

Omega-6 Linoleic Acid in Our Food System

Analysis by [Dr. Joseph Mercola](#)

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STORY AT-A-GLANCE

- › Linoleic acid (LA), a fat once rare in the human diet, now makes up as much as 25% of daily calories for many Americans and accumulates in fat tissue for years, disrupting metabolism and fueling chronic disease
- › Even "clean" foods like chicken, pork, nuts, olive oil, and avocado oil contain high levels of LA or are adulterated with vegetable oils, making it easy to exceed safe intake levels without realizing it
- › LA doesn't just stay in your fat; it breaks down into toxic compounds that damage your mitochondria, the energy factories in your cells, contributing to fatigue, insulin resistance, and hormonal dysfunction
- › Oils marketed as safer alternatives, like those from Zero Acre Farms, are genetically engineered and high in oleic acid, which causes similar mitochondrial damage and should also be avoided
- › The most effective way to protect your health is to eliminate industrial vegetable oils and replace them with stable animal fats like ghee, tallow or grass fed butter, while choosing low-LA meats like beef and lamb

For years I've been warning about one of the most dangerous shifts in the modern food supply — one that nearly everyone is still overlooking. It's not sugar. It's not healthy carbs. It's a polyunsaturated fat called linoleic acid, or LA, that's hiding in nearly every

packaged product, fried dish, and restaurant meal you eat. And unlike other nutrients, this one doesn't leave your body easily. Once it gets in, it stays, silently damaging your mitochondria, fueling inflammation, and breaking your metabolism from the inside out.

You might think you're eating right, but if your health has plateaued despite your best efforts, LA is likely still finding its way in. And because it embeds into your fat tissue and cell membranes for years, the effects are both long-term and far-reaching. Most people have never heard of LA, and even fewer understand how it disrupts cellular energy production. But once you see the evidence, and how it affects your ability to heal, lose weight, think clearly, and stay resilient, you won't look at your food the same way again.

That's why I want to walk you through the data, starting with the video above, narrated by Anthony Gustin, former functional medicine clinician and founder of Zero Acre Farms.¹ It breaks down where LA comes from and why it's so harmful in the modern diet. But while Gustin's analysis is spot-on, the oil his company sells as a solution is anything but safe.

Your Body Treats LA Like a Toxin but Stores It Anyway

The video above, based on clinical observations and nutritional biochemistry, reveals a disturbing trend: unlike sugar or starch, your body doesn't just burn off LA after you eat it.² Instead, it locks **LA into your fat cells**, where it sits, generates toxic byproducts and quietly rewires your metabolism.

- **Most people have no idea how long this fat sticks around** — LA has a biological half-life of nearly two years, meaning if you stop eating it today, you'll still be metabolizing it years from now.³ That figure climbs even higher in nervous system tissues, where studies show LA remains for five years or more.

This means even occasional exposure has long-lasting consequences, especially if you're unknowingly consuming LA from common foods like chicken, pork, nuts, packaged snacks, and restaurant meals.

- **The average person stores 10 times more LA than what's considered biologically appropriate** — Human fat tissue from pre-industrial populations showed LA levels of about 2.3%, a baseline Gustin describes as "species-appropriate."

Today, that number exceeds 20% in many Americans, meaning their cells are made up of fats at levels never intended to be part of human biology. This buildup interferes with **mitochondrial energy production** and primes your body for oxidative stress, inflammation, and metabolic disease.

- **Even healthy-sounding oils like olive or avocado oil are part of the problem** — Although marketed as better options, olive oil often contains 12% to 28% LA, and avocado oil around 18%. Worse, many of these oils are adulterated with cheaper seed oils, including in restaurants. Unless you're buying from verified sources, what's in the bottle is often a blend designed to look healthy but function like poison in your cells.
- **Vegetable oils are more than a dietary nuisance; they're a metabolic landmine** — LA makes up as much as 25% of daily calories for many Americans, a dramatic shift from the low-single-digit percentages seen in hunter-gatherer and early agricultural populations.⁴ This isn't a subtle change — it's a complete reprogramming of the human fat profile.
- **LA doesn't just sit in your cells, it mutates them** — Once LA embeds into your cell membranes, it breaks down into oxidized linoleic acid metabolites (OXLAMs), which are highly inflammatory and toxic to cells. These byproducts attack mitochondria, the energy factories inside your cells, and impair how your body produces energy. Over time, this leads to systemic fatigue, weight gain, hormonal disruption, and impaired glucose metabolism.

LA Hides in Restaurant Meals and Even Personal Care Products

Restaurants are one of the worst sources of dietary LA not just because of the oil they use, but how they use it. Fryers run at high temperatures for hours or even days, oxidizing the oils repeatedly. Gustin points out that these degraded oils form compounds that damage DNA, impair immune function, and contribute to everything from heart disease to neurodegeneration.

- **LA overload isn't limited to food; it's in your personal care products, too** — Many natural skincare brands proudly advertise oils like sunflower, safflower, and grapeseed as nourishing for your skin. In reality, they're loading your body with more LA.

Gustin explains that your skin, the largest and most absorptive organ, easily incorporates these oils into cell membranes, just like your diet does. Most people experience improved sun tolerance and fewer sunburns after cutting LA from both their food and their skincare.

- **Biologically, LA works like a winter survival mechanism, but we're stuck in permanent hibernation** — Gustin refers to LA-rich foods like nuts and seeds as "seasonal hibernation foods," explaining that these foods naturally helped animals and **humans gain fat** before periods of food scarcity. But when you eat LA-rich foods all year, every year, you stay locked in that fat-storing metabolic state.

Instead of boosting your metabolism and clearing waste, your body slows down, accumulates fat, and becomes more vulnerable to chronic disease. I don't recommend eating nuts and seeds due to their high LA content.

- **Ruminant animals offer a solution because they don't store LA** — Unlike pigs, chickens, or farmed fish, which store LA in their fat exactly as they eat it, cows, sheep, and bison are ruminants with multi-chambered stomachs that ferment and break down LA before it reaches their tissues.

Ideally, switch to grass fed beef and lamb as your primary meat sources. Grain-fed beef, contrary to popular belief, still contains low LA levels, making it a safer choice than even "pasture-raised" chicken that was fed corn or soy.

- **You won't reverse the damage overnight but every bite matters** — Since LA stays in your body for years, this isn't about quick fixes. Gustin urges people to think in timelines of months and years, not days. But the good news is that every meal without vegetable oils is a step in the right direction. With time, your tissue levels will shift, your mitochondria will start working better, and your body will become more resilient.
- **To truly heal, you need to look beyond just the oils you pour or fry** — Gustin encourages label-checking for everything, including sauces, dressings, and skincare. You should also question restaurants, as many use vegetable oils by default in marinades and even eggs unless specifically asked.

Don't Fall for the 'Healthier' Vegetable Oil Trap — Zero Acre Farms Is Not the Answer

Zero Acre Farms oils are promoted as safe, sustainable alternatives to vegetable oils, but they're genetically engineered and rich in oleic acid. In other words, they're made in a lab and consist almost entirely of monounsaturated fats. That sounds better on paper, but oleic acid at high concentrations still disrupts how your mitochondria function. Your cells don't know, or care, if the damage came from soybean oil or oleic acid. The stress response is the same.

- **Oleic acid in excess mimics many of the same problems as LA** — Although it's not polyunsaturated, oleic acid still integrates into your mitochondrial membranes. This displaces cardiolipin, a special fat required for mitochondrial energy production.

Once distorted, the electron transport chain becomes unstable, ATP synthesis drops, and oxidative stress increases. This is the same core mechanism I describe in detail in my 2025 [Advances in Redox Research review](#), where I outline how both oxidative and [reductive stress](#) from fats like LA and oleic acid push mitochondria toward failure.⁵

- **Swapping vegetable oils for Zero Acre's oils won't protect your health** — When you heat or store these oils, they oxidize. When you eat them, they interfere with membrane integrity and energy output. This is not a healthier solution — it's the same trap with new packaging. If your goal is metabolic recovery, this isn't the oil you want anywhere near your food.
- **I've published two major reviews on the mitochondrial damage caused by LA** — In addition to my Advances in Redox Research review,⁶ my [2023 paper in Nutrients](#) describes how OXLAMs fuel chronic conditions like cancer, Alzheimer's disease, and cardiovascular disease.⁷ These toxins build up slowly but do long-term damage, and replacing them with high-oleic alternatives won't stop that process.
- **The only real fix is to eliminate industrial fats altogether, not swap one processed molecule for another** — Zero Acre Farms markets their product as a cleaner, smarter choice, but what your body needs is saturated, stable fats like ghee, tallow, or grass fed butter. These support your mitochondria instead of compromising them. Stick with whole, species-appropriate fats that align with your biology. That's how you restore energy — not by trading vegetable oils for their lab-grown cousins.

Cutting Your LA Load Starts with These Simple Swaps

If your metabolism feels sluggish, your energy isn't what it used to be or your inflammation just won't calm down, LA is likely part of the problem. This fat builds up slowly in your tissues, and once it's there, it sticks around. But that doesn't mean you're stuck.

The way forward is to stop adding more of it and give your body the space to start clearing what's already stored. You don't have to overhaul everything overnight. But you do need to make targeted, consistent changes that reduce LA at the source. Here's how to get started.

1. Cut out vegetable oils in your kitchen and at restaurants — The biggest source of LA in your diet is vegetable oils like soybean, canola, corn, safflower, sunflower, grapeseed, and cottonseed. These oils are everywhere, especially in packaged foods and restaurant meals. Start by tossing any products in your pantry that contain them.

Swap them for fats that are stable and low in LA, like ghee, coconut oil, beef tallow, or grass fed butter. When eating out, assume most dishes contain vegetable oils unless the restaurant specifically says otherwise. If you're not sure, ask if they will cook your meal in butter or with no oil at all. I recommend keeping your total LA intake below 5 grams per day, and ideally under 2 grams.

2. Switch to beef and lamb, and avoid chicken and pork — If you eat a lot of chicken or pork because you think it's healthier than red meat, this is where things need to change. Unlike cows and sheep, chickens and pigs store LA in their fat the same way humans do.

That means when they eat corn and soy, you eat corn and soy. Choose ruminant meats like grass fed beef and lamb, which have much lower levels of LA. Look for eggs from [pasture-raised hens](#) that aren't fed corn or soy. These are harder to find but worth it.

3. Dial back your intake of nuts, seeds, and olive oil — You don't need to give up all plant fats, but you do need to be strategic. Walnuts, almonds, sunflower seeds, and nut butters are high in LA. Even macadamia nuts, while lower in LA, are rich in monounsaturated fats that still oxidize under heat or light.

Olive oil and avocado oil are also high in LA and often mixed with cheaper seed oils. If you use these oils, limit them to cold applications and small amounts. Focus instead on whole fruits, root vegetables, and clean animal fats to meet your fat needs without overloading your cells.

4. Get your omega-3s from oily fish, not flax — If you're relying on flaxseed or chia for omega-3s, it's time to rethink your strategy. LA blocks your body's ability to convert plant omega-3s into the usable forms, EPA and DHA. Flax also contains estrogen-like compounds called lignans, which disrupt your hormones.

Choose small, oily fish like sardines, wild salmon, or mackerel for direct, unprocessed omega-3s. They support your metabolism, lower inflammation, and help repair damaged cell membranes, especially when you've cut your LA intake.

5. Be patient but stay consistent — LA doesn't leave your body quickly. Once stored in fat tissue, it has a half-life of nearly two years. That means even if you stop eating it now, it will take time to see full results. But every LA-free meal is a step forward. Over time, your mitochondria will function better, your skin will tolerate sun exposure more easily, and your metabolism will start to recover.

Think long-term. Every smart choice you make today moves you further away from chronic inflammation and toward cellular repair. You don't need to be perfect — you just need to be persistent. Keep it simple, stay focused and give your body what it's been missing: the freedom to heal.

FAQs About the Effects of LA on Your Health

Q: Why is LA so harmful to your health?

A: LA is a polyunsaturated fat that gets stored in your body's fat and cell membranes, where it remains for years. Unlike carbs or protein, your body doesn't easily burn it off. Once stored, LA breaks down into toxic byproducts that damage mitochondria, disrupt energy production, and fuel inflammation. This long-term cellular stress contributes to weight gain, insulin resistance, hormonal imbalance, and chronic disease.

Q: What foods are highest in LA and should be avoided?

A: The biggest dietary sources of LA are vegetable oils like soybean, corn, sunflower, safflower, canola, grapeseed, and cottonseed oils. These are widely used in packaged foods, fried restaurant meals, condiments, salad dressings, and even personal care products. Other high-LA foods include chicken, pork, nuts, seeds, and processed oils like olive and avocado, especially when they've been adulterated with vegetable oils.

Q: Is Zero Acre Farms oil a safe alternative to vegetable oils?

A: No. Although it's marketed as a healthier option, Zero Acre Farms oil is genetically engineered and extremely high in oleic acid, a monounsaturated fat that causes similar mitochondrial damage when consumed in excess. It disrupts cardiolipin function in your mitochondria and contributes to oxidative stress, just like LA. Swapping one industrial fat for another doesn't solve the underlying problem.

Q: How do I lower my intake of LA and start reversing the damage?

A: Start by eliminating vegetable oils from your kitchen and checking ingredient labels carefully. Cook with stable fats like ghee, beef tallow, coconut oil, or grass fed butter. Choose meats from ruminants like cows and lamb instead of chicken or pork. Reduce or avoid nuts, seeds, and oils like olive and avocado. Get omega-3s from oily fish instead of flax, and avoid skincare products made with high-LA oils.

Q: How long does it take to detox from LA?

A: LA has a biological half-life of about two years, meaning it takes a long time to clear from your tissues. But every LA-free meal helps shift your fat composition and supports mitochondrial repair. You'll begin to feel improvements in energy, weight control, mental clarity, and inflammation within months, but full recovery depends on consistency over time.

Sources and References

- ^{1, 2} [YouTube, Zero Acre Farms, Beyond Vegetable Oils, Omega-6 Linoleic Acid in Our Food System March 8, 2022](#)
- ^{3, 4, 7} [Nutrients. 2023 Jul 13;15\(14\):3129](#)
- ^{5, 6} [Advances in Redox Research June 2025, Volume 15, 100128](#)