

New Research Suggests Soybean Oil May Contribute to Obesity Risk: What Experts Say

Soybean oil is one of the most widely used edible oils in the world, making up more than **half of all cooking oils in the United States** and nearly **a third of global consumption**. Often sold simply as “vegetable oil,” it is a staple in home kitchens, restaurants, and large-scale food production. But new scientific findings are raising questions about how this common ingredient may influence weight gain and metabolic health.

A recent study published in the *Journal of Lipid Research* offers fresh insights into how soybean oil—particularly due to its high **linoleic acid** content—might contribute to obesity risk. While previous research has suggested both benefits and drawbacks of soybean oil, the new data builds on the theory that excessive consumption of certain fats may influence inflammatory pathways linked to metabolic disorders.

Below is a detailed breakdown of the study, expert perspectives, and practical strategies for consumers looking to reduce their soybean oil intake.

Understanding Soybean Oil: Composition and Common Uses

According to the **U.S. Soybean Export Council**, soybean oil represents **57% of U.S. cooking oil usage** and **approximately 30% worldwide**. It is made primarily of polyunsaturated fats, including:

- **Omega-6 fatty acids**, especially **linoleic acid**, which makes up over **50%** of the oil
- **Omega-3 fatty acids**, including **alpha-linolenic acid (ALA)**, an essential fat the body cannot produce on its own

Because of its mild flavor, low cost, and versatility, soybean oil is heavily used not only for cooking but also in **packaged snacks, fried foods, and ultra-processed products**.

Historically, soybean oil has been associated with some cardiovascular benefits. For example, a study from September 2021 showed that replacing saturated fats with soybean oil could help lower cholesterol levels and reduce heart disease risk. Yet other research has drawn attention to potential downsides linked to excessive intake of omega-6 fats.

Concerns Over High Omega-6 Intake

Over the past decade, scientists have investigated whether large amounts of omega-6 fatty acids—particularly linoleic acid—may play a role in health issues such as:

- **Obesity**
- **Type 2 diabetes**
- **Neuroinflammation**
- **Ulcerative colitis**
- **Cognitive decline and dementia**

While omega-6 fats are essential for normal body function, modern dietary patterns often skew heavily toward omega-6 sources, especially from commercial cooking oils and processed foods. Some researchers suggest this imbalance may contribute to inflammation and metabolic stress.

What the New Study Found

The new study conducted by researchers at the **University of California, Riverside** examined how soybean oil affects weight gain using a genetically engineered mouse model. These transgenic mice were designed to express a modified form of the liver-related protein **HNF4 α** , which plays a critical role in liver, pancreas, and gastrointestinal function. In humans, this altered version of HNF4 α typically appears under chronic illness or metabolic strain.

According to **Dr. Sonia Poonamjot Deol**, one of the study's lead authors, earlier research indicated that these specially engineered mice showed reduced activity in genes that convert linoleic acid into **oxylipins**—compounds associated with inflammation. Based on this observation, the research team predicted that the mice would gain less weight than normal mice when fed a high-soybean-oil diet.

Study Results

The experiment supported their hypothesis:

- Transgenic mice consuming large amounts of soybean oil gained **significantly less weight** than standard mice on the same diet.
- These mice produced **fewer pro-inflammatory oxylipins**, suggesting linoleic acid metabolism played a key role in weight difference.
- They displayed **healthier liver function** and **improved mitochondrial performance**, indicating better overall metabolic stability.

Dr. Deol explained that the findings clarify a potential mechanism behind soybean-oil-related weight gain in mice. The study also identified molecular pathways that could become targets for future treatments involving metabolic and inflammatory diseases.

Is Soybean Oil Unsafe? Not Exactly, Experts Say

Despite the results, researchers emphasize that soybean oil itself is **not inherently harmful**. Human bodies require linoleic acid for essential physiological functions.

Dr. Deol noted:

- Small amounts of soybean oil are **safe**.
 - The main concern is the **excessive consumption** of linoleic acid due to its presence in so many foods.
 - Overconsumption may lead to elevated oxylipin levels, which could contribute to inflammation and weight gain.
 - Ideally, linoleic acid should make up only **2–3% of daily calories**, and all dietary fats—regardless of source—should be consumed in moderation.
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Will These Findings Apply to Humans?

Because the study was conducted in mice, experts caution against directly applying the results to people without additional research.

Dr. Mir Ali, a bariatric surgeon not involved in the study, told *Medical News Today* that while the study is insightful, animal results may not always translate to humans due to biological differences. However, he agrees that understanding how different cooking oils affect metabolism is important.

He suggested that future steps should include well-controlled human research to explore how soybean oil influences metabolic pathways in real-world settings.

How to Reduce Soybean Oil in Your Diet

For individuals who want to limit soybean oil intake, registered dietitian **Monique Richard, MS, RDN, LDN**, offered several practical strategies.

1. Read Ingredient Lists Carefully

Many processed foods use soybean or generic “vegetable oil” as a primary ingredient. If these oils appear near the top of the ingredient list, the product likely contains a significant amount.

2. Limit Ultra-Processed Foods

Most soybean oil consumption comes not from home cooking but from:

- Packaged snacks
- Fast food
- Restaurant meals
- Frozen and convenience foods

Choosing whole foods—fresh or frozen vegetables, whole grains, legumes, and minimally processed snacks—can substantially reduce intake.

3. Cook More Meals at Home

Preparing more meals yourself gives full control over the types and amounts of oils used. Even cooking one or two extra meals per week can make a noticeable difference.

4. Use Lower-Oil Cooking Methods

Switching from frying to roasting, broiling, grilling, or air-frying can reduce overall fat intake and prevent accidental overuse of oils.

5. Choose Whole Soy Products Instead

Soy foods like tofu, tempeh, and edamame are not part of the vegetable-oil concern and are generally considered nutrient-dense and beneficial.

Healthy Alternatives to Soybean Oil

Richard recommends several oils that offer a mix of flavor, heat stability, and potential health benefits:

- **Extra-virgin olive oil:** Great for dressing, drizzling, and medium-heat cooking; widely studied for cardiovascular benefits.
- **Avocado oil:** Mild flavor with high smoke point; ideal for everyday stovetop cooking.
- **Sesame or peanut oil:** Adds aromatic, nutty notes to Asian, African, and Middle Eastern dishes.
- **Walnut or flaxseed oil:** Best used raw for drizzling on yogurt, oatmeal, salads, or desserts.

Richard summarizes the message simply: the choices we make in our kitchens influence our long-term health, and thoughtful adjustments to ingredients—especially oils—can make a meaningful difference.