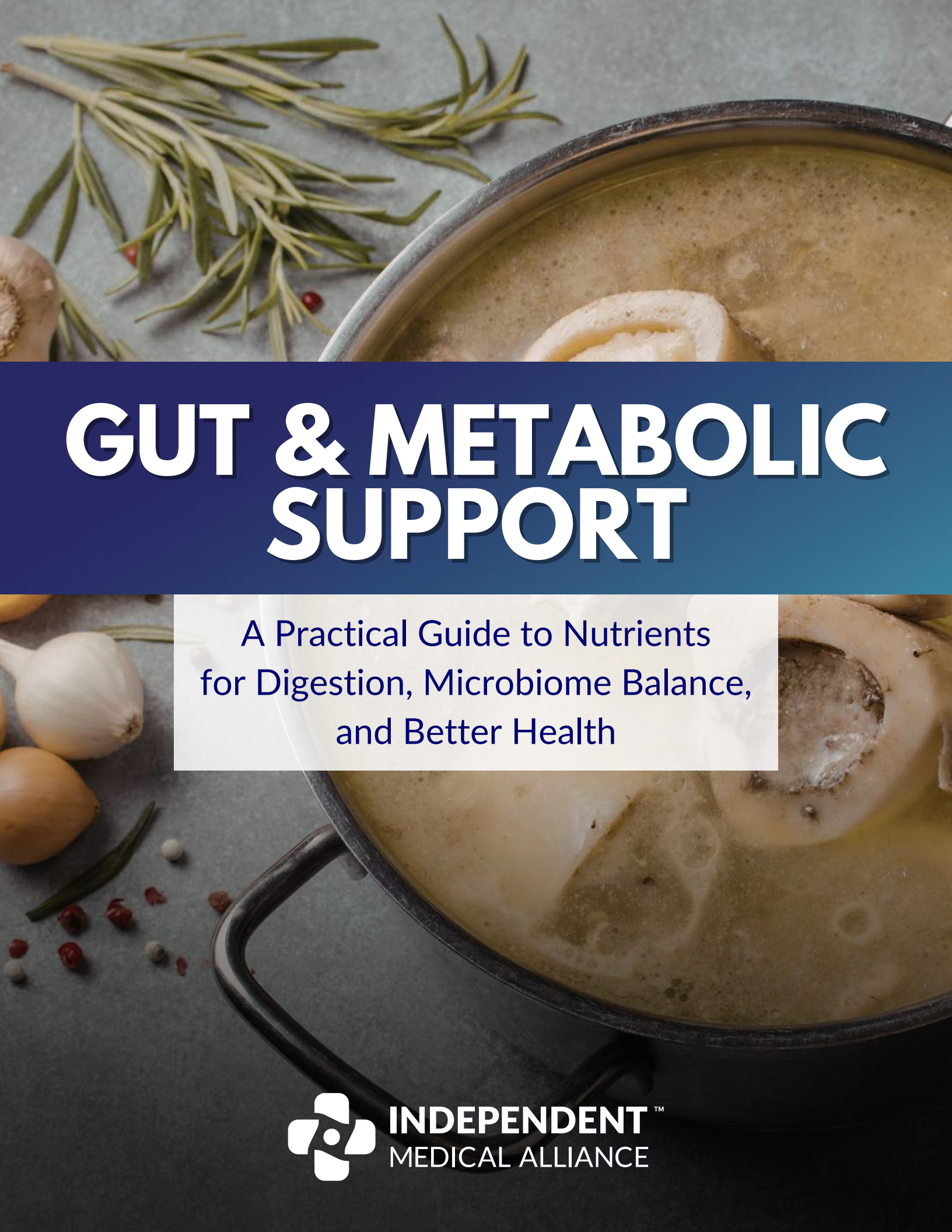

GUT & METABOLIC SUPPORT

A Practical Guide to Nutrients for Digestion, Microbiome Balance, and Better Health

INDEPENDENT™ MEDICAL ALLIANCE

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BUTYRATE

Butyrate is a short-chain fatty acid (SCFA) produced when beneficial gut bacteria ferment dietary fiber in the colon. It is the primary fuel source for colonocytes—the cells lining the colon wall—making it absolutely foundational for gut barrier integrity, colon health, and the prevention of leaky gut. Beyond the gut, butyrate has far-reaching effects on immune regulation, inflammation, brain health, and metabolic function. Despite its critical importance, butyrate production is severely compromised in people eating low-fiber, highly processed diets—which describes the majority of the modern Western world.

How it helps:

- Primary fuel source for colonocyte cells lining the colon
- Supports and repairs gut barrier integrity — reduces leaky gut
- Powerful anti-inflammatory effects throughout the body
- Supports healthy immune regulation in the gut
- Promotes healthy colon cell turnover — may reduce colorectal cancer risk
- Supports healthy blood sugar and insulin sensitivity
- Supports brain health via the gut-brain axis
- May reduce symptoms of IBS, Crohn's, and ulcerative colitis
- Supports healthy weight management
- Promotes healthy gene expression via histone deacetylase inhibition

Signs of Definiency:

- Leaky gut and intestinal permeability
- Chronic gut inflammation and digestive dysfunction
- IBS, IBD, and inflammatory bowel symptoms
- Poor immune regulation and autoimmune tendencies
- Metabolic dysfunction and blood sugar instability
- Brain fog and poor mood via gut-brain axis disruption
- Colorectal polyps or elevated colorectal cancer risk
- Chronic fatigue linked to gut dysfunction

Butyrate-Rich Foods:

- Butyrate itself is produced by gut bacteria—not directly consumed in meaningful amounts
- Foods that promote butyrate production:
- Resistant starch (cooled cooked potatoes, green bananas, cooked and cooled rice)
- Oats
- Legumes (beans, lentils, chickpeas)
- Garlic and onions
- Asparagus
- Jerusalem artichokes
- Leeks
- Whole grains
- Cooked and cooled pasta
- High-fiber vegetables broadly

Optimal Dosages:

- General gut health support: 300–600 mg daily of supplemental butyrate
- Therapeutic gut repair: 600–1,200 mg daily in divided doses
- Sodium butyrate and calcium/magnesium butyrate are the most common supplemental forms
- Tributyrin is an emerging form with superior bioavailability and better tolerability
- Enteric-coated formulas are preferred to ensure delivery to the colon rather than absorption in the small intestine
- The most effective long-term strategy is producing butyrate naturally through adequate fiber intake—aim for 25–35 g of diverse dietary fiber daily
- Pairs powerfully with prebiotic fiber and probiotics—the complete gut health triad
- Start low and increase gradually—butyrate supplementation can initially cause bloating as the gut microbiome adjusts

COLLAGEN/COLLAGEN PEPTIDES

Collagen is the most abundant protein in the human body—comprising approximately 30% of total protein content—and serves as the primary structural scaffolding for skin, bones, joints, tendons, ligaments, gut lining, and blood vessels. It is composed primarily of glycine, proline, and hydroxyproline. Collagen production declines at approximately 1% per year from the mid-20s onward, accelerating with sun exposure, smoking, poor diet, and chronic stress. Collagen peptides are hydrolyzed collagen—broken down into smaller, highly bioavailable fragments that are efficiently absorbed and distributed to collagen-producing cells throughout the body.

How it helps:

- Supports skin elasticity, hydration, and healthy aging
- Supports joint health, cartilage integrity, and reduces joint pain
- Supports gut lining integrity and repair
- Promotes bone density and strength
- Supports tendon and ligament strength and recovery
- Provides highly bioavailable glycine and proline for endogenous collagen synthesis
- Supports healthy hair and nail growth
- Supports muscle mass maintenance
- Supports cardiovascular health — maintains arterial wall integrity
- Promotes wound healing and tissue repair

Signs of Definiency:

- Premature skin aging, wrinkles, and poor elasticity
- Joint pain and cartilage degradation
- Poor gut barrier integrity and digestive issues
- Brittle hair and nails
- Bone loss and poor bone density
- Slow wound healing
- Tendon and ligament injuries
- Poor muscle recovery

Collagen-Rich Foods:

- Bone broth (richest food source)
- Chicken skin and feet
- Pork skin and trotters
- Beef (especially tough cuts with connective tissue)
- Fish skin and scales
- Gelatin
- Egg whites (contain proline)
- Sardines (eaten with skin)
- Slow-cooked meats on the bone
- Oxtail and short ribs

Optimal Dosages:

- General health and skin support: 5–10 g daily
- Joint and cartilage support: 10–15 g daily
- Gut repair support: 10–20 g daily
- Athletic performance and recovery: 15–20 g daily
- Always choose hydrolyzed collagen peptides for maximum bioavailability
- Type I and III collagen—skin, hair, nails, gut, and bone support
- Type II collagen—specifically for joint and cartilage support (undenatured type II collagen at just 40 mg daily is highly effective)
- Take vitamin C alongside collagen—essential for converting proline to hydroxyproline and stabilizing collagen structure
- Marine collagen has the smallest peptide size and highest bioavailability
- Mix powder into coffee, smoothies, or soups—flavorless and dissolves easily
- Pairs powerfully with glycine, proline, vitamin C, and silica

DIGESTIVE ENZYMES

Digestive enzymes are proteins produced primarily by the pancreas, stomach, and small intestine that break down food into absorbable nutrients. Without adequate enzyme activity, even the most nutrient-dense diet cannot be properly utilized—nutrients pass through unabsorbed, feeding gut bacteria and causing fermentation, bloating, and inflammation. Enzyme production naturally declines with age, stress, and gut damage, making supplemental digestive enzymes one of the most foundational and frequently overlooked interventions for digestive health and overall nutrient status.

How it helps:

- Breaks down proteins, fats, and carbohydrates for optimal absorption
- Reduces bloating, gas, and digestive discomfort
- Supports nutrient absorption across all food groups
- Reduces the digestive burden on the pancreas
- Supports gut lining health by reducing undigested food particles
- May reduce food sensitivities and reactions
- Supports healthy inflammatory response in the gut
- Particularly valuable for those with low stomach acid, IBS, or pancreatic insufficiency
- Supports healthy microbiome by reducing fermentation of undigested food
- Supports energy levels via improved nutrient extraction.

Digestive Enzyme-Rich Foods:

- Pineapple (bromelain—protein digestion)
- Papaya (papain—protein digestion)
- Mango (amylases—starch digestion)
- Honey (diastase and invertase)
- Bananas (amylase and maltase)
- Fermented foods (kimchi, sauerkraut, kefir—contain microbial enzymes)
- Avocado (lipase—fat digestion)
- Ginger (zingibain—protein digestion)
- Raw apple cider vinegar (supports stomach acid production)
- Kiwi (actinidin—protein digestion)

Signs of Definiency:

- Bloating and gas after meals
- Undigested food in stool
- Floating or greasy stools
- Nutrient deficiencies despite adequate dietary intake
- Food intolerances and sensitivities
- Fatigue after eating
- Nausea after fatty meals
- Chronic digestive discomfort and IBS symptoms
- Poor absorption of fat-soluble vitamins (A, D, E, K)

Optimal Dosages:

- General digestive support: Take 1–2 capsules of a broad-spectrum enzyme blend with each main meal
- Key enzymes to look for in a quality broad-spectrum formula:
- Protease—breaks down protein
- Lipase—breaks down fats
- Amylase—breaks down carbohydrates and starch
- Lactase—breaks down lactose (dairy)
- Cellulase—breaks down plant fiber
- Alpha-galactosidase—reduces gas from beans and cruciferous vegetables
- Bromelain and papain—plant-based proteases with anti-inflammatory properties
- Always take immediately before or at the beginning of a meal—taking after eating significantly reduces effectiveness
- Betaine HCl is often valuable alongside enzymes for those with low stomach acid—a root cause of poor protein digestion
- Those with active ulcers or gastritis should consult a practitioner before using high-protease formulas

FIBER/PREBIOTIC FIBER

Dietary fiber is the indigestible portion of plant foods that passes through the digestive system largely intact, feeding beneficial gut bacteria, supporting bowel regularity, and exerting profound effects on metabolic and immune health. Prebiotic fiber specifically refers to fibers that selectively feed beneficial probiotic bacteria—acting as the fuel that allows a healthy microbiome to thrive. Despite fiber being one of the most well-researched and consistently beneficial dietary components, the vast majority of people on modern diets consume less than half the optimal amount.

How it helps:

- Feeds and supports beneficial gut bacteria (prebiotic effect)
- Promotes healthy bowel regularity and stool consistency
- Supports healthy blood sugar — slows glucose absorption
- Supports healthy cholesterol levels — binds bile acids
- Promotes butyrate production — fuels colon cells
- Supports healthy weight management — increases satiety
- Supports cardiovascular health
- Reduces risk of colorectal cancer
- Supports healthy immune function via microbiome modulation
- Reduces systemic inflammation

Signs of Definiency:

- Constipation and poor bowel regularity
- Poor gut microbiome diversity
- Blood sugar spikes and insulin resistance
- Elevated LDL cholesterol
- Poor satiety and difficulty maintaining healthy weight
- Chronic inflammation and poor immune function
- Increased colorectal cancer risk
- Diverticular disease

Digestive Enzyme-Rich Foods:

- Legumes (beans, lentils, chickpeas—richest sources)
- Avocado
- Chia seeds and flaxseeds
- Oats
- Artichokes and Jerusalem artichokes
- Broccoli and cruciferous vegetables
- Sweet potato
- Apples and pears (with skin)
- Berries
- Whole grains

Optimal Dosages:

- General health: 25–35 g total dietary fiber daily from diverse food sources
- Prebiotic fiber supplementation: 5–10 g daily — gradually increase to avoid gas and bloating
- Key prebiotic fiber types to include:
- Inulin and FOS (fructooligosaccharides)—found in chicory root, garlic, onions
- GOS (galactooligosaccharides)—found in legumes, supports bifidobacteria
- Psyllium husk—soluble fiber, excellent for cholesterol and bowel regularity
- Resistant starch—feeds butyrate-producing bacteria
- Beta-glucan—oats and mushrooms, exceptional for immune and cholesterol support
- Always increase fiber gradually and with adequate hydration to prevent bloating and discomfort
- Diversity is key—aim for fiber from as many different plant sources as possible
- Pairs powerfully with probiotics and butyrate—the complete gut health triad

PROBIOTICS

Probiotics are live microorganisms, primarily bacteria and some yeasts, that, when consumed in adequate amounts, confer measurable health benefits to the host. The human gut microbiome contains trillions of microorganisms representing thousands of species, collectively performing functions critical to digestion, immunity, hormone metabolism, neurotransmitter production, and inflammation regulation. Modern life—antibiotics, processed food, chlorinated water, chronic stress, and cesarean birth—has profoundly disrupted the ancestral microbiome, making deliberate probiotic support more important than ever.

How they help:

- Restores and maintains healthy gut microbiome diversity
- Supports gut barrier integrity and reduces leaky gut
- Supports healthy immune function — approximately 70% of immune tissue is in the gut
- Supports production of neurotransmitters including serotonin and GABA
- Supports healthy digestion and nutrient absorption
- Reduces symptoms of IBS, bloating, and diarrhea
- Supports healthy cholesterol metabolism
- Promotes vaginal and urinary tract health in women
- Supports healthy mood and mental health via gut-brain axis
- Reduces antibiotic-associated diarrhea and gut damage

Signs of Deficiency:

- Digestive dysfunction—bloating, gas, diarrhea, constipation
- Frequent infections and poor immune response
- Skin conditions—eczema, acne, rosacea
- Poor mood and mental health
- Food intolerances and sensitivities
- Recurrent vaginal yeast infections or UTIs
- Brain fog and fatigue
- Autoimmune tendencies
- Antibiotic-associated gut disruption

Probiotic-Rich Foods:

- Yogurt with live active cultures
- Kefir (dairy or water)
- Sauerkraut (unpasteurized)
- Kimchi
- Miso
- Tempeh
- Kombucha
- Fermented pickles (brine-fermented, not vinegar)
- Natto
- Aged cheeses

Optimal Dosages:

- General maintenance: 10–30 billion CFU daily of a multi-strain formula
- Post-antibiotic recovery: 50–100 billion CFU daily during and for at least 4 weeks after the antibiotic course
- Therapeutic gut repair: 50–100 billion CFU daily
- CFU (colony-forming units) is not the only measure of quality—strain specificity and survivability matter more than raw CFU count
- Look for strains with human clinical research behind them
- Delayed-release or enteric-coated capsules protect bacteria from stomach acid
- Store as directed—many probiotics require refrigeration
- Take with or just after food to improve survival through stomach acid
- Rotate strains periodically to build microbiome diversity
- Pairs powerfully with prebiotic fiber—always address both together

SPECIFIC PROBIOTICS

While general probiotic blends offer broad microbiome support, specific probiotic strains have been clinically researched for targeted health outcomes. The science of probiotics has evolved significantly, and we now understand that strain specificity matters enormously and that different strains produce vastly different effects in the body. This page outlines the most clinically validated individual strains and their specific applications, allowing for targeted probiotic selection based on individual health needs.

Key strains and their specific benefits:

Lactobacillus acidophilus NCFM
- Supports lactose digestion and reduces dairy intolerance symptoms
- Supports vaginal microbiome health
- Supports immune function and reduces allergy symptoms

Lactobacillus rhamnosus GG (LGG)
- Most clinically researched probiotic strain in the world
- Reduces duration and severity of diarrhea — particularly antibiotic-associated and traveler's diarrhea
- Supports gut barrier integrity
- Supports immune function in children and adults

Lactobacillus reuteri DSM 17938
- Supports infant colic — one of the most evidence-backed interventions
- Supports oral health — reduces harmful oral bacteria
- Supports bone density via modulation of bone metabolism
- Supports healthy cholesterol levels

Lactobacillus plantarum 299v
- Reduces IBS symptoms — bloating, gas, abdominal pain
- Supports gut barrier integrity
- Supports healthy iron absorption

Bifidobacterium longum BB536
- Supports allergy reduction — particularly seasonal allergies and eczema
- Supports immune regulation
- Supports healthy bowel regularity

Bifidobacterium infantis 35624
- Clinically proven for IBS symptom reduction
- Reduces gut inflammation
- Supports immune regulation

Saccharomyces boulardii
- A beneficial yeast—not a bacteria
- Highly researched for antibiotic-associated diarrhea prevention
- Supports gut barrier integrity during and after antibiotic use
- Resistant to antibiotics—can be taken simultaneously with antibiotic courses
- Supports recovery from C. difficile infection

Lactobacillus helveticus R0052 + Bifidobacterium longum R0175
- This specific combination is the most researched probiotic formulation for mental health
- Reduces anxiety, depression, and cortisol levels
- Supports the gut-brain axis—sold under the brand name Psychobiotic or Probio'Stick

Optimal Dosages:
- Strain-specific dosing varies—follow clinical research doses for each strain
- General range: 1–50 billion CFU depending on strain and application
- Saccharomyces boulardii: 250–500 mg (5–10 billion CFU) daily; increase to 1,000 mg during antibiotic use
- LGG for diarrhea: 10–20 billion CFU daily
- Mental health strains: follow product-specific dosing—typically 3–6 billion CFU of the combined formula
- Single-strain products are preferable when targeting a specific condition
- Multi-strain blends are preferable for general microbiome diversity maintenance

A NOTE ON CONTRAINDICATIONS

The information contained in this guide is intended for educational purposes only and should never replace the personalized guidance of a qualified healthcare practitioner. While every nutrient and compound featured in these pages has a well-established safety profile at the doses outlined, there are important considerations to be aware of before beginning any new supplement protocol.

Special populations requiring extra caution:

Children and adolescents: Doses throughout this guide are intended for adults. Always seek professional guidance for supplementing children.

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