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Our November 2026 Newsletter for Healthy Living

Balancing the B's

Your body runs on B vitamins the way a car runs on fuel — without them, everything slows down, sputters, and eventually stalls. Unlike fat-soluble vitamins that linger in your tissues, B vitamins wash out quickly, which means you need to replace them daily to keep your cells working. They're the quiet helpers behind energy production, nerve function, and even mood balance, and when you don't get enough, the warning signs show up fast: fatigue, brain fog, irritability, and tingling in your hands or feet.

These nutrients are packed into everyday foods like grass fed beef, liver, mushrooms, spinach, and pastured eggs, yet even with a varied diet, modern habits often work against you. Alcohol drains thiamine, food processing strips away riboflavin and folate, and overcooking destroys delicate compounds your body depends on. Supplements help fill the gaps, but taking too much of one vitamin while ignoring the others creates its own problems. Because these nutrients touch nearly every system in your body, from blood production to brain health, the consequences of deficiency are severe.



That's why scientists have spent decades studying how shortages lead to diseases and how balance — not excess — protects long-term health. With that foundation in mind, let's look at what research uncovered about how B vitamins keep your energy systems running at full capacity. A paper published in The Permanente Journal examined all eight members of the B complex — thiamine (B1), riboflavin (B2), niacin (B3), pantothenic acid (B5), pyridoxine (B6), biotin (B7), folate (B9), and cobalamin (B12).These vitamins were shown to be essential for both breaking food down into usable energy and building key compounds inside cells. Because they're water-soluble and not stored in your body, they should be replenished every day.

Deficiencies were linked to specific and severe outcomes — Low levels of these vitamins trigger widespread dysfunction. Thiamine deficiency was tied to nerve and brain disorders such as Wernicke-Korsakoff syndrome, characterized by confusion, poor coordination, and permanent memory loss. Riboflavin deficiency caused skin problems, mouth sores, fatigue, and anemia. Niacin deficiency led to pellagra, known for the "three Ds" — dermatitis, diarrhea, and dementia. Even moderate deficiencies slowed energy metabolism, leaving people with weakness, low concentration, and depression.

"The focus should be on consistent daily intake from whole foods ..."

Thiamine protects your nerves and muscles — Your body turns thiamine into an active form that's needed to turn food into energy and to make a brain chemical that controls memory and muscle movement. Without it, you risk brain fog, memory loss, and muscle weakness.

Riboflavin helps other vitamins do their jobs — Riboflavin acts like a switch that activates other B vitamins, including niacin, folate, and B6. Without enough riboflavin, those vitamins lose their power too. It also defends your cells from damage during energy production. The review showed that adding riboflavin back into the diet reversed problems like fatigue and skin issues caused by deficiency.

Niacin keeps your DNA and cholesterol in balance — Niacin comes from food or the amino acid tryptophan and helps make compounds that repair DNA and regulate fats in your blood. Without enough, people develop pellagra, marked by diarrhea, dementia, and skin rashes. But too much (over 3 grams a day) harms your liver and causes burning flushes. The safer form, nicotinamide, was shown to treat pellagra without those side effects.

B6 supports your mood and blood health — In its active form, B6 helps make brain chemicals that regulate mood. Low B6 is tied to anemia, seizures in infants, and depression in adults. The paper also warned that common medications like anticonvulsants and the Parkinson's disease drug levodopa block B6 activity, making deficiencies more likely if you take them. Missing B vitamins means your cells can't properly run the citric acid cycle and electron transport chain — your body's main ways of turning food into energy. Neurons, which are the hungriest cells in your body, are the first to fail. That explains why deficiencies often start with neurological problems like brain fog, nerve pain, or confusion.

Replacing them early prevents lasting harm —

continued on page 3

What's Inside This Issue

- **Rebuilding Your Gut**
- **It's Turkey Time!**
- **Balancing the B's,** *continued*
- **November Specials & Coupon**

All articles in this newsletter are for the purpose of nutritional information only and should not be considered a substitute for professional medical advice.

Rebuilding Your Gut

Your gut lining is one of the most active and self-renewing tissues in your body. Every few days, millions of cells are replaced to keep your intestinal barrier strong and your digestion efficient. But that renewal process depends on more than time — it requires specific nutrients that fuel regeneration. When those nutrients are missing, your gut becomes fragile, leaving you more prone to inflammation, poor absorption, and chronic discomfort.

Cysteine, a sulfur-containing amino acid found in everyday foods like eggs, meat, and dairy, has emerged as one of the key players in this renewal process. Unlike most nutrients that simply provide energy or structure, cysteine helps your body activate its own repair mechanisms. It influences the way your intestinal cells communicate with your immune system, guiding the regeneration that keeps your gut lining intact.



The discovery of cysteine's role in intestinal healing is changing how scientists view diet and recovery. Rather than relying solely on medical interventions after damage occurs, the focus is shifting toward using targeted nutrition to drive regeneration from within. This approach offers a way to support gut health, especially for those dealing with the side effects of toxins, medication, or chronic stress.

Scientific findings reveal the precise mechanisms that make cysteine such a powerful nutrient for intestinal repair. This knowledge could reshape your approach to digestive health. In a study published in Nature, researchers demonstrated that dietary cysteine enhances the body's ability to repair damage in the small intestine. The study focused on how cysteine influences intestinal stem cells, the specialized cells that replace and regenerate the lining of your gut. In simple terms, these stem cells act as the gut's construction crew, repairing tissue that's been damaged by illness, toxins, or treatments like chemotherapy.

Cysteine enhances "stemness," or the ability of these cells to regrow new tissue — The research team discovered that when cysteine intake increased, intestinal stem cells became more active, leading to faster and more complete regeneration. This finding is significant because the small intestine needs to constantly rebuild itself — roughly every five days — to maintain barrier integrity and nutrient absorption. Without this renewal, inflammation and infection set in quickly, compromising digestion and overall health.

The study was conducted in mice but reveals key principles applicable to human health — Mice given a cysteine-enriched diet showed remarkable improvements in how their intestines recovered after injury. The cysteine-fed group had thicker, healthier intestinal walls and faster tissue renewal compared to control groups that didn't receive extra cysteine. This suggests that dietary amino acids directly influence gut recovery, not just through nutrient supply but by altering cellular signaling within the intestinal lining.

"When cysteine intake increased, intestinal stem cells became more active, leading to faster regeneration…"

Your gut has a built-in repair signal that tells cells when to rebuild — When this natural signal was activated, the gut's repair cells started multiplying quickly and creating fresh, healthy tissue. The intestinal wall became stronger and healed faster after damage. But when researchers shut off that signal or removed the immune cells that trigger it, the healing stopped completely — showing that cysteine works by switching on your body's own repair response.

Cysteine is converted into a special compound that starts the healing process — Researchers discovered that cysteine itself isn't what repairs your gut — it's what your body turns cysteine into. Once converted, this compound acts like a messenger that tells your intestinal cells and immune system to start rebuilding the damaged lining. It's the spark that gets the repair system running. However, if your cells can't absorb cysteine, your gut won't heal. When researchers blocked the tiny transport gate that lets cysteine into intestinal cells, the repair process stopped entirely. That means it's not just about eating enough protein — it's about making sure your gut takes in and uses cysteine properly to trigger healing from the inside out.

A cysteine-rich diet could protect your gut health — By showing that cysteine supports both the immune system and stem cell function, the study reveals how a single nutrient orchestrates multiple biological systems to restore balance. It's a form of dietary immunotherapy — using what you eat to direct your body's own repair mechanisms. This means that increasing cysteine intake through foods like eggs, grass fed meat, and dairy could help your intestinal lining recover more efficiently from stress or illness. The findings also encourage a shift in how we view amino acids: not just as building blocks of protein but as active regulators of healing and regeneration. Your gut lining isn't just a passive barrier — it's a living, renewing tissue that depends on the right fuel to stay strong.

When you give your body what it needs to rebuild — like cysteine — you help it repair damage from stress, medications, radiation, or poor diet. The goal isn't to take another supplement just for the sake of it. It's to restore balance to your intestinal environment so your body can heal itself. Here's how to get started:

Prioritize real food sources of cysteine every day — The best way to raise cysteine levels is through food. Focus on whole protein sources like pastured eggs, grass fed beef, and raw dairy. These foods naturally contain cysteine in a form your body recognizes. If you're plant-based, cooked lentils and beans are options, though they're less concentrated. You don't need massive amounts — consistency is what matters. Over time, you'll feed your intestinal stem cells the raw material they need to keep your gut lining strong. If you're sensitive to sulfur compounds or notice headaches or increased body odor when consuming sulfur-rich foods, start with smaller amounts of cysteine-rich foods and increase gradually.

Repair your gut barrier before adding complex foods — If your digestion is sensitive or you're recovering from illness, your intestinal lining is likely fragile. Start simple. Use easily digestible foods like white rice and fruit before reintroducing heavier fibers. As your intestinal barrier heals, slowly expand your diet. Think of this as rebuilding a foundation — you wouldn't stack bricks until the frame is stable. Cysteine works best when your gut environment is calm and ready to regenerate.

Support your immune system's communication network — Cysteine's healing effect depends on immune messengers that tell your gut cells to repair damage. To keep this system working smoothly, get daily sunlight exposure to support your vitamin D levels, which regulate immune balance. The more balanced your immune system, the faster cysteine-driven healing occurs.

continued on page 3

Balancing the B's *continued from page 1*

that symptoms such as fatigue, low mood, or nerve tingling can be reversed if you restore B vitamins quickly. In serious thiamine deficiency, they even recommended IV treatment before eating carbs to prevent brain damage. Riboflavin and niacin shortages were also shown to be correctable with diet or supplements.

"Fortunately, supporting your B vitamin staus doesn't require complicated strategies."

The takeaway is steady intake, not mega-doses — Most B vitamins are safe, but your body flushes out the extras. The problem isn't usually taking too much in one day — it's not getting enough every day. The focus should be on consistent daily intake from whole foods and modest, balanced supplements if necessary.



If you want to protect your energy, brain function, and overall health, you need to think about how you're replenishing B vitamins every single day. These nutrients don't stay stored in your body, and if you're not paying attention, a deficiency creeps up faster than you realize.

Fortunately, supporting your B vitamin status doesn't require complicated strategies. With a few practical adjustments, you can make sure your cells have what they need to produce energy and keep your nervous system strong. Here are five straightforward steps to take:

1.Rely on whole foods first — Get your B vitamins from real food as much as possible. Grass fed beef, liver, pastured eggs, mushrooms, leafy greens, and asparagus give you a broad spectrum of B vitamins in their most usable forms. If you're a plant-based eater, you need to pay special attention to vitamin B12 because it's only found in animal foods — fortified foods or a balanced supplement help fill that gap.

2.Use a balanced B-complex supplement when needed — If your diet isn't giving you enough variety, a high-quality B-complex is an easy safeguard, supporting energy production and protecting your cells from stress.

3.Space your intake throughout the day — Because B vitamins are water-soluble and flush out of your body quickly, it makes sense to take them in small amounts at different times instead of one large dose. Think of it like sipping water instead of chugging a gallon all at once — it keeps your system balanced and consistently fueled.

4.Watch your cooking and alcohol habits — Long cooking times, boiling food, and excess alcohol use all destroy B vitamins before they even reach your bloodstream. If you're serious about preserving these nutrients, cook vegetables lightly, avoid overcooking meats, and monitor your alcohol. Even moderate drinking blocks thiamine and B12 absorption, which directly robs you of energy and brain health.

Michigan Pasture-raised Turkeys



Humanely-raised at Circle B Farm in Mancelona

5.Keep your intake balanced — One of the biggest mistakes many people make is mega-dosing on a single B vitamin while ignoring the rest. For example, too much folic acid masks a B12 deficiency, which silently damages your nerves. Aim for variety: leafy greens for folate, grass fed beef for B12, bananas and potatoes for B6, mushrooms for B3, and pastured eggs for riboflavin. Balance is the key to getting the benefits without the risks.

Reference: *The Permanente Journal* 2022 June 17; 26(2):89-97. *Medical News* August 4, 2025

Rebuilding Your Gut *continued from page 2*

Add NAC for deeper support and faster recovery — If you want an extra boost, consider NAC (N-acetylcysteine), a supplemental form of cysteine that your body converts easily. NAC helps raise glutathione — your body's master antioxidant — which protects gut tissue from oxidative stress and inflammation. Because glutathione is also a powerful detox agent, starting with too high a dose often triggers strong detox symptoms that make you feel worse before you feel better. To avoid this, begin low — around 400 to 600 milligrams (mg) once daily — and slowly increase your dose over time as your body adjusts. Always take NAC with food to reduce stomach irritation.

Long-term NAC supplementation may reduce copper levels. Consider monitoring copper status or taking periodic breaks from supplementation. If you're currently taking an antidepressant or undergoing cancer treatment, discuss the use of NAC with your physician first, as it may interact with certain antidepressants and chemotherapy drugs. NAC is especially useful if you've been exposed to environmental toxins, are recovering from antibiotics, or struggle with fatigue. It acts like an insurance policy, ensuring your body has enough raw material to rebuild, protect, and detox efficiently.

Avoid foods that inflame or block regeneration — The fastest way to undo progress is to keep eating foods that irritate your gut. Eliminate fried foods, restaurant meals and ultraprocessed snacks. These are high in linoleic acid (LA), a polyunsaturated fat that acts as a mitochondrial poison when consumed in excess. Replace them with stable fats like tallow, ghee, or grass fed butter. Also, avoid high-fiber foods if your gut is inflamed — they worsen endotoxin buildup. You'll know your gut is improving when bloating subsides, energy rises, and you tolerate a wider range of foods. Healing your intestinal lining isn't a quick fix — it's a biological rebuild. If you've struggled with chronic gut issues, expect to see improvements gradually as your intestinal stem cells restore balance.

Track your progress by how you feel: fewer digestive flare-ups, better bowel regularity, deeper sleep, and more stable energy are all signs your gut is responding. You're not just feeding your stomach — you're training your body to heal itself through the signals you send with every meal. Your gut has remarkable regenerative power. When you supply the right inputs — nutrients like cysteine, healthy carbs, and recovery time — you teach your body to rebuild rather than just cope. The result is a stronger, more resilient digestive system that supports every aspect of your health.

Reference: *Nature* October 1, 2025. *MIT News* October 1, 2025

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