils that are "cold pressed".

The Consumer Reports article (Do Seed Oils Make You Sick? 5/31/2022) defends seed oils and cites the usual academic Public Health authorities and journals. The 2019 article in Circulation that was cited looks impressive but it was funded by Unilever who gets 40% of it's revenue from processed foods and beverages (soups, bouillions, sauces, snacks, mayonnaise, salad dressings, margarine, and spreads). To me, it's biologically plausible that seed oils can be harmful to health – especially if heated. With all the take out, eat out, and packaged food consumption, we all have elevated omega 6 fats in our cells. It will take many years, but I predict it will be found to be a bad thing. For now, lower the omega 6 consumption as much as you can, balance by taking high quality, high EPA fish oil and try cooking with Zero Acres Farms Cultured oil (no trans fats, very low linoleic acid).

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