



VITALLEO™

# CHANGE YOUR OIL, CHANGE YOUR LIFE.

*Fat: The Misunderstood and  
Underutilized Macronutrient*

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E-BOOK SERIES

# CHANGE YOUR OIL, CHANGE YOUR LIFE.

## *Fat: The Misunderstood and Underutilized Macronutrient*



Fat burns cleaner than other fuels. In fact, certain fats help you to actually burn body fat, prevent inflammatory disease, and they support many of your body's most critical functions.

To truly understand nutrition, you may need to flip your old thinking upside down. Rather than view fat as "bad," think of it as your most important, efficient, and effective fuel source. In fact, the concept of low fat = healthy may be the poorest, most harmful nutritional recommendation in history.

With time and maturing science, this theory has dramatically changed.

Consider that many of the fats you eat go on to make up your body's cells and tissues. Perhaps most importantly, they make up the outer layer of your cells (the membrane). This outer membrane, which orchestrates much of inner cellular health, requires a particular balance of the different fats that make it up.

Body tissues are made up of many fatty acids. These include saturated Palmitic acid, monounsaturated Oleic acid, and the Omega-3, 6, and 9 Highly Unsaturated Fatty Acids (HUFAs). So most fats are critical to your cells and body function. **So as strange as it sounds, to be truly healthy, you need to eat a bunch of different kinds of fats.**

What's likely most important for you at this point, is that you get your fats in the right balance, at the right levels, and add some important fats on a regular basis that you are currently missing in your diet.

### **The Critical Omega-3 and Omega-6 Fat Balance**

There are two types of fatty acids that your body can't synthesize on its own: Omega-3's and Omega-6's Polyunsaturated Fatty Acids (PUFAs). This makes them essential nutrients, which means you can't live without consuming both.

**This balance is critically important because these two fats take different paths in your body:**

- The Omega-3 PUFAs you ingest are or become the highly unsaturated fatty acids (HUFAs) known as EPA and DHA. This path is healthy, anti-inflammatory.
- The Omega-6's become arachidonic acid (AA), another HUFA. This path is unhealthy, inflammatory.

While you need some Omega-6 and inflammation in your body for normal immune function, our modern diets provide radically too much inflammation. The big metabolic challenge is that the 3's and 6's compete for the enzymes needed to go down their anti-inflammatory or inflammatory path. Other variables like trans-fats can also inhibit this conversion.

Too many Omega-6's will overtake the Omega-3's in your tissues and leave you in an unhealthy, inflammatory state. Inflammation is at the root of all pain, symptoms, and disease. It is vitally important not to let your Omega-6 levels dwarf Omega 3's. Yet this is exactly what has occurred in the vast amount of people in the "modern" world. The average American eats between 10 and 30 times more Omega-6 fatty acids than Omega-3 fatty acids leaving their systems with 80% Omega-6 compared to 20% Omega-3.<sup>1</sup> Many healthier cultures have a 60% Omega-6 to 40% Omega-3 balance. These large amounts of Omega-6 fatty acids largely come from vegetable, corn, soybean, and nut oils along with commercial animal products. For example, corn oil has 46 times more Omega-6 than 3.<sup>2</sup>

**The famous MRFIT study and studies of other cultures show that people with the lowest percentage of Omega-6's in HUFA had the lowest death rate.<sup>2</sup>** In fact, as other cultures like Japan become more westernized and their percentage of Omega-6's goes up, we can observe rapidly growing levels of cardiovascular disease.<sup>3-5</sup>

*Remember: Omega-6's are essential to your body. You just don't need that much of them. You only need somewhere between a half of a percent<sup>6</sup> of your entire calorie intake to 3% of your entire fat calorie intake to meet your daily need.*

## Omega Balance, Disease, and Inflammation

Omega-6 fats lead to the formation of "eicosanoids." This is a group of hormones involved in your body's inflammatory process. When Omega-6 levels get high, the body can go into a state of chronic and dangerous inflammation leading to cardiovascular disease and other severe conditions and diseases. In fact, the action that allows many painkillers like aspirin to work is by inhibiting the enzymes that convert Omega-6 to inflammatory agents (Called prostaglandins).<sup>7</sup>

**Over time, it's been estimated that the overabundance of Omega-6's and the resulting deficiency of Omega-3's is involved in the causes of heart disease, vascular disease, homicide, depression, bronchial disease, and many other brain, joint, and organ disorders.<sup>1, 8-10</sup>**

The Omega-3's in your body can compete for, slow down, and even stop the formation of these inflammatory Omega-6 hormones. This fact led to the discovery that increasing Omega-3 HUFAs as a percent of your body's lipids could prevent diseases caused by Omega-6 inflammation.<sup>8,11,12</sup> In all, the science has shown a number of benefits to health and wellness when you get enough Omega-3 fatty acids in your diet.

## Changing Your Oil

How do you achieve an adequate balance of Omega-3's and Omega-6's in your body? The balance of these fats in your body correlates with the balance in your diet and supplementation.

### Omega-3 and Omega-6 Polyunsaturated Fatty Acids

Now that you know what these fatty acids do in your body, let's take a second to examine exactly what they are—and where you can find them.

**The Omega-3 fatty acids commonly found in the diet:**

- **EPA: Eicosapentaenoic acid (typically found in marine food sources like fatty fish and algal oil)**
- **DHA: Docosahexaenoic acid (ditto with EPA – fatty fish and algal oil)**

#### *EPA/DHA Benefits*

In all, the science has shown a number of benefits to health and wellness when you get enough of these Omega-3 fatty acids in your diet: neurological health and development, weight loss, increasing lean muscle mass, lowering triglycerides, preventing and reducing arthritis, reducing high blood pressure, protecting against stroke, helping in the fight against cancer, the wellbeing of eyes, and diminishing depression.

#### **ALA: Alpha-Linolenic Acid**

Found in flax and chia seeds and in vegetables.\* It is Omega-3, but does not contain EPA or DHA.

#### *ALA Benefits*

In moving our bodies towards an anti-inflammatory pathway, ALA helps fight against pain and auto-immune diseases. Humans can convert ALAs found in nuts and seeds into EPA and DHAs, but we're not very good at it—that's why you need to make it a point to eat fatty fish or supplement with fish and algal oil which have the EPA and DHA in them already. *\*ALA also occurs in hemp seeds and walnuts. However, hemp seeds and walnuts contain a high quantity of linoleic acid so are really better defined as sources of Omega-6 linoleic vs. Omega-3 ALA.*

#### **Omega-6, Linoleic Acid**

These fats are "formally known as good fats." While linoleic acid is an essential nutrient, it is overly available, so deficiency isn't a concern. In fact, over-consumption of Omega-6 has become a concern related to a host of health problems and diseases related to inflammation. It's found abundantly in vegetable, nut, and seed oils as well as commercial animal products.

## What's Your Score?

### Omega-3 and 6 Balance

To cut back on the 6 and increase the 3, one of the most important nutritional numbers to track is your Omega-3 to Omega-6 balance score. This balance is an *extremely* important dynamic. You'll want your score to be as positive as possible in your fight to moderate inflammation, slow down aging, and help in the prevention of disease.

For this score, you're looking for foods with a positive or plus (+) in front of them. While some foods contain Omega-3's, if they also contain a whole lot of Omega-6's, then they still have a negative (-) Omega-3 balance score.<sup>6</sup> The more negative the score, the more inflammatory Omega-6 food you have and the more positive Omega or +3 score you have the more anti-inflammatory, Omega-3 food it is.

## POSITIVE (+3)

**Fish** is the richest source of Omega-3 fatty acids and contains the HUFAs EPA and DHA, which means they don't have to be converted inside your body. Mackerel, for example, is a +109 and Salmon a +73.

The goal is to eat fish 1-2 days a week. However, the challenge of finding clean sources of wild (and not toxic farm-raised) fish makes this difficult. *Clean, purified fish oil supplementation is an excellent alternative.*

**Algal Oil** has a similar DHA content as fish and is an excellent, clean source.

**Flax and chia seeds** have high levels of Omega-3 PUFAs and are (+32) and (+24) respectively, but do not add the EPA and DHA that are so important to human health. They are great to add to your diet through adding fresh crushed flax seeds and whole chia seeds to your foods.

**“Good fats” with negative (-3) scores.** Some foods containing what are called “good fats” may surprise you with their negative scores. **Olive oil and avocado** are each -10. **Cashews are -14 and Almonds are -21. Pumpkin seeds are -38, sunflower are -39, and safflower are -54. Yikes!** What's more, if you roast your sunflower seeds in Omega-6 vegetable oil they rate a -58. Roasting also heats the PUFAs, which causes them to oxidize. More on that later in this chapter.

The most shocking negative scores come from foods known as quality sources of Omega-3's. The problem? Too high a ratio of Omega-6's:

- **Walnuts: black (-50) and English (-44)**
- **Hemp oil: (-39)**
- **Grape seed oil is also “touted” healthy, but its score (-79) suggests otherwise**

## Oh, Nuts!

Nuts and seeds are high in Omega-6's. On the other hand, they are mostly low carb, low glycemic, whole foods that provide natural proteins and other quality nutrients. While they shouldn't make up a high percent of your daily diet, a couple of handfuls a day can help you find a good, low carb snack and provide other good health benefits.

**Vegetables: Many vegetables are great sources of Omega 3's.**

- Seaweed provides up to a +25 score and is the only plant that contains DHA and EPA directly.
- Spinach, lettuces, broccoli, cauliflower, squash, and Brussels sprouts are all decent sources of ALA, ranging from +1 to +4.

**Meat and Dairy Fat Fact Check:** You'd be surprised at how the Omega-3 content of animal protein can be changed when your food is raised well. Grain-fed, commercial cows accumulate more Omega-6 in their tissues than naturally grass-fed cows and have much lower Omega-3's.<sup>13</sup> Grass-fed, grass-finished cows have excellent Omega-3/Omega-6 ratios. Similarly, chickens raised in the pasture, getting sunlight and eating their natural diet of greens and bugs, contain higher levels of Omega-3's in their meat and eggs than the un-natural, feed-fed chickens raised on corn and soy.<sup>14</sup>

## Improve Your Omega Score

Adding fish and algal oil supplementation to meals can up the Omega-3 levels to balance out the really negative score of commercial food products.

## Monounsaturated Fats: The Good and the Concerns

Monounsaturated fats, commonly found in oils, nuts, and avocados have benefits beyond their overall healthy fat. They also contain phytochemicals that can reduce inflammation and help you fight disease. A little known fact is that monos are also found in high quantities in animal sources such as whole butter, beef, eggs, and chicken.

Monounsaturated fats are made up of Oleic acid, an Omega-9 and Palmitoleic acid, an Omega-7. Omega-9 is renowned for its favorable effects on blood cholesterol markers. Palmitoleic acid, found in sources like Macademia oil, and has shown similar benefits to Oleic and found helpful to insulin sensitivity.

### Don't Overdo Monos!

People will often over-consume monounsaturated fats since they are considered a good fat. Like with many fats, there are very real benefits. Yet, monos are fats that are found in the body fat you don't want in your body – fat stored in your waist, buns, thighs, and other unwanted areas. Also, these healthy foods still have slightly negative Omega-3 scores.

For any good foods with negative Omega-3 scores like monounsaturated fats, Omega-3 supplementation can help easily balance this out. It's generally hard to get the right "Oil Change" without Omega-3 supplementation.

## The Other Power Fats!

Now that you know where to find Omega-3's, both in your diet and in supplements, it's time to talk about other key fats to get in or out of your diet. **Medium-chain Fatty Acids (MCFAs), also known as Medium Chain Triglycerides (MCTs)** are extremely beneficial and not present in nearly a large enough amount in our diets to experience the great benefits. The value MCTs provide is incredible. They burn quickly for energy, help us burn fat, allow us to fight disease causing microbes, have anti-aging properties, assist us in controlling our appetites, inhibit inflammation, contain anti-oxidant polyphenols to help us fight disease-causing free radicals, and improve bio-markers for heart disease and diabetes. The best way to get them is by supplementing the MCTs found in coconut oil: Capric acid, Caprylic acid, and Lauric acid and consuming coconut products.

### Medium-Chain Fatty Acids (MCFAs)

*Capric and Caprylic acid are medium-chain triglycerides from coconut or Palm oil and MCT supplements. Lauric acid, a medium-chain triglyceride found in high quantities in human breast milk, coconut products, and supplements.* NOTE: Due to their mode of digestion, MCTs are the best fat to use for those without a gallbladder or with gallbladder issues.

### MCFAs/MCTs Benefits

- Burned quickly for energy
- Lower in calories than long-chain fatty acids
- Lauric acid is anti-microbial
- Contain potential anti-aging properties
- Used frequently as supplements for burning fat and retaining lean mass
- Help with appetite control, making them highly useful for fat loss.
- Used for treatment in Cystic Fibrosis, Alzheimer's disease, and childhood seizures.<sup>15</sup>
- Inhibit inflammation, which helps explain a reduced risk of cardiovascular disease (CVD)
- Includes polyphenols, a group of natural antioxidants
- Helps improve health markers for sufferers of diabetes, including CVD risk

## The Oil Change

Modern society has you getting the mass majority of your fats from Omega-6's, eating too many trans-fats, and getting very, very little Omega-3's. As we'll cover, among other things, Omega-6 is involved in creating inflammation and Omega-3 is anti-inflammatory.

It's also likely that you're eating a lot of commercially raised animal products which contain toxins and a poor, unbalanced assortment of fats. Naturally raised, grass-fed and finished beef and free-range, naturally fed chicken along with their eggs.

Monounsaturated fats from whole foods like Extra Virgin Olive oil and raw almonds are lacking in many diets. For some, there an overemphasis on monos, and an under-emphasis on Medium Chain Triglycerides (MCTs) from coconut oil that aren't found in body fat and help you to actually burn fat.

Fat is good, but we have to change the priority of which fats you eat along with the subsequent changes in amounts. As mentioned, modern society has you getting the mass majority of your fats from Omega-6's, eating too many trans-fats, and getting very, very little from Omega-3's. It's also likely that you're eating a lot of commercially raised animal products which contain toxins and a poor, unbalanced assortment of fats.

What's Wrong with Most People's Current Fats?	
Omega-6's	WAY TOO MANY
Omega-3's	WAY TOO FEW
MCT's	TOO FEW
Monounsaturated Fats	TOO FEW — TOO MANY
Trans-Fats	ANY IS TOO MANY

### The Oil Change to Experience Better Health?

1. Increase Omega-3 fats from highly unsaturated DHA and EPA from fish and algal oil. (Plus, add ALA from flax and chia seeds)
2. Add MCTs from coconut products like coconut: milk, oil, flour, butter, and yogurt.
3. You already may eat plenty of monounsaturated fats found in olive oil, avocado, raw nuts and seeds. Add if you do not.
4. Eat clean saturated fats from pasture-raised cows and chickens along with their dairy products and eggs.
5. Radically reduce Omega-6 fats
6. Avoid trans-fats

There you have it: a simple formula for changing your life. Now, let me explain why it works.

## Tips to Changing Your Oil

### 1. Add Fish Oil and Algal Oil

There are not many great, clean sources of fish. It is recommended to only eat fish 1-2x a week and from the safer fish list. In addition, supplement using clean, filtered fish oil and Algal Oil.

**SAFE FISH LIST: Farm raised fish have higher polychlorinated biphenyls (PCBs) than wild caught fish. PCBs have been linked to cancer. 16 Wild caught sardines, tilapia, salmon, flounder, and herring have potentially less chemicals like mercury and PCBs than other fish do.**

The only way to healthfully consume adequate amounts of EPA/DHA is by consuming a purified Omega-3 fish oil coming from small, wild-caught fish and salmon for additional safety and purity. Additionally, more DHA and some EPA can be found by consuming vegan Algal Oil.

### What is Algal Oil?

Algal Oil comes from marine algae and is a potent, vegan source of DHA and some EPA. Studies show that due to its high level DHA, Algal Oil is beneficial for:

- The Central Nervous System
- Pregnancy
- Mood
- Eye Health
- Cardiovascular Health:
- Insulin sensitivity
- Immunity
- Skin and Nails
- Muscle to body fat ratios

Algal oil tends to be more abundant in DHA, 35% than EPA, 3%. As EPA is an essential, critical nutrient adding fish oil is vital to add and complete the ideal fatty acid profile.

### 2. Add Chia or Flax Seeds

In yogurt, smoothies, or on salads.

### 3. Add Medium Chain Triglycerides

Coconut milk in your smoothies, cook at moderate heat with coconut oil, recipes using coconut flour.

### 4. Reduce the 6's

Reduce your consumption of roasted nuts, vegetable, nut or seed oils in packaged and prepared foods, and eat as little commercial meat and dairy products as possible.

### 5. Monounsaturated Fats

Increase your use of extra virgin olive oil on salads instead of commercial dressings, avocados, a couple of handfuls of almonds, hazelnuts, or macadamia nuts. As mentioned, this can be over-done.

### 6. Animal Products

From good, clean sources. Eat grass-fed, grass finished hamburger or steak, pasture raised and organic chicken and eggs, organic, grass-fed cheese and butter (raw is best if possible).\*

## E3 - The Simple Supplementation Solution

To make it even more simple, there's a supplement we recommend called E3 that contains Fish Oil, Algal Oil, MCTs, and 3000 IU of Vitamin D.

In one dropper-full, you get the full spectrum of DHA, EPA, MCT oil while addressing another vitamin critical to human health, Vitamin D. Vitamin D is a commonly deficient and studies show that low Vitamin D levels increase the risk of type 1 diabetes, pain, depression, and cancers of the breast, colon, prostate, ovaries, esophagus, and lymphatic system. As it's unlikely you'll get the amount of Omega-3's needed from your diet alone, supplementation is usually necessary.

### **Cardiovascular Disease, Inflammation and Fats**

Studies also show that high-fat diets can out- low-fat diets in relation to inflammatory markers,<sup>5</sup> further demonstrating that high-fat diets are healthful especially when it comes to inflammation. This plays heavily into the importance of the oil change for common conditions such as coronary heart disease, high cholesterol, and high blood pressure.

### **Fatty Acids and Pregnancy**

EPA and DHA are already crucial nutrients no matter what your pregnancy status. They're also critical during those critical months, helping especially with vision.

In addition to being critical during pregnancy, it's important to intake EPA and DHA during breastfeeding. Considering that as much as 50% of the energy found in breast milk is in the form of fat (especially the fatty acids EPA and DHA), this should come as no surprise. Women eating plant-based diets with limited access to fish or fish oil may find that the fatty acid composition of their breast milk is not as favorable.<sup>17</sup> Daily supplementation of DHA also decreases the risk of the child developing food allergies and even eczema during the first year of its life.

**Pregnant women should really cut back on fish or avoid altogether due to toxicity concerns an focus on filtered oil and algal only. Studies have shown that maternal supplementation of AA and DHA is associated with long-term positive effects in neurodevelopment in the baby.<sup>18-21</sup>**

If that wasn't reason enough to think about EPA and DHA, consider that there have been some studies showing benefits in supplementing baby formula with these fatty acids. Unsurprisingly, the studies suggest that these can aid in visual and neural development.<sup>22-23</sup>

To further foster a healthy breast milk profile, consider making sure that you're getting enough Lauric acid during the months of breastfeeding. The MCT-oil, Lauric acid's anti-microbial properties can help infants stave off illness early on. As discussed previously, you can find Lauric acid in coconut products and supplement MCTs as well.

## APPENDIX

### Cooking Oils and Trans-Fats

#### Cooking Oils

##### *Fats, Cooking, and Oxidation*

One factor to be aware of when adding fats to the diet is rancidity. This refers to the oxidation of fats, which gives off free radicals that are very harmful to the body. Just as different sources of fat have different smoke points (temperatures at which they begin breaking down), so too do these fats have different oxidative properties.

Heated and oxidized PUFAs are bad. Vegetable, nut, and seed oils contain high levels of PUFAs, which makes them unstable. They oxidize easily due to the presence of double bonds in their chemical makeup. Therefore, using these oils for cooking, frying, and deep-frying, exposes you to the detriments of oxidation.

Deep-fried, dehydrated, and powdered foods are other dietary sources of oxidized products. What's more, dietary oxidized lipids are absorbed through the small intestine, incorporated into lipoproteins, and are released into the blood, where they can increase the risk of cardiovascular disease. It's not the LDL, but the inflamed and/or oxidized LDL that is so atherosclerotic and dangerous.<sup>24</sup>

##### *The Best Oils for Cooking*

**Peanut oil** is known for its high smoke point, making it one of the best cooking oils for frying. Frying, however, causes oxidation of fatty acids, and destroys any antioxidants contained in them, which is why we don't recommend fried foods or cooking at high temps. Some of the oxidation dangers can be avoided by cooking with good old-fashioned grass-fed beef tallow. Your great-great grandmother who lived to 110 and died mowing the back yard did it this way.

**Saturated fats** tend to be more stable, meaning that they're less likely to oxidize over time. Coconut oil, tallow, butter, and lard are all fats that are considered highly stable and not subjected to going rancid quickly. They tend to have lower smoke points, however, which is a consideration in cooking. Because of its stability and nutritional value, coconut oil is what we most often use in our house and recommend to our patients. Of course, we don't fry anything and coconut oil is not suitable for frying.

**Monounsaturated fats** can be used at low temperatures, but are best just added to cold, raw food, or food that's already been cooked. Olive oil includes saturated fats that help keep it stable, not to mention the fact that it only has the one (mono) susceptible bond. This makes olive oil more stable than polyunsaturated fats, but it still should only be used at low temperatures if heated at all. It shouldn't be used at high temperatures.

**Polyunsaturated fats**, especially those found in vegetable oil, can be a little trickier. They're the quickest to go rancid, which is especially true when they're heated; there's a reason you don't cook with fish or flax oil.

**Grape seed oil** is considered to be good for cooking because of its high smoke point. Yet, with its vulnerable chemical makeup, this fat will go rancid and oxidize as well.

**To eat safe fat that hasn't gone rancid, be sure to adhere to the following tips:**

- Keep fats stored at room temperature. Storing in the refrigerator will extend their life even more.
- Keep polys and monos out of the heat or sun.
- When in doubt, use fats with fewer double bonds. The fewer oxygen bonds, the less likely your fat is to have oxidized. Monounsaturated fats have fewer double bonds than polyunsaturated fats and saturated fats have none.

### ***Trans-Fatty Acids***

If there's one fat you always want to avoid, it's the fat present in trans fatty acids. Most trans-fats are created through hydrogenation, the addition of extra hydrogen molecules to largely unsaturated oils, such as corn, vegetable or soybean oil.<sup>25</sup>

You might think of it as a "man-made" fat, and like so many other man-made foods, it's something to avoid. Hydrogenation can move double bonds from their naturally occurring positions. After hydrogenation, the oil is termed "partially hydrogenated" (a term you're likely familiar with if you read food labels) and it contains trans fats. *Here's the low-down on trans-fats:*

<b>Trans-Fatty Acids: The Facts</b>
<b>Initially created as an alternative to animal-based saturated fat, it turned out the alternative was much worse.</b>
<b>Trans-fatty acids are not only unessential, but actively increase your risks for a number of health problems, the most obvious of which is cardiovascular disease.</b>
<b>Rule of thumb: If it says "hydrogenated or partially-hydrogenated oil" on the back, don't eat it.</b>
<b>Foods: Margarine, packaged foods, cake mixes, donuts, food fried in partially-hydrogenated oil, processed baked goods, cookies, etc.</b>

### ***Health Comments***

- ***Trans-fat was found to be a cause of weight gain known as an "independent factor." In other words, if you eat trans fats, you're more likely to put on weight.***<sup>26</sup>
- ***Trans-fats were found to both lower HDL and raise LDL, which are associated risk factors for heart disease.***<sup>27</sup>

Why do so many manufacturers use these hydrogenated oils in their products? Traditionally, food manufacturers mostly used natural animal fats like lard and butter when producing fried and baked goods. When scientists erroneously showed up and suggested a link between (saturated) fats and heart diseases, people wanted alternatives, and the manufacturers gave it to them.

There are a few advantages to hydrogenated oils; but all of the benefits are for the manufacturers and none are for your health. They're stable, easy to store, and they often taste good.

The problem is that the research is pretty clear on the fact that trans fats can increase LDL cholesterol as well as the risk for heart disease. But they do more than that: they also impair your ability to process Omega-3 and Omega-6 fatty acids properly. As you've seen, this leads to virtually any disease.<sup>28-29</sup>

**You can avoid these trans-fats by following a few rules of thumb:**

- Avoid fast and deep-fried food
- Scour through nutrition labels and watch for "hydrogenated and partially hydrogenated oils."
- Read labels for "trans-fats" – but realize that manufacturers can put "0 trans-fats" by reducing serving size. If the total per serving is small enough, you can still put a 0 on the score board.

**The science on trans-fats is in, and it's not good. Stay away from them if you want to improve your health.**<sup>30-32</sup>



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