

Preservatives in Ultraprocessed Food Linked to Rising Cancer and Diabetes Rates

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STORY AT-A-GLANCE

- Before refrigeration, humans preserved food through drying, fermenting, curing, and pickling. These methods helped extend food availability without synthetic chemicals
- Industrialization drove the use of chemical preservatives like nitrites, sulfites, and sodium benzoate, enabling mass distribution while dramatically increasing synthetic additives in the modern food supply
- U.S. food regulations allow hundreds of additives that are banned in Europe, with loopholes that permit manufacturers to omit some ingredients from labels, limiting consumer awareness and informed choice
- Studies link higher preservative intake to increased cancer and Type 2 diabetes rates, showing dose-dependent risk independent of calories, weight, or overall diet quality
- Biological mechanisms include DNA damage, inflammation, microbiome disruption, hormonal interference, and insulin resistance, reframing preservatives as cumulative risk factors rather than ingredients that simply extend shelf life

Long ago, before refrigeration was invented, early humans preserved their food in different ways. One of the most common methods is drying meat, fruit, and vegetables under the sun. Pickling, curing, and fermenting were also used, depending on a particular culture's practices. All the same, the goal was to prevent their food supply from spoiling so that they didn't have to consume them immediately.¹

As industrialization expanded and the need for immediate access to food grew, companies began experimenting with chemicals to extend shelf life of their products. Examples include the use of nitrites, sodium benzoate, and sulfites.² Over time, more preservatives were added to the food supply, prolonging the shelf life of processed goods so they can be shipped to consumers all over the world.

However, this gradual expansion of chemical additives has far-reaching consequences. Today, there are at least 950 substances in the American food supply that are actually banned in Europe due to their possible health effects, CBS News reports. And the worst part is that these ingredients are not required to be listed on product labels.³

As awareness of the impact of ultraprocessed foods on human health rises, so does the scrutiny of the ingredients used in their manufacturing. Research has linked them to rising rates in chronic disease,⁴ and a 2026 study noted that the very preservatives Big Food uses to extend shelf life of their products is causing cancer.⁵

Higher Preservative Intake Tracks with Higher Cancer Rates

A study published in The BMJ examined how everyday exposure to food preservatives influences cancer risk. Researchers analyzed long-term dietary data from the French NutriNet-Santé cohort, a large prospective study designed to follow people over time and observe how diet links to disease development.⁶

The team focused on preservative additives as a category, then broke them down into specific chemical groups and individual compounds. The reason for following this angle was simple: No study had completely focused on preservatives as a root cause for disease, despite their prevalence in the food supply.

- **Key findings of the study** — Participants came from the general adult population, which included both men and women with diverse dietary patterns and health backgrounds. Over a follow-up period that averaged 7.57 years, the researchers recorded new cancer diagnoses and compared them against levels of preservative intake.

The findings were clear — people who consumed more preservatives had higher rates of overall cancer and breast cancer. This association remained after accounting for factors such as age, body weight, physical activity, smoking, alcohol intake, and overall diet quality.

- **The study separated preservatives into antioxidant and non-antioxidant categories** — Non-antioxidant preservatives showed the clearest signal. Higher intake of this group tracked with higher overall cancer risk and higher breast cancer risk. Within that category, sorbates and sulfites stood out.

Potassium sorbate, a compound commonly used to prevent mold growth in packaged foods, and potassium metabisulfite, often used in processed foods and beverages, each showed positive associations with cancer incidence.

- **The link between sodium nitrite and prostate cancer** — Sodium nitrite often appears in processed meats to preserve color and prevent bacterial growth. Men with higher intake showed higher prostate cancer incidence compared to those with lower exposure.
- **The results followed a dose-response pattern** — As preservative intake increased, cancer risk increased alongside it. In practical terms, this means every packaged snack, every preserved deli meat, every shelf-stable convenience food adds another brick to a wall of cumulative risk.
- **The paper also compared preservative effects with broader food patterns** — Preservatives often appear in ultraprocessed foods, yet the authors adjusted for overall ultraprocessed food consumption. Even after doing so, preservative intake retained its association with cancer outcomes. This comparison tells you that preservatives themselves deserve closer studying, not only the general category of processed foods.

The study also explored the mechanisms to clarify these associations. One aspect involves nitrosation chemistry. Nitrites and nitrates convert in the body to form N-nitroso compounds, which are carcinogenic.⁷

- **Another mechanism is oxidative stress and inflammation** — Oxidative stress refers to an imbalance between damaging molecules and the body's ability to neutralize them. Considering this, the paper cited experimental evidence showing that some preservatives trigger inflammatory signaling and oxidative injury in cells. Chronic inflammation creates an environment where damaged cells survive and multiply, a known contributor to cancer development.
- **Concerns about microbiome disruption were also raised** — Preservatives often serve antimicrobial roles by design. Inside the gut, this antimicrobial action alters bacterial populations and weakens the gut barrier. When the gut microbiome loses its integrity, bacterial toxins move into your bloodstream easier, driving systemic inflammation.
- **An implication of the findings** — The authors acknowledged that their observational research does not prove a direct causation. However, they stressed that consistency across additive categories, dose-response relationships, and alignment with toxicological data strengthen confidence in the findings. Still, the results warrant action even without absolute proof, because the exposure is so widespread and the disease outcomes carry high stakes for the public.

Preservatives Track with Rising Diabetes Risk

If preservatives increase the risk of cancer, what other chronic diseases can they fuel? A companion study from the same research team, now published in *Nature Communications*, looked at metabolic health and noticed similar patterns. Using the same dataset from the French NutriNet-Santé cohort, the researchers followed participants over time, tracked detailed dietary records, and identified new cases of Type 2 diabetes as they occurred.⁸

The goal was to isolate preservative exposure and see whether it predicted diabetes risk beyond known factors such as body weight, physical activity, and overall diet quality. The study population included adults from the general community, many of whom entered

the study without diagnosed metabolic disease. Over a follow-up period that averaged 8.05 years, higher preservative intake consistently aligned with higher incidence of Type 2 diabetes.

- **Effect of total preservative exposure** — Again, as overall intake increased, diabetes incidence rose hand in hand. When the authors examined preservative subgroups, non-antioxidant preservatives again showed the strongest association.

Within this category, sorbates stood out, particularly potassium sorbate. Individuals with higher intake of this additive experienced a higher rate of Type 2 diabetes compared with those who consumed less. Potassium sorbate appears in a wide range of packaged foods marketed as stable, which makes exposure easy to overlook in daily life.

- **Risk goes up over time** — Diabetes cases accumulated gradually across years of follow-up, aligning with sustained exposure rather than short-term dietary changes. The data suggest that consistent preservative intake acts as a chronic stressor rather than an acute trigger.
- **Differences across participant groups** — Diabetes associations appeared stronger among individuals with otherwise balanced diets. This challenges the assumption that generally healthy eaters remain protected if they still rely on packaged foods with additives. Even when the rest of the diet looked favorable, preservative exposure tracked with diabetes incidence.
- **Mechanistic explanation of the findings** — The authors discussed several biological pathways supported by experimental evidence. One pathway involves gut microbiota disruption. Preservatives suppress bacterial growth by design. In the gut, this shifts microbial balance, weakens the intestinal barrier, and increases systemic inflammation. Chronic low-grade inflammation interferes with insulin signaling, meaning cells stop responding efficiently to insulin's message to absorb glucose.

Another mechanism involves oxidative stress and metabolic signaling.

Experimental data cited in the paper show that certain preservatives increase oxidative markers and impair glucose handling in tissues. Over time, this disrupts how muscles and the liver manage blood sugar, setting the stage for [insulin resistance](#).

- **The consequences of unchecked consumption** — Type 2 diabetes increases risk of heart disease, kidney failure, vision loss, and nerve damage.⁹ Because diagnosis often occurs late, prevention hinges on identifying modifiable exposures early. Preservatives represent one such exposure because they appear across many foods and remain invisible unless you read labels carefully.

By pointing out preservatives as a distinct factor, this study presents a shift on how you think about the progression of diabetes. Simply put, risk does not hinge solely on the consumption of refined sugar or weight gain, although those certainly play a part, too. Chemical additives built into the food supply influence how your body handles glucose over the long-term.

Lower Your Exposure to Harmful Food Additives with These Tips

Health authorities have allowed countless preservatives into the food supply without proper safety testing, but that doesn't mean they're unavoidable. Here are my recommendations to help you protect yourself and your loved ones:

1. **Steer clear of ultraprocessed foods** — Ultraprocessed foods contain long ingredient lists filled with unfamiliar terms, which are most likely loaded with substances your body was never meant to process, and that includes preservatives. In addition, these products rely heavily on other chemicals, such as emulsifiers and artificial flavorings that disrupt metabolic function and compromise gut health.

Focus instead on whole, minimally processed foods such as grass fed meats and dairy, fresh fruits and vegetables, and healthy carbohydrate sources like white rice. The simpler and more natural the ingredients, the better they support your health.

But here's another thing about ultraprocessed foods — they're loaded with linoleic acid (LA), which is another good reason to avoid them in the first place. As I noted in my study, [published in Nutrients](#), excess LA intake affects your cellular health, leading to chronic disease.

I recommend you minimize your LA intake to less than 5 grams per day, but if you can get it to below 2 grams, that's even better. To help you monitor your intake, sign up for the upcoming Mercola Health Coach app. It contains the Seed Oil Sleuth, which is a feature that will calculate the total LA in your food to a tenth of a gram.

- 2. Prioritize eating a clean, organic diet when possible** — Organic foods are far less likely to contain chemical food additives, synthetic pesticides, or hormone-disrupting compounds. Whenever you can, choose organic versions of produce, leafy greens, fruits, and meats.

Organic certification standards restrict the use of artificial dyes, preservatives, and flavor enhancers, helping reduce your overall exposure to hidden toxins.

But what if organic food is out of your budget? I recommend you browse through the Environmental Working Group's (EWG) Shopper's Guide to Pesticides in Produce.¹⁰ It contains a list of fruits and vegetables that contain the lowest and highest levels of detected pesticides based on their testing.

- 3. Learn how to read ingredient labels** — Many harmful additives are concealed behind misleading names. Artificial sweeteners such as [aspartame](#), preservatives like BHT, potassium sorbate, sodium nitrite, and emulsifiers including polysorbate 80, have all been associated with gut dysfunction and metabolic issues.

Get into the habit of scanning ingredient lists and avoiding products with vague terms like "natural flavors" or "modified food starch." If an ingredient is unfamiliar, research it before consuming the product.

- 4. Use safer food packaging and storage methods** — Chemical exposure doesn't stop with what you eat — **it also comes from what your food touches**. Plastic containers, particularly those containing bisphenol A (BPA) or phthalates, can leach hormone-disrupting chemicals into food. Opt for glass or stainless steel containers for storage and reheating. Never reheat leftovers in plastic, as heat accelerates the release of toxic compounds.
- 5. Prepare more meals at home** — Restaurant meals and packaged foods tend to contain the highest concentrations of preservatives, emulsifiers, artificial colors, and industrial vegetable oils high in LA.

Cooking at home allows complete control over ingredients and preparation methods. Use grass fed butter or ghee in place of vegetable oils, and skip processed seasonings loaded with additives. Making meals from scratch not only reduces chemical exposure but also supports better digestion, sustained energy, and long-term cellular health.

Frequently Asked Questions (FAQs) About the Link Between Preservatives and Rising Cancer Rates

Q: How did humans preserve food before modern preservatives existed?

A: Before refrigeration, people relied on drying, fermenting, curing, and pickling to preserve food. These traditional methods extended shelf life without synthetic chemicals or long-term health tradeoffs.

Q: Why did chemical preservatives become so common in modern food?

A: Industrialization created demand for long shelf life. Manufacturers added chemicals like nitrites, sulfites, and benzoates to stabilize food and maximize

distribution efficiency.

Q: What does research show about preservatives and cancer risk?

A: Data showed that higher preservative intake linked to higher cancer rates, especially breast and prostate cancer, with risk increasing as exposure increased over time.

Q: How are food preservatives linked to Type 2 diabetes?

A: Research showed that higher preservative intake tracked with higher diabetes incidence, independent of calories, weight, or sugar, pointing to additives as a metabolic stressor.

Q: What practical steps reduce preservative exposure and health risk?

A: Avoid ultraprocessed foods, read ingredient labels carefully, choose whole and organic foods when possible, store food in safer containers, and prepare more meals at home to limit additive intake.

Sources and References

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- ⁸ [Nature Communications Volume 16, Article number: 11199 \(2025\)](#)
- ⁹ [Mayo Clinic, Type 2 Diabetes](#)
- ¹⁰ [EWG, EWG's Shopper's Guide to Pesticides in Produce](#)