

Living in **Balance**



The power of probiotics





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Table of Contents

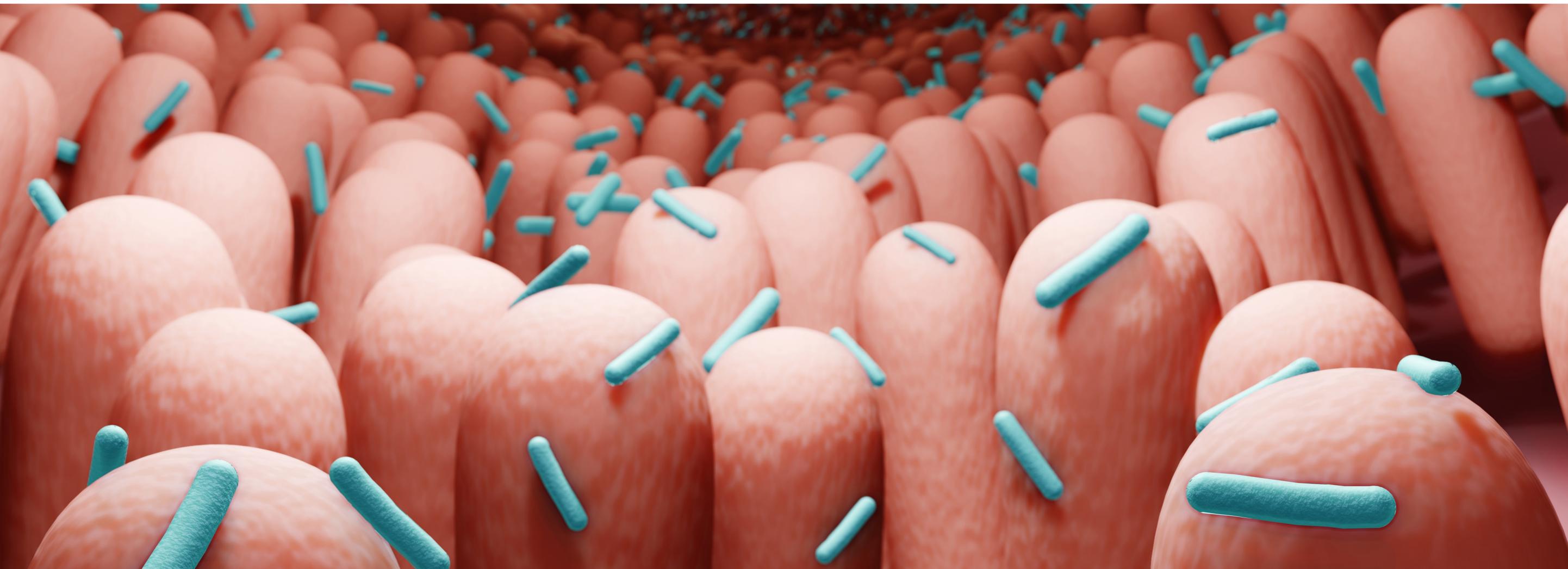
What Are Probiotics?	03
Learn about the trillions of beneficial bacteria that can live in harmony with your body, helping to keep you healthy every day.	
Beyond the Belly: Heart, Mood & More	06
When most people think of probiotics, they think of digestion. Now, science says “think again.”	
Choosing a Probiotic	09
How to choose the right probiotic for your unique health needs.	

What Are Probiotics?

We've come to think of bacteria as a bad thing—and sure, some of them will make you sick. As it happens, though, that depends on which *kind* of bacteria you're talking about.

“Probiotics” is a term that refers to helpful bacteria (as well as yeasts) that when consumed in adequate amounts can be beneficial to your body.

Fun Fact: There are estimated to be at least as many microbes living in and on you as there are human cells in your body.¹





Meet your gut microbiome. Your digestive system has trillions of microorganisms in it, made up of thousands of species. This is your gut microbiota, often referred to collectively as your gut *microbiome*. It includes both good and bad species (hopefully, more of the good than the bad).

Benefits of probiotics. Probiotics play a valuable role in digestive health, and new science shows that certain strains can do much more. There's one thing that the organisms in our digestive tract — our microbiota — all have in common, however: their relative health, benefits and population ratios change as we get older.

But, there are ways we can cultivate youthful gut health.



So where can we get more of these helpful little guys? The first and most obvious source is food. Originally fermented to enhance flavor and/or preserve them from spoilage, foods like yogurt and fermented vegetables are packed with beneficial bacteria.²⁻⁴

What are prebiotics?

Prebiotics are what nourish both *probiotics* and the microbes in our gut. Our little friends inside of us need food as much as we do. But our friendly microbes aren't after sweets or a morning cup of coffee.

To flourish, these organisms need plenty of healthy dietary fiber: think legumes, fruit, vegetables, nuts and whole grains.

Are probiotics safe?

Short answer: Yes. We've been consuming fermented foods and other forms of beneficial microorganisms for thousands of years.⁵ That said, anyone who is immunocompromised or very young should consult a doctor before taking a probiotic.

Food that's alive inside: Yogurt, kefir, soft cheeses, kombucha, natto, kimchi, sourdough bread, miso, fermented vegetables and sauerkraut



Beyond the Belly: Heart, Mood & More

The largest, most studied, and indeed the most famous part of your microbiome lives in your digestive tract. There, they help us convert the foods we eat into nutrients we can use. So, they are great for gut health—but that's not the only way they benefit us!

Extracting nutrients from food. A healthy microbiome produces enzymes that dice up hard-to-digest dietary fiber from plants, turning it into short-chain fatty acids.⁶ These fatty acids encourage everything from gut health to immune response.⁷⁻⁸

Blocking out bad bacteria. Probiotics help crowd out potentially harmful microbes by helping to maintain an acidic pH in your digestive system, as well as competing for nutrient resources with those bacteria—even emitting antimicrobial substances!¹⁰

Probiotics and immune health. Probiotics can help inhibit inflammation, balance the way the immune system reacts to environmental allergens and encourage antibody production—helping your immune system to fight invaders like viruses and other pathogens.^{11,12}

Head-to-toe helpers. Depending on the strain, these helpful organisms can support nearly every part of you: from your mouth and throat to your liver, heart, even your mental health.¹³⁻¹⁷

Fun Fact: Vitamin K (as well as some B12) can be made by the bacteria in your microbiome⁹—but you should still make sure you're getting enough nutritional support from your diet!

What Happens When Your Microbiome Is Out of Balance?

We mentioned earlier that it's possible that your microbiome community can get out of whack. When that happens, it's called *dysbiosis*, and it means harmful microbes are crowding out or displacing your good bacteria.¹⁸

Why your microbiome is out of balance. Some medicines, too much of the wrong foods, and/or poor lifestyle habits can cause dysbiosis. It can even stem from physical or mental stress.

What lies beneath. Having an out-of-balance microbiome has been associated with chronic diseases like allergies, asthma, diabetes, inflammatory bowel disease, multiple sclerosis, and even cancer.¹⁹

How to tilt the good bacteria ratio in your favor. In addition to “living right” (that means correcting bad dietary and lifestyle habits), adding fermented foods and probiotics to your diet can help maintain the balance.²⁰



Having an out-of-balance microbiome has been associated with chronic diseases.

Which Probiotics Do What?

Different probiotic strains have different benefits.

Digestion²¹⁻²⁴

L. reuteri DSM 17938
L. acidophilus CL1285
L. casei LBC80R
L. rhamnosus CLR2
L. acidophilus NCFM
L. paracasei Lpc-37
B. lactis BI-04
B. lactis Bi-07
B. breve (Bbr8)
L. plantarum (14D)
B. animalis (subspecies lactis BLC1)
L. paracasei (IMC 502)
L. rhamnosus (IMC 501)
L. acidophilus (LA1)
B. longum (subspecies longum SP54)

Mouth and Throat²⁵⁻²⁷

S. salivarius (K12)
S. salivarius (M18)
L. plantarum (L-137)

Liver^{28,29}

Lactobacillus casei (PXN 37)
Lactobacillus rhamnosus (PXN 54)
Streptococcus thermophilus (PXN 66)
Lactobacillus acidophilus (PXN 35)
Bifidobacterium breve (PXN 25)
Bifidobacterium longum (PXN 30)
Lactobacillus bulgaricus (PXN 39)

Mental Health³⁰

Lactobacillus helveticus (Rosell-52)
Bifidobacterium longum (Rosell-175)

Allergies and Immunity¹⁴

Lactobacillus rhamnosus (CRL 1505)

Respiratory System³¹

B. lactis (BS01)
L. plantarum (LP01)
L. plantarum (LP02)
L. rhamnosus (LR04)
L. rhamnosus (LR05)

Heart³²

Lactobacillus reuteri (NCIMB 30242)

Skin^{33,34}

L. rhamnosus SP1
L. acidophilus L-92

Urinary and Vaginal Health³⁵⁻⁴⁰

L. crispatus LbV 88
L. crispatus CTV-05
L. crispatus GAI 98322
L. gasseri LbV 150N
L. jensenii LbV 116
L. rhamnosus LbV 96
L. rhamnosus GR-1
L. reuteri RC-14





How to Choose Probiotics

With some helping your mood and others your heart, clearly different probiotic strains can have varying impacts on your body. So how do you select the right type? It's all in the name: scientists classify probiotics the same way they classify all living things, by genus and species.



Why the probiotic strain matters. Even within the same bacterial species there can be slight variations in genetic material. We have to “drill down” and pick out the right strain.

A good analogy for probiotic strains: Think of dog breeds. A chihuahua and a Saint Bernard are both dogs...but very, very different, and one will be more useful than the other for certain types of tasks.

CFUs: More Is Not Necessarily Better

Probiotics are typically counted in CFUs (colony forming units), which is a measurement of living, viable bacteria per serving. Those servings usually measure in the millions—but the highest possible dose isn't necessarily what you're after, either.

Your goal should be to use the dose that demonstrated efficacy in the research studies on specific strains and health concerns.

The sweet spot: a study of *Lactobacillus reuteri* NCIMB 30242 on cholesterol found using *between* 2 to 2.9 billion CFUs significantly reduced LDL-C by 11.64% compared to placebo.³⁴

But remember, how many CFUs you need will depend on the probiotic strain in question—so do your own research!

Remember: Bacteria do not live forever! So don't forget to check the expiration date.





To Fridge or Not to Fridge: That is the Question

Remember, probiotics are alive. So, you want to read the label to ensure you're storing them properly. Not all have to be refrigerated, but some do—and either way, it's a good idea to store them away from heat and moisture.

Why? Because heat can kill bacteria (it's why we boil water before we drink it when we're out in the woods). Moisture, on the other hand, can cause bacteria to become more active.



Why You Should be Pro-Probiotic

Probiotics can benefit virtually everybody.

Since new science has helped us identify probiotic strains that promote liver health, immune response and even how our bodies absorb and process cholesterol, there has never been a better time to focus on creating a healthy microbiome.

Have a health question?

We have the answers... You can speak with a Life Extension Wellness Specialist toll-free at 1-800-226-2370. This informational service is staffed by dietitians, nurses, and other health practitioners and is complimentary.



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