

Why I'm Rethinking the Way Supplements Are Delivered

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STORY AT-A-GLANCE

- Supplements were never meant to be miniature drugs. They exist to complement a nutrient-dense diet, not to override a poor one the way pharmaceuticals are used to suppress symptoms
- Compliance is the supplement world's quietest failure. Good intentions are common; the willingness to swallow a fistful of capsules every day is not, and a supplement sitting in your cabinet does nothing for you
- For certain ingredients, I'm moving toward clean, sprinkle-on-food powders in foil pouches and canisters instead of capsules in bottles. When the supplement becomes part of your meal, taking it stops being another chore to remember. This is not a blanket rejection of capsules. Some ingredients genuinely need a capsule, a softgel, enteric protection, or a shield from oxygen, light, and moisture, and those will stay exactly as they are
- I'm also rethinking glass. It sounds like the obvious premium choice, but in the real world it's heavy, breakable, costly to ship, and — like any bottle or jar — it lets in a fresh charge of air every time you open it. For several items in our line the better answer is aluminum-foil packaging: pouches and foil-lined canisters flushed with nitrogen and packed with an oxygen absorber and desiccant, which protects fragile actives far better than any bottle. That said, glass still has a place for certain liquid products
- The most overlooked part of any supplement package is the closure. It decides how much oxygen leaks in and, for a powder, whether the pack can reseal — a standard zipper clogs on fine powder — while its liners, gaskets, adhesives, and inks can carry hidden chemistry, which is why we scrutinize every layer that touches or seals the product

For decades, supplements have been packaged and swallowed as though they were tiny pharmaceuticals. You open a bottle, shake out a capsule or tablet, wash it down with water, and move on with your day. That model is convenient for manufacturers. It is not always the best thing for you.

It also teaches the wrong lesson — that nutrition is something separate from food. You eat your meals, and then, almost as an afterthought, you take your "health pills." But that is not how your body works. Nutrients do not act in isolation. They are part of a living system, interacting with food, digestion, bile, stomach acid, enzymes, gut microbes, and the timing of your meals.

That is why I believe the next real advance in supplements is not simply better ingredients. It is better delivery. And for many nutrients, the best delivery system may not be another capsule at all. It may be a clean powder you sprinkle directly onto your food.

Supplements Should Support Your Diet, Not Replace It

This is the most important point, so I want to be blunt about it. Supplements are not drugs. Drugs are designed to force a biochemical effect — to block a pathway, suppress a symptom, or replace a missing signal. There are times that is necessary. But that is not nutrition.

Nutrition provides raw materials and biological signals your body uses to maintain normal function. So a supplement should be built as an addition to a diet of real, whole foods, never as a substitute for one. If you are using supplements to paper over poor meals, you are using them backward.

The goal is not a life where breakfast is junk, lunch is rushed, dinner is processed, and then you swallow 20 pills to "make up for it." That is the same reductionist thinking that helped create the modern health crisis in the first place. The better model is simple: food first, targeted supplementation second. Sprinkle-on-food powders reinforce that order. Instead of separating the supplement from your meal, they fold it into the meal.

The Real-World Problem with a Handful of Capsules

Capsules have their place. They protect fragile ingredients, mask unpleasant tastes, allow precise dosing, and travel well. But they carry a cost almost no one talks about: people simply stop taking them.

Many people dislike swallowing capsules, and some cannot easily swallow them at all. Others start a program with enthusiasm, then abandon it when the routine becomes a burden. Five capsules become eight. Eight become 12. Before long, someone who just wanted to support their health feels like they are managing a prescription regimen. That is not empowering, it is exhausting.

This matters because compliance is one of the least appreciated factors in health. The research on medication is sobering: among older adults managing multiple conditions, a higher treatment burden and more complex regimens track directly with worse adherence, and in one multicenter study more than two-thirds of patients did not take their medications as directed.¹ The same friction applies to supplements. A product that sits unused in your cabinet does nothing, no matter how good the formula is.

Swallowing itself is a real barrier, and not a trivial one at that. Difficulty swallowing pills is common enough that clinicians routinely crush tablets or open capsules for patients who struggle — a workaround that can backfire by altering the dose and how the ingredient behaves.²

And the bigger the pill, the worse it gets: in one large analysis, oversized tablets and capsules were by far the strongest predictor of swallowing difficulty, raising the odds nearly tenfold.³ When the active dose is several grams, a capsule is simply the wrong tool.

Why Sprinkle-on-Food Powders Change the Equation

A sprinkle-on-food powder changes the entire experience. Instead of opening several bottles, counting capsules, and swallowing them with water, you add a scoop to food you were already going to eat — yogurt, oatmeal, applesauce, cottage cheese, a smoothie bowl, nut butter, even certain savory dishes. The supplement becomes part of a normal eating pattern. The advantages stack up quickly:

- **Easier compliance** — A scoop of powder added to a drink or sprinkled on food is far simpler than downing a fistful of capsules, so you are more likely to actually take it every day.
- **No swallowing burden** — This matters enormously for older adults, children, and anyone who dislikes pills.
- **Better food integration** — Many nutrients and prebiotics are naturally meant to be taken with food.
- **Flexible, meaningful dosing** — Powders deliver serving sizes that would take a dozen capsules to match.
- **Less capsule material** — When a serving is several grams, capsules become impractical and wasteful.
- **A better experience** — The product feels like food support rather than a drug-like intervention.

This is especially relevant for fiber, prebiotics, amino acids, minerals, collagen peptides, resistant starches, and microbiome-supporting compounds — exactly the ingredients where dose is everything. Higher fiber intake is one of the most consistent signals in all of nutrition science: a meta-analysis of 64 cohorts and more than 3.5 million people found that greater total fiber intake was associated with roughly 23% lower all-cause mortality, 26% lower cardiovascular mortality, and 22% lower cancer mortality.⁴

But you cannot put a meaningful 5-gram dose of fiber into one or two capsules. You would need a handful. That is poor design.

The same is true for the compounds that feed your gut. Fermentable fibers and prebiotics are converted by your microbiome into short-chain fatty acids (SCFAs), especially butyrate, which fuels the cells lining your colon, helps maintain the integrity of your gut barrier, and helps regulate your immune system.^{5,6} These effects depend on getting real, food-level doses to the colon.

In controlled trials, prebiotic doses are measured in grams — for example, several grams of resistant starch per day to shift the gut microbiome.⁷ A powder you stir into food delivers that effortlessly; a capsule cannot.

This Won't Work for Every Supplement

Of course, powder delivery is not universally applicable. Some ingredients taste terrible. Some are unstable when exposed to moisture or oxygen. Some need protection from stomach acid, or need to be released in the small intestine or colon. Some are needed in tiny, precise doses better suited to capsules. Some are oils, which require softgels or liquid formats.

So this is not a move away from capsules across the board. It is a move away from using capsules when they are not the best tool. The right question is not, "Can we put this into a capsule?" The right question is, "What delivery system best matches the needs of this ingredient and the daily life of the person using it?" For many food-compatible nutrients, the answer is a clean powder in a foil pack and a small scoop.

Why I'm Rethinking Glass

For years, glass seemed like the obvious superior material. It is inert, it feels premium, it contains no plasticizers, and it is recyclable, at least in theory. In practice, however, glass recycling is far less consistent than most people believe. Many municipalities no longer want mixed glass in curbside bins because it breaks, contaminates other recyclables, damages sorting equipment, and often has poor local market value. Even when glass is collected, it is not always recycled.

Glass breakage has also been one of our biggest shipping challenges. A shattered supplement bottle is not just an inconvenience — it creates waste, replacement shipments, customer frustration, warehouse complications, and safety concerns. A package is supposed to protect the product and the customer. If the package itself becomes a recurring failure point, it deserves to be reconsidered.

But the deeper problem with glass has nothing to do with breakage. Glass is an excellent oxygen barrier, yet even a glass jar re-admits a fresh charge of air every time you open it — and for our most sensitive ingredients, that repeated oxygen exposure, not the material of the container, is what erodes potency.

Glass is also heavy: a jar can weigh around 140 grams against roughly 33 grams for a foil-lined canister, which inflates shipping cost on every order. So glass remains the right choice for a small number of products — but it is a targeted tool, not the platform for our whole line.

Why Oxygen Is the Real Problem

When I looked closely at what actually causes our best products to lose their potency, the answer was not the container material. It was oxygen. For actives whose strength is governed by oxidation — butyrate, live probiotics, polyphenols, delicate lipids, and many oils and flavor systems — oxygen is a slow, invisible failure.

The product passes testing, ships, sits on a shelf, gets opened day after day, and by the middle of its shelf life it is materially weaker than the label says. That is the worst kind of quality problem: one you experience but cannot see.

Oxygen reaches a product three ways, and a package has to defeat all three. It permeates slowly through the container wall. It leaks in around the cap, the threads, and the seal. And — the one almost everyone misses — it floods back in every time you open the container, replacing the protected air inside with a fresh charge of ordinary air. A plastic bottle fails on all three counts. A glass jar fixes the first two but not the third, because it still re-admits air on every open.

Why We're Moving to Aluminum-Foil Packaging

The format that solves all three is aluminum-foil packaging — foil pouches and foil-lined canisters — run with what we call an anaerobic fill: the air is flushed out with nitrogen, an oxygen absorber inside the pack mops up whatever remains or seeps in over time, and a desiccant controls moisture.

The foil itself is a near-perfect barrier, and the oxygen absorber is what lets a multi-dose pack be opened every day without the contents slowly oxidizing. It is lighter than glass, it does not shatter, and it protects the active far better than any bottle.

One distinction matters here. This only works with true aluminum foil, not the cheaper metallized film that looks almost identical on a shelf. Real foil has an oxygen barrier 10 to 100 times better than the metallized look-alike, and for sensitive products that difference is the whole point — so we specify solid foil, not a foil-look film, on every package.

The exact format depends on the product. A wide, flat-bottom pouch works for most powders. A quad-seal pouch or a foil-lined paper canister gives a premium look for collagen or protein. A spouted, screw-cap pouch is ideal for sprinkle-on and scoop-dosed powders. A few of our most sensitive capsules stay sealed in individual foil blisters until the moment you take them. And for repeat purchases, a reusable canister paired with low-cost foil refills keeps the barrier where it belongs while cutting waste.

The Honest Caveat About Plastic and Microplastics

I would be doing you a disservice if I pretended plastic were free of concerns. Micro- and nanoplastics are now found throughout the environment and the human body, and the research linking them to oxidative stress, inflammation, and harm across multiple organ systems is growing quickly.⁸ They have even been detected in human reproductive tissues, including placenta and follicular fluid.⁹

The Minderoo-Monaco Commission on Plastics and Human Health laid out, in detail, how plastics and their additives touch human health at every stage of their life cycle.¹⁰ I take that seriously, and as a general rule I still favor glass over plastic for the things you consume, particularly liquids.

So why accept any plastic contact at all? Because the exposure routes that shed the most micro- and nanoplastics — liquids, heat, UV light, and mechanical abrasion — are largely absent when a dry powder sits at room temperature inside a foil pack and gets spooned onto food. The foil does the barrier work, and the thin food-grade layer that seals it rarely encounters the conditions that drive plastic to shed.

That is a meaningfully different risk profile than a hot liquid sitting in plastic. It is a deliberate, narrow trade-off: glass for the highest-risk uses like liquids, foil where its protection wins and the exposure risk is lowest.

The Closure Matters as Much as the Container

The jar closure is the part almost no one thinks about. When people picture packaging, they fixate on the container — glass versus plastic, clear versus amber. But the closure is where two of the biggest problems actually live: how well the pack keeps oxygen out, and, for a powder, whether it can reseal properly.

A screw cap is a leak path by design — air works in around the threads and under the liner, which is one more reason a heat-sealed foil pack outperforms a bottle: there is no cap to leak. Powders bring a second, very practical trap. A standard press-to-close "Ziploc" zipper fails on fine powder — particles lodge in the groove, the profile stops engaging, and within a week or two the pack no longer seals.

Any powder we put in a resealable pouch therefore gets a powder-proof closure — an evacuation-port zipper, a particle-plow slider, a hook-and-loop seal, or a threaded spout — never a plain zipper.

A closure can also carry hidden chemistry — BPA-based coatings, PVC plastisols, phthalate plasticizers, or PFAS-treated papers — and those are not abstract worries. Researchers have now documented that more than 1,800 known food-contact chemicals can migrate out of packaging, and evidence of human exposure exists for roughly a quarter of the 14,000-plus chemicals used in food-contact materials — many with hazardous properties.¹¹

PFAS in particular leach out of food-contact materials, and that leaching increases with temperature.¹² The chemistry in these classes is exactly what you want to avoid: bisphenol A (BPA) is linked in pooled human analyses to insulin resistance, type 2 diabetes, hypertension, obesity, and cardiovascular disease,¹³ and phthalates are associated with a long list of reproductive and developmental harms, including effects from prenatal exposure.^{14,15}

There is even a striking real-world example that makes the point: beverages packaged in glass bottles have been reported to carry more microplastic particles than the same drinks in plastic — traced not to the glass, but to the paint on the metal caps. The closure, again.

For our powder products, the closure has to meet the same standard as the pack. We look at the full stack — the closure resin, the liner material, the induction or foam seal, the adhesive system, the printing inks, the gasket layer, the desiccant, the direct food-contact surface, and how all of it behaves under real storage conditions.

The safest design is usually the simplest: a real foil pack, a powder-proof closure, and a clean induction or foam seal made without BPA, BPS, BPF, PVC, phthalates, PFAS, or unnecessary coatings — with the nitrogen flush, oxygen absorber, and desiccant doing the preservation work inside.

If a product is meant to be used daily with a scoop, the package has to support daily use: an opening wide enough for easy scooping, a powder that pours instead of caking into a brick, a closure that reseals tightly every time, a seal that adds no unwanted chemistry, and a pack that survives a pantry, a suitcase, or a gym bag.

Packaging Is Part of the Formula

Most people think the formula ends when the ingredients are blended. I do not see it that way. The formula includes the delivery system. The delivery system includes the package. And the package includes every material that touches the product or protects it from the environment.

This is especially true for powders, which are vulnerable in ways capsules are not. They absorb moisture, clump, segregate when particle sizes differ, stick to the scoop, pick up odors, and lose potency if a probiotic or nutrient is not protected.

So for a sprinkle-on-food powder, the package has several jobs at once: keep the product dry, keep oxygen out, preserve potency, prevent clumping, avoid chemical migration, open and close easily, travel safely, resist breakage, support daily compliance, and make the product feel like part of food rather than a drug routine. That is the level of detail this deserves.

The Bigger Shift: From Pill Burden to Food-Based Health

The supplement industry has trained people to think in capsules and bottles. But your body thinks in meals, digestion, absorption, microbial metabolism, and biochemical context. A powder you sprinkle on food is not just a different package; it is a different philosophy. It says: your diet is the foundation, this product belongs with food, it is not a substitute for food, and it is not a drug. It is targeted support that fits the way your biology already works.

Not every product will change. Some should stay capsules, some should stay softgels, and some require specialized delivery. But wherever the ingredient allows it, I want to reduce pill burden, improve compliance, cut breakage, make travel easier, and rethink packaging from the standpoint of both health and function.

What You Can Expect Going Forward

First, delivery. We will ask whether each ingredient belongs in a capsule, a powder, a softgel, a liquid, a delayed-release form, or a food-compatible system.

Second, packaging. We will judge a package not by whether it looks premium, but by whether it keeps oxygen and moisture out, protects potency, survives shipping, supports daily use, and avoids unnecessary chemical exposures.

Third, compliance. A product only works if you actually use it. The easier we make that, the more likely it becomes part of your daily routine.

That is the future I am working toward: fewer handfuls of capsules, more food-compatible formats, smarter packaging, and a more honest relationship between supplements and diet. Supplements should not pull you away from food. They should help you use food more intelligently. That is the real purpose of this shift.

The Bottom Line

If you take one idea from this, let it be this: the best supplement in the world is worthless if it ends up sitting in your cabinet. Format and packaging are not afterthoughts — they decide whether you take the product, how much of the active you actually get, and what else comes along for the ride.

For the right ingredients, a clean powder you sprinkle on real food solves the compliance problem, delivers doses a capsule never could, and keeps the experience rooted in food. Choose your formats and packaging with the same scrutiny you give your ingredients, pay as much attention to oxygen and the closure as to the container, and keep food first.

Frequently Asked Questions

Q: Are you eliminating capsules?

A: No. Capsules still make sense for many ingredients — those that need protection from taste, moisture, or stomach acid, or that require small, precise doses. The goal is not to eliminate capsules; it is to stop using them when a powder would serve you better.

Q: Why foil pouches and canisters instead of bottles?

A: Because the real enemy of a sensitive supplement is oxygen, and a bottle lets it in three ways — through the wall, around the cap, and with a fresh rush of air every time you open it. A nitrogen-flushed foil pack with an oxygen absorber inside shuts down all three, and it is lighter and unbreakable. A wide foil pack or canister still gives you easy scoop access, which a narrow bottle never did.

Q: Why move away from glass?

A: Glass is inert and an excellent oxygen barrier, but it is heavy, breakable, recycled far less reliably than most people assume, and it still lets a fresh charge of air back in every time you open it. Shipping breakage adds waste and customer inconvenience on top of that. For many items in our product line, real aluminum-foil packaging is the better total solution — though glass remains the right call for some items.

Q: Isn't foil packaging still plastic?

A: Foil packaging is mostly aluminum, which does the barrier work, with only a thin food-grade layer to seal it. It is not made with BPA and does not use phthalate plasticizers, and because the powder stays dry and cool, the conditions that make plastic shed — heat, liquid, UV, abrasion — are largely absent. We still evaluate every layer of the pack and closure, and for liquids I continue to favor glass.

Q: Why are you so focused on closures?

A: Because the closure decides two things people overlook: whether oxygen leaks in, and — for a powder — whether the pack can reseal, since a standard zipper clogs on fine powder. It can also be a source of hidden chemical migration through liners, gaskets, adhesives, and inks. We scrutinize the full closure system, not just the container.

Q: Will the powders taste bad?

A: Not if they are designed correctly. Some powders are naturally neutral; others need careful flavor work. The goal is not candy-like supplements, but powders that are genuinely easy to use with real food.

Q: Does this mean supplements replace meals?

A: Just the opposite. This entire shift is built on the idea that supplements should complement a healthy diet, never replace it.

This article is for informational purposes only and does not constitute medical advice. Consult a qualified health care provider before making changes to your health regimen.

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