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# Obesity Causes and Solutions

Analysis by Dr. Joseph Mercola | November 30, 2025

## STORY AT-A-GLANCE

- Obesity is not just about eating too much — it develops when your cells cannot burn oxygen and fuel efficiently, leading to fat storage even at normal calorie intake
- Polyunsaturated fats in vegetable oils slow down your metabolism, mimic hibernation signals, and make your body store fat instead of using it for energy
- Stress hormones like cortisol and estrogen push your body further into fat storage, lowering energy, mood, and reproductive function
- Choosing saturated fats, whole-food carbs, and simple movement helps restore your ability to burn both fat and carbohydrates effectively
- Cutting vegetable oils and supporting cellular energy gives you a clear path to sustainable weight loss and higher daily energy

**Obesity is one of the most visible health crises in the world, and it's far more than just a cosmetic concern. It's defined as excessive body fat that raises the risk for Type 2 diabetes, cardiovascular disease, fatty liver disease, sleep apnea, and even certain cancers. Symptoms often include fatigue, shortness of breath, joint pain, and metabolic issues that worsen over time. Left untreated, obesity shortens lifespan and slashes quality of life.**

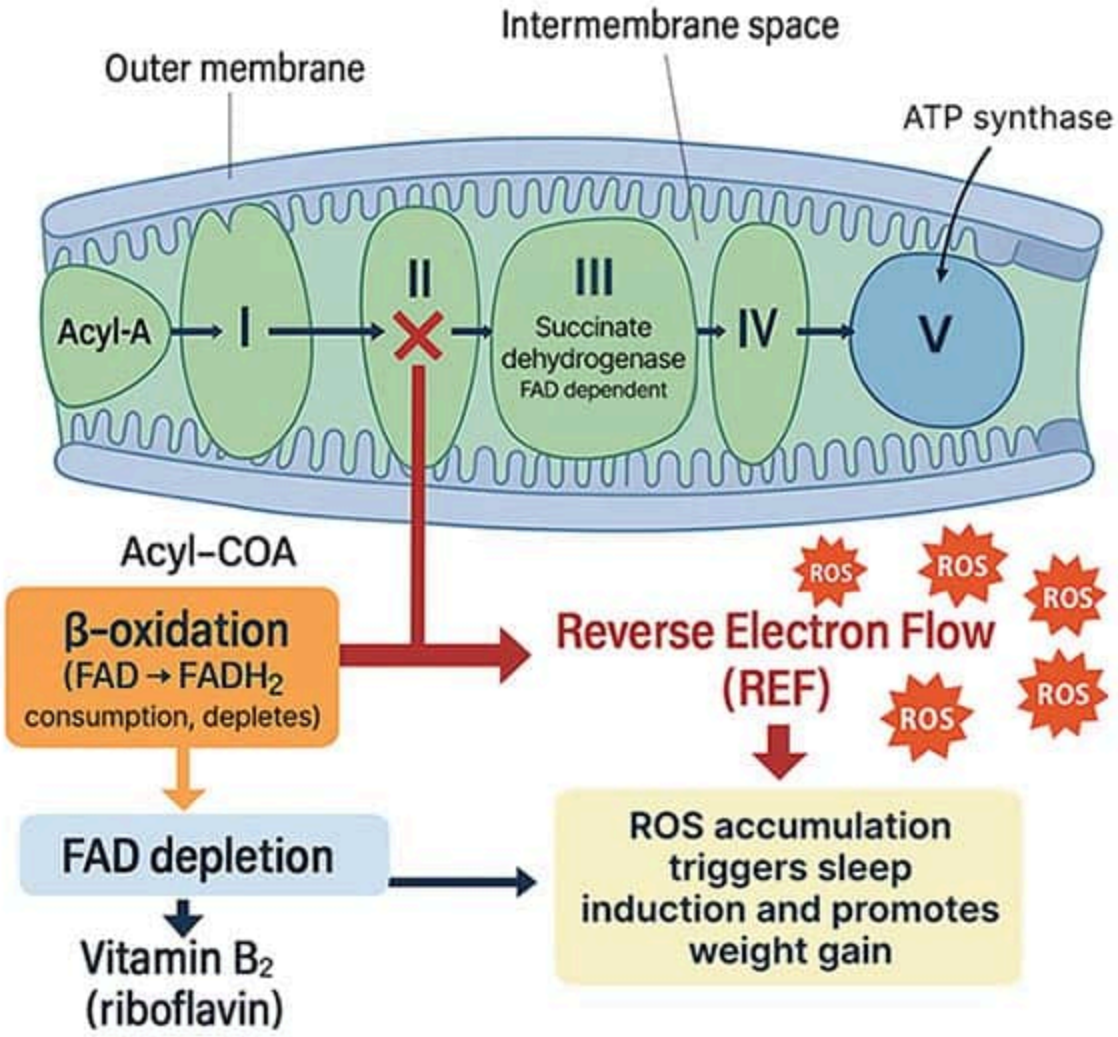
**Globally, an estimated 1 billion men and 1.11 billion women were classified as overweight or obese as of 2021, with over 3.8 billion adults projected to be overweight or obese by 2050.[1] That makes obesity one of the central drivers of declining life**

expectancy. Every year, millions of people attempt weight-loss programs built on the idea that eating less and moving more is the simple solution. Yet, long-term data reveal that most regain the lost weight, leaving them discouraged and metabolically worse off.

That failure points to a deeper problem than calorie math. Researchers like Brad Marshall, a molecular biologist known for his work at Fire in a Bottle, and bioenergetic researcher Georgi Dinkov have been arguing that obesity stems from cellular energy imbalances. They focus on reductive stress, a condition in which your mitochondria — the tiny energy factories in your cells — struggle to burn oxygen efficiently.

When your cells cannot fully burn food for energy, the result is fat accumulation, lowered metabolic rate, and widespread dysfunction. Shifting the conversation away from willpower and toward cellular energy offers a different lens on obesity. This perspective suggests that the fats and fuels you eat directly change how your body manages energy and redefines obesity solutions.

## Experts Link Obesity to Cellular Energy Failure




When your cells rely too heavily on burning fat for energy, especially under stress, it backfires. Breaking down fat uses up vitamin B2 (riboflavin), which is needed to keep one of the mitochondria's key energy complexes (Complex II) running smoothly. Once that helper is depleted, electrons begin flowing backward in a process scientists call "reverse electron flow." Instead of producing clean energy, this backflow generates a flood of reactive oxygen species (ROS).[2]

Your body reads the buildup of ROS as a stress signal. To protect itself, it lowers your metabolic rate and shifts into fat-storing mode. In other words, excessive fat burning doesn't always help you slim down — in some cases it encourages your body to gain weight.

In a video discussion hosted by David Gornoski, Dinkov and Marshall explained why obesity is less about overeating and more about broken energy metabolism.[3] They argued that your body stores fat when its cells fail to properly burn oxygen and fuel. This view challenges the standard "calories in, calories out" model that dominates mainstream advice.

- **The experts drew from personal and professional experience —** Marshall explained that his own struggles with weight led him into mitochondrial science and how cells use fuel. Dinkov, with a background in computer science and bioinformatics, became fascinated by biochemistry and metabolism after years of self-directed study. Their conversation aimed to help people understand why conventional approaches like calorie restriction and keto diets often fail long term.

- **The focus shifted to the role of polyunsaturated fats (PUFs) —** According to Marshall, "when you consume PUF [such as linoleic acid (LA) in vegetable oils] ... it doesn't burn as much oxygen, it doesn't create as much reactive oxygen species." In simple terms, PUF-rich vegetable oils such as soybean and canola reduce your cell's ability to burn fuel efficiently. This incomplete burning leaves a buildup of unused energy, which your body then stores as fat.

- **How this process creates reductive stress —** Reductive stress means your cells have too much stored energy and not enough oxygen use to process it. In this state, certain key enzymes shut down, blocking carbohydrate burning. At the same time, fats are also left partially burned, leaving you stuck in a low-energy, fat-storing mode. Marshall described this as the body's "switch" that favors fat-making when it senses an energy backlog.

- **PUF signals mimic hibernation in animals —** Dinkov pointed out that squirrels and bears load up on PUF before winter because it lowers body temperature, slows brain and reproductive function, and helps them enter a torpid state, meaning their body slows down into a low-energy, semi-hibernation mode.

Human studies show similar effects: excess PUF lowers metabolic rate, making you tired, cold, and prone to storing fat. As Dinkov explained, “You will actually gain weight because your metabolic rate will drop.”

- **The hormonal side of the story —** Estrogen, usually thought of as a female hormone, is a stress hormone that swells cells with water and shuts down energy production. Dinkov noted that PUF mimics estrogen inside your cells, amplifying stress signals that push your body toward fat storage. In his words, “The polyunsaturated fats mimic those effects of estrogen quite well.”

## Reductive Stress Is Connected to Diseases Beyond Obesity

When cells get overloaded with energy but lack oxygen to burn it, they switch to emergency pathways that produce lactate. Dinkov explained that this is the same process seen in cancer cells and in severe diabetes, where energy is produced inefficiently. In other words, obesity and chronic disease share a root cause: blocked oxygen use at the cellular level.

- **Food quality matters more than calorie count —** Marshall warned that people often gain fat while eating at a calorie deficit if those calories are heavy in PUF. He contrasted this with healthy carbohydrates and saturated fats, which don’t trigger the same fat-storing pathways. He explained that the process of turning carbs into fat — known as de novo lipogenesis — doesn’t even start until a person eats more than a pound of carbs in a day, which is rare.

- **The first step is to avoid PUF-rich oils and processed foods that contain them —** Instead, focus on natural saturated fats like grass fed butter, tallow, or ghee, which support oxygen use and energy production. They also stressed that restoring metabolic flexibility — the ability to switch between burning fat and carbs — is key to reversing obesity.

- **Shift the blame away from willpower —** And move the focus toward making smarter food choices that protect your cellular energy. By avoiding PUFs like LA and supporting your metabolism with the right types of fat and carbohydrates, you give your body the tools to burn fuel instead of storing it. As Dinkov summed up, "It matters what kind of calories you're consuming." This means your daily choices — not genetics or endless dieting — are the lever to better health.

## How to Restore Your Metabolism and Stop Fat Storage

If you're frustrated by weight gain despite dieting, the problem is not your willpower — it's your cellular energy. When your cells are stuck in reductive stress from PUFs like LA, your body lowers its metabolic rate and shifts into fat-storing mode.

The way out is not starving yourself or running endless miles. It's about fixing how your body burns fuel. These steps are designed to help you restore oxygen use, protect your mitochondria, and finally shift your body back into fat-burning mode.

1. **Cut vegetable oils from your diet —** If your meals include soybean oil, canola oil, corn oil, sunflower oil, safflower oil, or packaged foods made with them, you're loading up on LA that slows your metabolism and mimics hibernation. Replace them with stable fats like grass fed butter, ghee, or beef tallow. As you change your cooking oils and avoid LA in ultraprocessed foods, you'll notice your energy levels improve because your cells start burning fuel more cleanly.

2. **Favor saturated fats for steady energy —** Replace vegetable oils with saturated fats, which burn efficiently and support oxygen use. Think of it like putting the right fuel in an engine — it runs smoother, longer, and with fewer breakdowns. Grass fed butter, ghee, and animal fats give your cells the signal to stay active and energized, instead of shutting down into fat storage.

3. **Choose carbs wisely to keep your metabolism flexible —** If you're cutting carbs to lose weight, you're forcing your body into the same low-energy trap. Carbs, when chosen carefully, actually protect your metabolism. Whole fruits, white rice and root

vegetables help your cells maintain energy balance and avoid the shutdown that comes with low oxygen use. The key is pairing these carbs with healthy fats while avoiding the PUFs that block energy production.

4. **Lower your stress hormones naturally —** If you often feel wired, anxious, or can't sleep, your cortisol and estrogen are likely pushing your metabolism lower. Stress hormones tell your body to hold onto fat. Practical steps like avoiding LA in vegetable oils, getting daily sunlight and proper rest, and reducing alcohol intake help reset these hormones. By lowering the stress signals, your body regains the ability to burn instead of store energy.

5. **Train your body to switch fuels with movement —** If you're sedentary, your cells lose the flexibility to burn both fat and carbs. Gentle strength training, daily walking, and light resistance work keep your mitochondria active and improve their ability to use oxygen. Think of it as reminding your metabolism how to do its job. You don't need extreme exercise — just consistent movement that challenges your muscles and keeps energy flowing.

## FAQs About Obesity

**Q: Why does obesity happen if it's not just about overeating?**

**A:** Obesity develops when your cells can't burn fuel efficiently. Instead of using oxygen to fully burn carbohydrates and fats, your body gets stuck in reductive stress — too much stored energy with nowhere to go. This forces your body to lower metabolism and store more fat, even if you aren't overeating.

**Q: What role do PUFs play in weight gain?**

**A:** PUFs — such as LA found in vegetable oils like soybean, canola, and sunflower oil — reduce your ability to burn oxygen in your mitochondria. This incomplete burning triggers fat storage and acts like a hibernation signal in your body, lowering energy, brain function, and even reproductive health.

**Q: How are hormones like estrogen and cortisol connected to obesity?**

**A:** Both estrogen and cortisol act as stress signals that push your body into fat storage. PUF mimics estrogen inside your cells, amplifying water retention and shutting down energy production. High cortisol from chronic stress has the same effect, lowering metabolism and making fat harder to lose.

**Q: What practical steps improve metabolism and reduce fat storage?**

**A:** You can restore your metabolism by cutting out PUF-rich vegetable oils, replacing them with saturated fats like butter and ghee, choosing whole-food carbs, lowering stress hormones through lifestyle habits, and moving your body with walking or strength training. These steps work by improving oxygen use inside your cells.

**Q: How is this approach different from conventional weight-loss advice?**

**A:** Instead of focusing on calorie restriction or extreme diets, this method targets the root cause: broken energy metabolism. By repairing how your mitochondria burn fuel, you shift from fat storage back into fat burning, making weight loss sustainable and restoring your energy in daily life.

## Sources and References


- [1] The Lancet March 8, 2025, Volume 405, Issue 10481, P813-838
- [2] To Extract Knowledge from Matter September 16, 2025

- [3] YouTube, David Gornoski, Georgi Dinkov, Brad Marshall on Obesity Causes and Solutions July 11, 2022