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Take Control of Your Health

# Vegetable Oils Wreck Your Gut

Analysis by Ashley Armstrong | March 11, 2024

## STORY AT-A-GLANCE

- Saturated fats are stable molecules and are protective. Unsaturated fats are unstable and can cause a lot of damage when consumed in excess
- Vegetable oils, high in polyunsaturated fats (PUFAs), can disrupt your metabolic rate, increase gut permeability and induce gut dysbiosis and inflammation. High PUFA intake also shifts your gut microbiome, which can affect your overall health
- High PUFA intake can also have a detrimental impact on your thyroid and metabolic health by affecting cells' use of thyroid hormones
- For optimal health, eat real, whole foods, and prioritize animal fats that are rich in stable, protective saturated fats

**You may have heard about how bad vegetable oils are by now. But have you ever wondered why? My biggest beef with vegetable oils is that they negatively impact your metabolic rate and gut health — the two most important factors that impact your state of health.**

**So, yah. It's kind of a big deal that our food system is centered around them. And that mainstream nutrition advice from Harvard still recommends vegetable oil as a "healthy fat" because it lowers serum cholesterol.**

**But what about the well-known fact that PUFAs (polyunsaturated fats) are very unstable molecules? (And vegetable oils are high in PUFAs, specifically linoleic acid, an omega-6).**

> *"Polyunsaturated fatty acids (PUFAs) are highly susceptible to lipid per oxidation because of their unstable double bonds.*[1]
>
> *PUFAs, in this sense, are like delicate glass ... When glass shatters, it invariably leaves behind a mess of dangerous shards ... Likewise, when PUFAs shatter they leave behind shards such as MDA, which are capable of damaging proteins, DNA and other structurally and functionally important components of our cells."* ~ Chris Masterjohn, Ph.D.[2]

Having more of these fats around creates a damaging internal environment in your body. Thus, there are long term negative health consequences with high PUFA consumption. Let's discuss a few of these consequences.

## Vegetable Oils Increase Gut Permeability

First, vegetable oils wreak havoc on the gut by increasing tight junction permeability.[3] Tight junctions play an important role in intestinal barrier function by maintaining selective permeability. Well, unfortunately, PUFAs can increase the permeability of tight junctions. (Not what we want!)

In one study, the omega-6 PUFA rich diet increased host inflammation, oxidative stress, and gut barrier dysfunction:[4]

> *"The corn oil diet, rich in omega-6 polyunsaturated fatty acids, increased the potential for pathobiont survival and invasion in an inflamed, oxidized and damaged gut while saturated fatty acids promoted compensatory inflammatory responses involved in tissue healing.*
>
> *We conclude that various lipids uniquely alter the host-microbe interaction in the gut. While high-fat consumption has a distinct impact on the gut microbiota, the type of fatty acids alters the relative microbial abundances and predicted functions. These results support that the type of fat are key to understanding the biological effects of high-fat diets on gut health."*

## Why Simply Taking More Omega-3 Isn't the Answer

Okay so I will just up my omega-3s, the healthy PUFAs, right? Ehh, not so fast. High dietary omega-6 PUFA consumption has been shown to shift the gut microbiome and can induce gut dysbiosis and inflammation.[5]

But the authors of this study point out that while omega-3 PUFAs may lead to short-term inflammation reduction, this was due to immune suppression, which eventually led to other health problems and increased mortality.

Saturated fats are stable molecules and are protective. Unsaturated fats are unstable and can cause a lot of damage when consumed in excess. So, it makes sense why the gut can be damaged in the long run with high PUFA consumption.

> *"Clinically, excessive $\omega$-6 polyunsaturated fatty acid (PUFA) and inadequate $\omega$-3 PUFA have been associated with enhanced risks for developing ulcerative colitis. In rodent models, $\omega$-3 PUFAs have been shown to either attenuate or exacerbate colitis in different studies.*
>
> *We hypothesized that a high $\omega$-6: $\omega$-3 PUFA ratio would increase colitis susceptibility through the microbe-immunity nexus. To address this, we fed post-weaned mice diets rich in $\omega$-6 PUFA (corn oil) and diets supplemented with $\omega$-3 PUFA (corn oil + fish oil) for 5 weeks. We evaluated the intestinal microbiota, induced colitis with Citrobacter rodentium and followed disease progression.*
>
> *We found that $\omega$-6 PUFA enriched the microbiota with Enterobacteriaceae, Segmented Filamentous Bacteria and Clostridia spp., all known to induce inflammation. During infection-induced colitis, $\omega$-6 PUFA fed mice had exacerbated intestinal damage, immune cell infiltration, prostaglandin E2 expression and C. rodentium translocation across the intestinal mucosae.*
>
> *Addition of $\omega$-3 PUFA on a high $\omega$-6 PUFA diet, reversed inflammatory-inducing microbial blooms and enriched beneficial microbes like Lactobacillus and*

*Bifidobacteria, reduced immune cell infiltration and impaired cytokine/chemokine induction during infection.*

*While, $\omega$-3 PUFA supplementation protected against severe colitis, these mice suffered greater mortality associated with sepsis-related serum factors such as LPS binding protein, IL-15 and TNF-$\alpha$. These mice also demonstrated decreased expression of intestinal alkaline phosphatase and an inability to dephosphorylate LPS.*

*Thus, the colonic microbiota is altered differentially through varying PUFA composition, conferring altered susceptibility to colitis. Overall, $\omega$-6 PUFA enriches pro-inflammatory microbes and augments colitis; but prevents infection-induced systemic inflammation.*

*In contrast, $\omega$-3 PUFA supplementation reverses the effects of the $\omega$-6 PUFA diet but impairs infection-induced responses resulting in sepsis. We conclude that as an anti-inflammatory agent, $\omega$-3 PUFA supplementation during infection may prove detrimental when host inflammatory responses are critical for survival."*[6]

## PUFAs Negatively Impact Thyroid and Metabolic Health

Another consequence of high PUFA consumption is that PUFAs can negatively impact thyroid and metabolic health since they interfere with your cell's ability to utilize active thyroid hormone. It's great that our body can convert T4 to active T3. But to increase energy production, our cells must be able to access that T3.

In fact, tissue T3 levels are different than serum T3,[7] which is why one of the best ways to assess metabolic and thyroid health is through body temperature and pulse measurements (**which I discuss in depth here**), since higher cellular T3 increases the metabolic rate, raises body temperature, and increases our pulse.[8] Understanding this helps us realize why it's a bad thing that PUFAs interfere with your cell's ability to use active thyroid hormone, T3.

*“Safflower oil [high in Omega-6 PUFA] was more effective than tallow as a repressor of T3 action ... polyunsaturated fats uniquely suppress the gene expression of lipogenic enzymes by functioning as competitive inhibitors of T3 action, possibly at the nuclear receptor level.*[9]

*The potency of unsaturated fatty acids for INB (Inhibition of Nuclear T3 Binding) was greater than of saturated fatty acids, and increased with the number of double bonds.*[10]

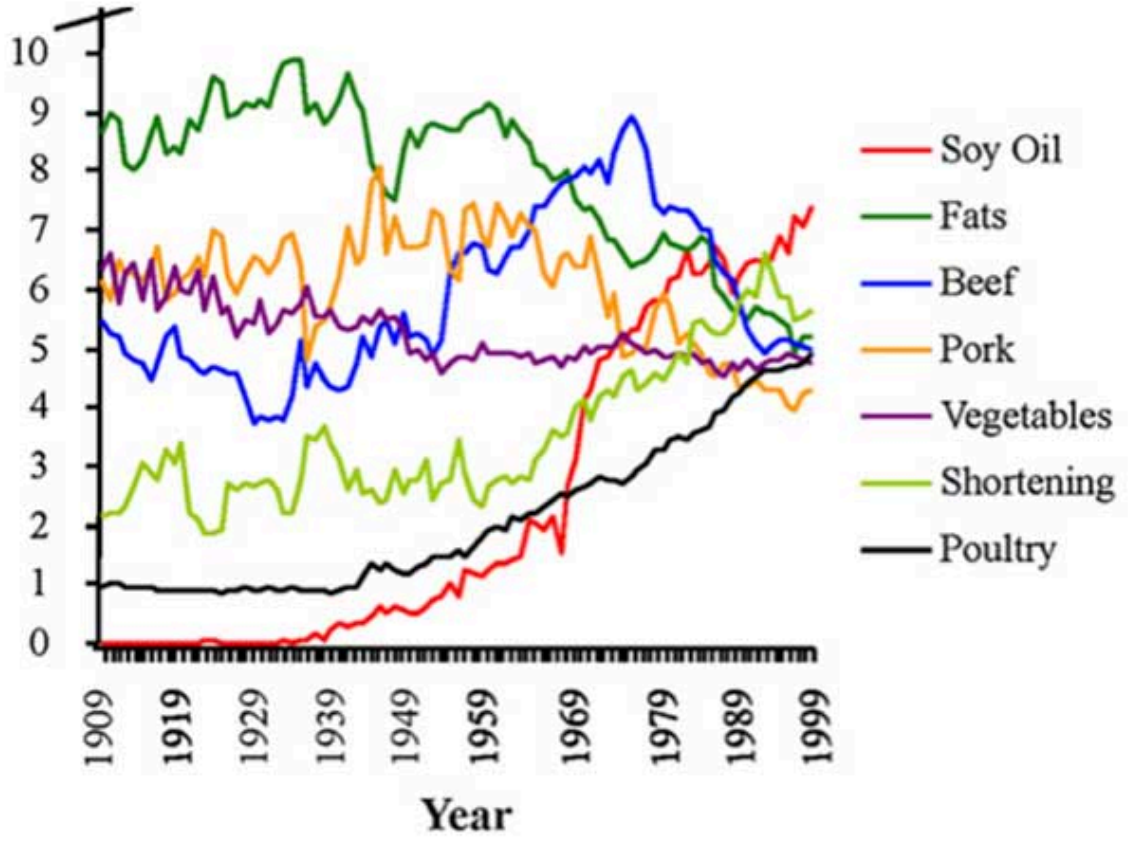
*The effects of selected fatty acids (linoleic - PUFA, oleic - MUFA, and palmitic - SFA) on triiodothyronine (T3)-receptor binding were compared ... the rank order of potency for inhibition was linoleic acid greater than oleic acid greater than palmitic acid."*[11]

## Take a Sensible Approach

It's never about extremes. You cannot eat a zero PUFA diet and that is not the goal. But you do not need to over consume PUFAs. You do not need to add more omega-3s to your diet if you are consuming animal fats. You do not need to add fish oils, you do not need to force flax seeds down your throat. And you certainly don't need to increase your vegetable oil consumption.

Instead, eat real, whole foods. And for your fats, prioritize animal fats that are rich in the stable, protective saturated fats. Just like your great grandma. This will provide your body with more of an optimal fatty acid profile without over thinking it. Plus, this approach just makes sense.

Vegetable oils did not exist 100 years ago. People did not force fish oils down their throat. They enjoyed a diet rich in animal products, and consumed saturated fat without fear. And the rates of autoimmune and chronic diseases we face today was certainly not as high.




There was a 1163 fold increase in soybean oil consumption from 1909 - 1999. PMID: 21367944

American Journal of Clinical Nutrition; May 2011; 93(5): 950-962

## About Angel Acres Egg Co. and the Nourish Cooperative

What your food eats, matters — as pigs and chickens are vehicles for vegetable oils. (So if their diet is high in PUFAs, the final product will contain more PUFAs). With the current agriculture system, knowing where your food comes from is vital. The article was written by Ashley Armstrong, who is passionate about providing the highest quality food possible.

Armstrong is the cofounder of Angel Acres Egg Co., which specializes in low-PUFA (polyunsaturated fat) eggs. We **discussed the importance of low-PUFA eggs in a recent interview**, embedded above for your convenience.

Angel Acres Egg Co. ships Low PUFA eggs to all 50 states — but there is currently a waiting list as she slowly increases the number of chickens within the network to fulfill the demand. More egg boxes will be available this spring - join the waitlist for low PUFA egg boxes here.

Armstrong also co-founded Nourish Cooperative which ships the best low PUFA pork, beef, cheese & A2 dairy and traditional sourdough to all 50 states. They are also close to accepting new members to the farm cooperative - join the waitlist here: nourishcooperative.com.

In the video segment above Ashley reflects on the timeline of her decision to invest her free time into regenerative farming. Considering how just a few years ago, her health was far from ideal. She struggled with mitochondrial energy production, and her body was in a low thyroid state. Your body prioritizes energy for essential tasks, and decision-making requires significant energy.

Your brain consumes about 20% of your body's energy despite being only 2% of its weight. Ashley simply would not have had enough cellular energy to supply her brain to make a decision like she did unless she improved her health. Factors like excess linoleic acid, estrogen and endotoxins were depleting her cellular energy, which is crucial for making energy-intensive decisions.

Her transformation underscores the power of nurturing your health to gain the energy necessary for making significant life changes. Avoiding dietary pitfalls like seed oils played a key role in this journey, enabling her to tap into a newfound capacity for brave decisions — a testament to the profound impact of regaining cellular energy on her ability to navigate life's choices.

It is my sincere desire and hope that you consider her journey to inspire and empower you to make similar choices in your own life and reclaim the Joy that you deserve. Imagine experiencing the nearly limitless Joy that Ashley has with her 1,000 chickens and four Livestock Guard Dogs below.

## Sources and References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- [5, 6] PLOS ONE 2013; 8(2): 55468
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- [11] Metabolism July 1992; 41(7): 788-792