

Why We Started with Your Gut

Analysis by [Dr. Joseph Mercola](#)

July 20, 2026

STORY AT-A-GLANCE

- Butyrate is a short-chain fatty acid that serves as the primary fuel for the cells lining your colon. These cells rely on it for the majority of their energy, making it one of the most important molecules for gut health
- Your gut bacteria produce butyrate by fermenting fiber, but modern diets and disrupted microbiomes mean many people make too little, and the gut suffers for it
- Conventional butyrate supplements are largely absorbed high in the digestive tract and destroyed before reaching the colon, where the molecule does its most important work — a textbook delivery failure
- That combination — deep, well-documented benefit plus near-total delivery failure — makes butyrate the ideal proving ground for targeted delivery technology
- It is the reason we chose the gut as the first demonstration of what 22nd Century delivery can do, and why more than 35,000 people are already waiting for what comes next

In the first two articles, I described the delivery problem and the technology that solves it. Now I want to tell you where we chose to prove it first, and why the choice became obvious the moment we looked at the science. We started with the gut — specifically, with a molecule called butyrate.

If you have not heard of butyrate, you are far from alone. But it may be one of the most important molecules in your body that you have never once thought about. And it is the single clearest illustration I know of why delivery is everything — a molecule whose

benefits are not in serious scientific dispute, yet which almost no one actually receives the full benefit of, for one simple reason: it rarely reaches the place where it works.

Butyrate – The Fuel Your Colon Runs On

Butyrate is a short-chain fatty acid (SCFA) produced when certain beneficial bacteria in your gut ferment dietary fiber. According to research on PubMed, butyrate is the primary energy source for colonocytes, the cells that line your colon. These cells are unusual: rather than running primarily on glucose like most of your body, they preferentially burn butyrate, relying on it for a large majority of their energy. When they have enough of it, the entire gut lining functions the way it is supposed to.

The documented roles of butyrate are genuinely impressive. Researchers describe it as a key regulator of the intestinal barrier, helping keep the gut lining tight and intact so that what belongs inside the gut stays inside the gut. It has well-characterized anti-inflammatory properties. It supports the integrity of the junctions between the cells of the gut wall. And it acts as a signaling molecule, influencing immune function and even gene expression through its activity on specific receptors and pathways.

The scientific interest does not stop at the gut. A growing body of research connects healthy butyrate levels to benefits reaching well beyond digestion – into metabolism, immune balance, and the increasingly studied communication network between the gut and the brain. The more closely researchers look at butyrate, the more central it appears to be.

How a Healthy Gut Makes Its Own Butyrate

In a well-functioning gut, the process is elegant. You eat fermentable fiber – the kind found in a range of plant foods. That fiber passes undigested into your lower gut, where specific beneficial bacteria ferment it and produce butyrate as a byproduct. The butyrate immediately feeds your colonocytes, which use the energy to maintain a healthy, low-oxygen environment in the gut.

That environment, in turn, favors the very bacteria that produce more butyrate. It is a virtuous cycle, and when it runs well, it largely takes care of itself.

The key insight is that butyrate is meant to be produced and used right where it is made — locally, in the colon, in close contact with the cells that depend on it. This local nature is central to everything that follows, because it is exactly what makes butyrate so difficult to supplement effectively.

The Catch — Most People Make Too Little

Here is where the modern world breaks the cycle. Many people simply do not produce enough butyrate, for reasons such as:

- **Low fiber intake** — Modern diets are often low in the fermentable fiber that butyrate-producing bacteria need as raw material. No raw material, no butyrate.
- **Disrupted microbial balance** — When the balance of gut bacteria is thrown off, the specific organisms that produce butyrate can dwindle, and production falls with them.
- **Inflammatory pressures** — A range of modern dietary and lifestyle factors promote the kind of gut environment in which butyrate producers struggle and less helpful organisms thrive.

When butyrate production drops, the consequences ripple outward. As the gut lining loses its preferred fuel, the barrier can start to weaken and inflammation may set in. The very environment that favors butyrate producers begins to erode, which reduces production further. The virtuous cycle can become a vicious one.

The Obvious Fix That Doesn't Work

If your gut is not making enough butyrate, the obvious solution is to take butyrate as a supplement. And here is where everything from the first two articles comes crashing together, because conventional butyrate supplementation runs straight into the delivery problem — in one of its purest forms.

Butyrate taken in conventional form is largely absorbed high in the digestive tract, long before it reaches the colon where it is needed most. The molecule that is supposed to act locally in your lower gut gets taken up early and never arrives at its destination. On top of that, butyrate in raw form carries a famously unpleasant taste and odor that makes conventional supplementation genuinely difficult to tolerate.

So you have a molecule with deep, well-documented benefits that conventional supplementation almost entirely fails to deliver to the right place. If you set out to design the perfect demonstration of why targeted delivery matters — a case where the compound clearly works but the delivery clearly fails — you could not invent a better one than butyrate.

Why the Gut Was the Obvious Place to Start

This is exactly why we chose it. The benefit of butyrate is not the question. The science there is robust and growing. The only thing standing between that benefit and you is delivery — getting the molecule past the early digestive tract and releasing it intact in the colon, where the cells that depend on it are waiting.

Solve that delivery, and you unlock a molecule the research community has been excited about for years but that consumers have never been able to take proper advantage of. That is the entire thesis of 22nd Century supplements captured in a single product: take a compound with proven value, apply targeted delivery so it actually reaches the cells that need it, and produce a result that conventional supplementation rarely achieves.

The gut was not a random starting point or a marketing decision. It was the clearest, most provable case we had — the place where solving delivery makes the most undeniable difference.

How to Support Your Gut's Butyrate Production Now

While I prepare to share what we have been developing, there is a great deal you can do today to support your own butyrate production from the inside. These foundational steps benefit most people, though your microbiome is as individual as your fingerprint, so patience and personalization matter.

- 1. Repair the terrain first** — If you are bloated, irregular, or reactive to high-fiber foods, calm the inflammation before you try to feed the microbiome. Pushing fiber into an inflamed gut often backfires, producing more gas and irritation. Start gently and stabilize first.
- 2. Remove what suppresses butyrate producers** — Industrial seed oils high in linoleic acid work against the very gut microbes you are trying to support. Replacing fried foods and processed products made with soybean, corn, sunflower, and canola oils with traditional fats your body recognizes (such as butter, ghee, or tallow) removes a constant pressure on your gut ecosystem.
- 3. Reintroduce fermentable fiber in phases** — Once your gut is calm and can tolerate simple foods without symptoms, reintroduce fermentable fiber gradually — one source at a time, in small amounts — to give butyrate-producing bacteria the raw material they need without overwhelming a recovering system.
- 4. Consider protected postbiotic support** — Look for formats with protection — enteric coating or microencapsulation — so that what you take survives stomach acid and reaches the colon intact rather than being lost early.
- 5. Tend the environment around digestion** — Your gut responds to more than food. Consistent sleep aligned with natural light, managed stress, and an overnight fasting window all support the rhythm and balance your butyrate-producing bacteria need to thrive.

A Closer Look at the Food Strategy

Because food is the foundation of butyrate production, it is worth getting specific about what helps and what hurts — and about the order in which to do things, because order matters more than most people realize.

Start with foods that stabilize rather than provoke. When the gut is inflamed, even "healthy" high-fiber foods can backfire, fermenting too fast and producing gas, pressure, and more irritation. In the early phase, simple, gentle carbohydrates such as white rice and ripe fruit provide steady energy without feeding the wrong organisms. The goal at this stage is calm, not fiber.

Advance to fermentable fiber only when you are ready. Once you can tolerate those simple foods for several consecutive days without bloating, gas, or urgency, begin introducing resistant starch — cooked-and-cooled potatoes, green bananas, legumes — one source at a time and in small amounts.

These fibers bypass digestion in the small intestine and travel to the colon, where they become prime fuel for butyrate-producing bacteria. Only after that is well tolerated should you progress to inulin-rich foods such as onions, garlic, and leeks.

Add fermented foods slowly. Traditionally fermented foods such as raw sauerkraut and kefir can broaden microbial diversity and support butyrate-producing strains. Start with very small amounts to test tolerance, especially if your gut is sensitive, and build from there.

Consider testing for objective insight. A stool analysis can reveal which bacteria are present, whether your gut is inflamed, and how well you are producing SCFAs. That information lets you personalize your food and supplement choices rather than guessing, which is exactly the kind of data-guided approach the best modern tools are built around.

Signs Your Gut Is Making More Butyrate

As your butyrate production improves, your body tends to tell you. Watch for these signs over the first several weeks:

- Bowel movements become regular and well-formed, reflecting a healthier gut lining and motility.
- Fiber tolerance improves — less gas, bloating, or discomfort after fiber-rich meals.
- Hunger steadies between meals as gut signaling normalizes.
- Mood feels more stable, reflecting butyrate's influence on the gut-brain connection.
- Fewer cravings for processed, refined foods as the gut environment rebalances.

A Realistic Timeline

Gut recovery has a rhythm. It does not happen overnight, but the milestones are recognizable when you know what to look for:

Phase	What happens	Timeframe
Terrain repair	Gas, bloating, and sensitivity begin to calm	1 to 3 weeks
Fiber reintroduction	Butyrate-producing strains begin to increase	2 to 4 weeks
Function returns	Digestion steadies, energy and mood improve	4 to 8 weeks
Stable balance	A resilient, self-sustaining gut environment	8 to 12 weeks

Why Butyrate Matters Beyond the Gut

Although butyrate does its most direct work in the colon, the research increasingly shows that its influence radiates outward. This is part of why getting it right matters so much. When the gut barrier is strong and inflammation is controlled — both things butyrate supports — the effects are felt well beyond digestion.

Investigators have documented butyrate's role in metabolic regulation, its influence on immune balance, and its participation in the communication network that connects the gut to the brain. Reviews on PubMed describe butyrate acting on specific cellular receptors and pathways that touch inflammation, energy metabolism, and even neurological signaling.

The picture that emerges is of a single molecule sitting at a surprising number of crossroads in the body — which is exactly why its chronic underproduction in modern life is worth taking seriously, and why delivering it properly is worth the engineering effort.

Track Your Progress

If you decide to work on your gut health, a little structure makes it much easier to know whether your efforts are paying off. For the first several weeks, keep a brief daily note on a few simple markers — even a few words per day reveals patterns you would otherwise miss:

- **Bloating** — None, mild, moderate, or severe. A steady decline is one of the earliest signs your gut environment is calming.
- **Energy** — Steady, sluggish, or crashing. More stable energy often tracks with a recovering gut.
- **Mood** — Calm, tense, or irritable. Given butyrate's role in the gut-brain connection, mood can be a meaningful signal.
- **Bowel movement quality** — Consistency, frequency, and comfort. Regular, well-formed movements reflect a healthier gut lining.

As you reintroduce fermentable fiber, rate your tolerance week to week on a simple 1-to-10 scale. If you are not comfortably at a seven or above, hold at your current step rather than advancing. Progress depends on tolerance, not speed. Pushing too fast is the most common way people stall their own recovery.

In the coming days, I am going to share something we have been developing specifically to solve this — built around the exact delivery science you have now read about across these three articles. It is designed to get butyrate past the early digestive tract and release it where your colonocytes are waiting. I think it will change how you think about gut health entirely, and I will have much more to say about it very soon.

We are preparing a butyrate-support product designed around targeted delivery, and more than 35,000 people have already asked to be first in line. If you are on that list, your wait is almost over.

Start Learning Now — Before the Product Arrives

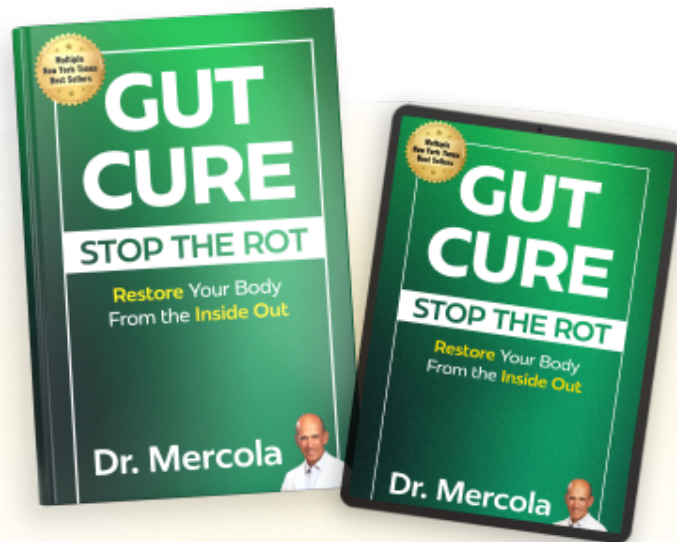
You do not have to wait for the product to start putting this knowledge to work. I have written a book, "Gut Cure: Stop the Rot: Restore Your Body from the Inside Out," that walks through the full science of butyrate, gut health, and targeted delivery in far greater depth than any article can — along with the complete, step-by-step protocol for rebuilding your own gut from the inside out.

This is the foundation. The book teaches you why your gut may have stopped making enough butyrate, how to repair the terrain, how to reintroduce the right fibers in the right order, and how to support the entire system so it becomes self-sustaining. By the time the product launches, readers will already understand exactly how it fits into the larger picture — and will get far more out of it as a result.

The science does not depend on any single product; it starts with understanding, and the book is where that understanding begins.

Get the Book and Start Improving Your Gut Today

You can begin right now. Gut Cure: Stop the Rot: Restore Your Body from the Inside Out lays out the complete science and the full step-by-step protocol so you can start rebuilding your gut today rather than waiting. It is the educational foundation the entire 22nd Century approach to gut health is built on. Order "**Gut Cure: Stop the Rot: Restore Your Body from the Inside Out**" now.



ORDER NOW!

Be First When It Launches

The first 22nd Century gut product is almost here — and the people on Pax will be first to get it. Pax is our AI health coach: at-home lab testing, personalized interpretation, and 24/7 guidance built around your own biology. Join free now so you are first in line when our product launches. [Open Pax here → pwa.paxhealthcoach.com](https://pwa.paxhealthcoach.com)

OPEN PAX

FAQ

Q: What is butyrate, and why does it matter so much?

A: Butyrate is a short-chain fatty acid your gut bacteria produce when they ferment fiber. It is the primary fuel for the cells lining your colon and helps keep the gut barrier strong, inflammation in check, and the gut environment healthy. When butyrate runs low, gut function and much that depends on it tend to suffer.

Q: Why does delivery matter more for butyrate than for some other compounds?

A: Because butyrate is meant to act locally, right in the colon. A compound that needs to reach a specific location is only useful if it actually arrives there intact. That is precisely what targeted delivery — protective coatings and engineered release — is designed to accomplish.

Q: What can I do to support my butyrate levels right now?

A: Calm your gut first if it is inflamed: remove industrial seed oils that suppress butyrate-producing bacteria, reintroduce fermentable fiber gradually, choose protected postbiotic formats that survive stomach acid, and support sleep, stress, and an overnight fasting window. These foundations help your gut make its own butyrate.

Sources and References

- [Liu H, et al. *Advances in Nutrition*, 2018. DOI: 10.1093/advances/nmx009](https://doi.org/10.1093/advances/nmx009)
- [Hodgkinson K, et al. *Clinical Nutrition*, 2022. DOI: 10.1016/j.clnu.2022.10.024](https://doi.org/10.1016/j.clnu.2022.10.024)
- [Kalkan AE, et al. *Nutrients*, 2025. DOI: 10.3390/nu17081305](https://doi.org/10.3390/nu17081305)
- [Chakraborty P, et al. *Neurochemistry International*, 2024. DOI: 10.1016/j.neuint.2024.105745](https://doi.org/10.1016/j.neuint.2024.105745)