



Bifidobacterium
Strains to Support
Healthy Aging

Foundations of Longevity

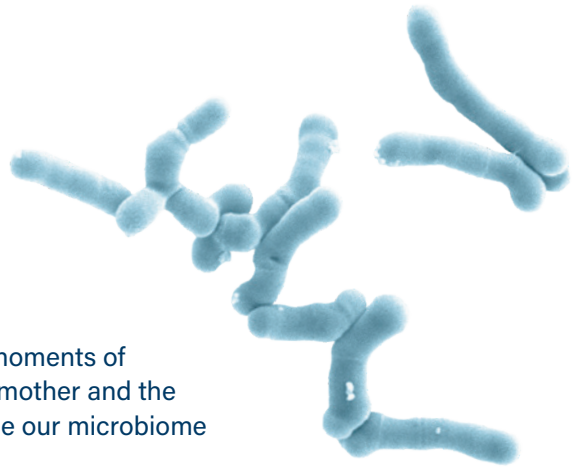
The arc of a healthy life is guided by *Bifidobacterium*

As global populations of humans grow older, many are seeking new ways to slow down the inevitable: a gradual decline in vitality, cognitive sharpness, and physical resilience. In today's world, we are fortunate to have advanced and various tools, both conventional and natural, to support health and improve quality of life.

Aging is a multifactorial biological process characterized by progressive decline in physiological function, heightened inflammation, and increased vulnerability to chronic diseases. In recent years, the human gut microbiota has emerged as a pivotal regulator of these processes, as it plays a central role in modulating human aging, metabolism, cognitive health, systemic inflammation and influencing immune function.

A growing body of evidence suggests that maintaining or restoring a beneficial microbiota composition can significantly impact healthspan—the period of life spent in good health—and extend longevity.

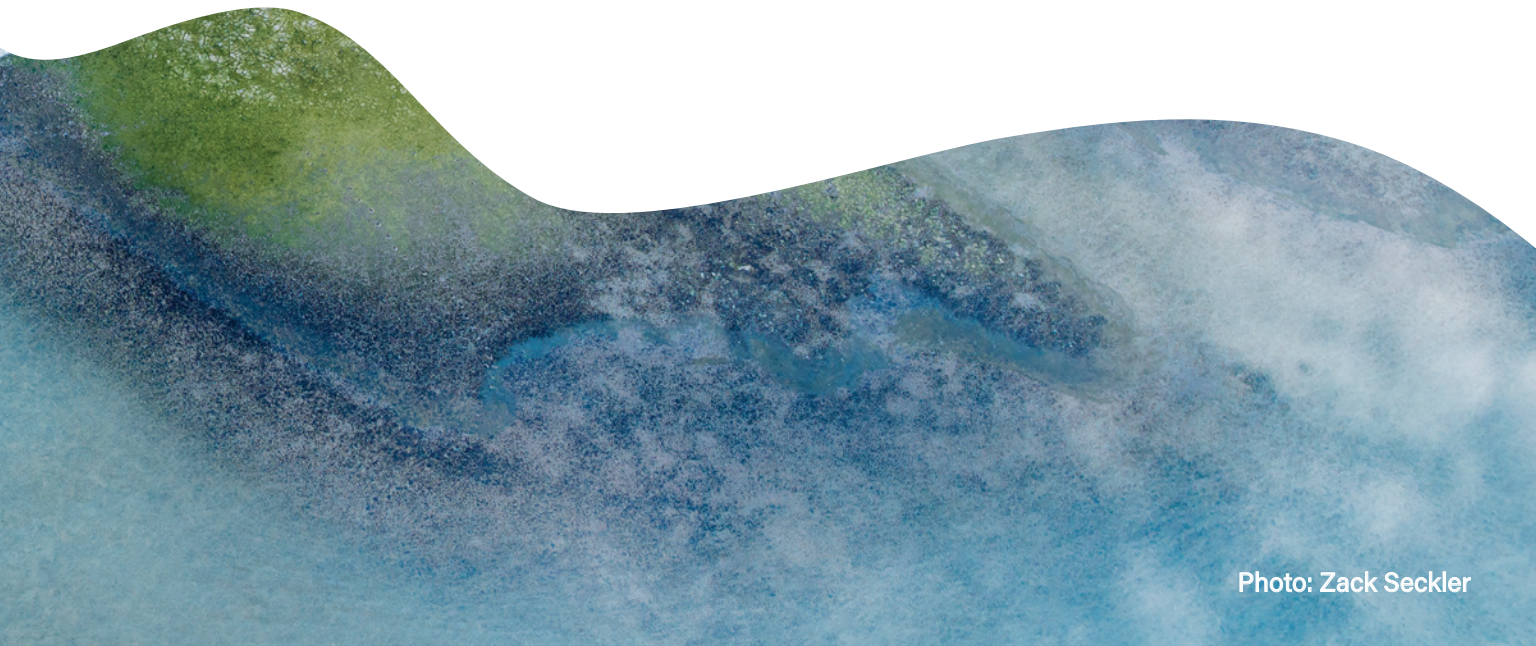
Synbiotic Health
is shaping the future
of foundational
Bifidobacterium
strains.



Although humans are born with a sterile gut, within moments of birth we are inoculated with microbes from both our mother and the environment—native strains that take root early, shape our microbiome profile, and help protect us throughout life.

Many studies over the past twenty years have highlighted the foundational role of probiotics, particularly *Bifidobacterium* species, to promote healthy aging and longevity.

The mechanisms by which these microorganisms confer health benefits are far ranging and complex. *Bifidobacterium* play a central role in controlling free radical prevalence, supporting a healthy immune response and modulating beneficial microflora. A deficiency of these critical bifido microbes leaves us vulnerable to a host of health concerns.



The 10 foundational bifidos*

While many *Bifidobacterium* species exist in the human microbiome, only a select few perform the majority of critical functions that support our health, vitality, and resilience. Our laboratory has analyzed research on microbiome samples of nearly 9,000 individuals across 28 countries, and 10 foundational *Bifidobacterium* species are consistently present from infancy until death.

B. adolescentis Improves glucose metabolism and insulin sensitivity, enhances mitochondrial function via NAD+ boosting, strengthens gut barrier function, produces GABA, enhances folate biosynthesis, found in abundance in healthy humans, especially seniors.

B. bifidum Aids in the digestion of carbohydrates, strengthens mucosal immunity, reduces systemic inflammation, enhances dendritic and regulatory T cells, reduces allergy symptoms and gastrointestinal discomfort, plays a key role in early-life immune programming.

B. breve Modulates appetite through GLP-1 signaling, protects against neuroinflammation and oxidative stress, enhances early-life immune and GI system development, reduces severity of allergic response, reinforces intestinal barrier integrity.

B. angulatum Produces GABA, modulates immune response, reduces inflammation, helps maintain microbial balance.

B. animalis Modulates the immune system, improves GI health, reduces risk of developing allergies, ameliorates bone loss, improves muscle function, may improve cognitive health.

B. longum Regulates glucose and fat metabolism, modulates inflammatory cytokines, enhances immune defense response, reduces intestinal permeability, resilience against age-related inflammation and dampens atopic allergic response.

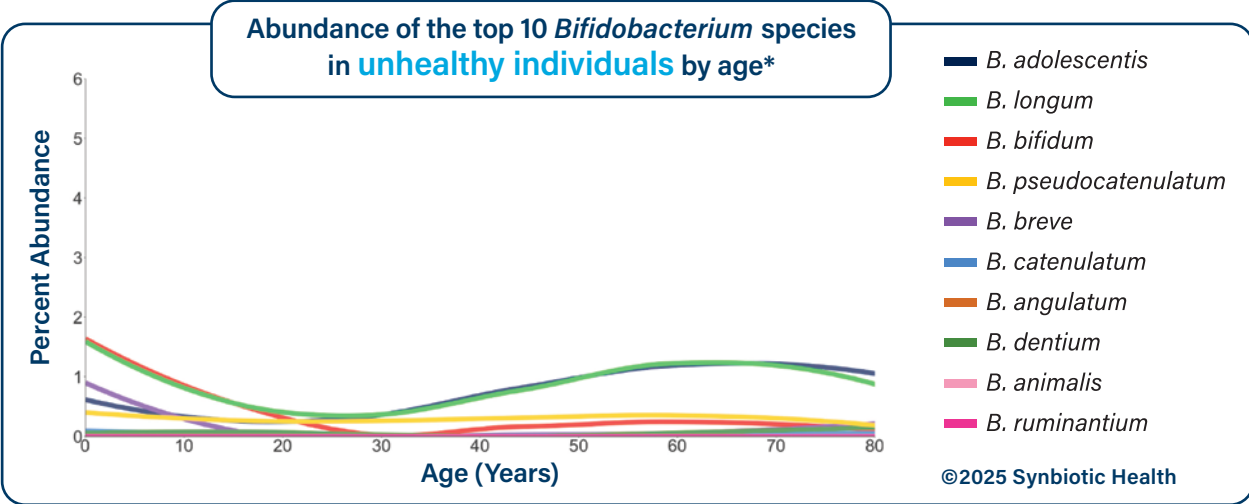
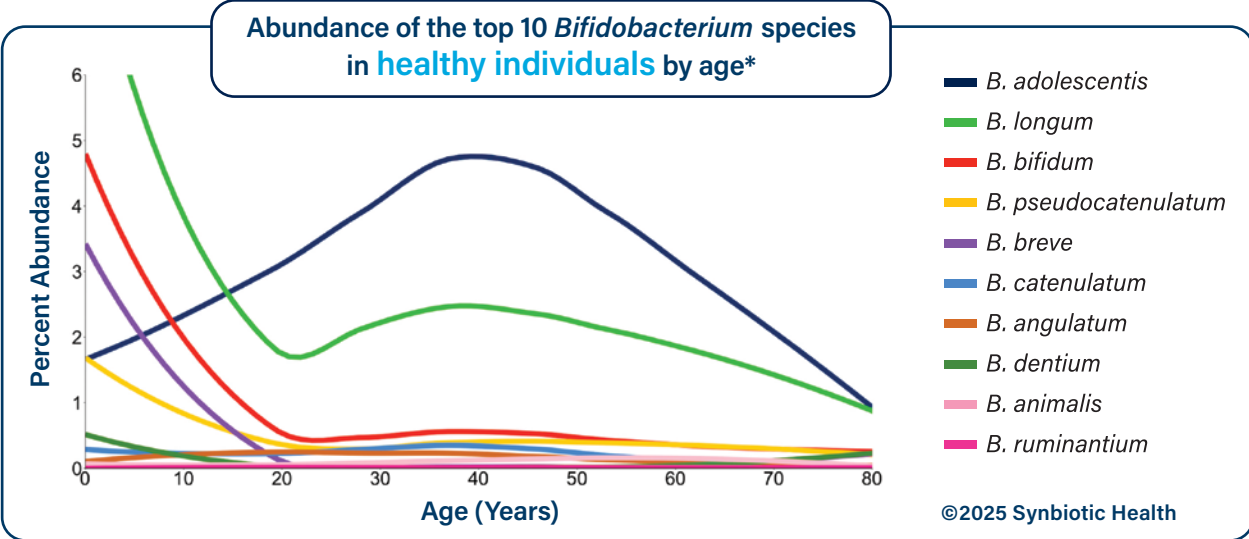
B. pseudocatenulatum Improves blood lipid profiles, modulates mood via gut-brain signaling and GABA pathways, promotes anti-inflammatory markers (IL-10), enhances mucosal immune defense, modulates microbial diversity.

B. catenulatum Provides liver protection and gut barrier support, anti-inflammatory effects, folate production, antioxidant activity, carbohydrate metabolism and gastro-intestinal health.

B. dentium Present in both the oral cavity and GI tract; may alleviate abdominal pain through reduction of visceral sensitivity, strengthens intestinal lumen, synthesizes GABA.

B. ruminantium Transient member of the human gut microbiota and typically acquired via environmental exposure to ruminant animals. Limited human data.

Species including *B. adolescentis*, *B. longum*, *B. pseudocatenulatum*, *B. bifidum*, and *B. breve* are consistently present in the human microbiome of healthy individuals throughout life and critical modulators of age-related biological pathways. Conversely, microbiome data from unhealthy people shows a deficiency of these keystone species.



*Data analysis by Synbiotic Health of shotgun metagenomic sequences compiled by Pasolli et al. (2017) from stool samples of 8,942 people across 28 countries.



Leading the way with *B. adolescentis*

Bifidobacterium adolescentis is a key member of the human gut microbiota, especially during adolescence and early adulthood, as its name suggests. Higher levels of *B. adolescentis* are often associated with healthier aging. Studies show that healthy older adults and centenarians tend to have greater abundances of *B. adolescentis* (and other *Bifidobacterium* species) compared to less healthy or institutionalized elderly individuals.

Recent evidence links *B. adolescentis* to improved glucose metabolism, healthier lipid profiles, and GABA production—a neurotransmitter critical for regulating mood, stress, and anxiety through the Gut-Brain Axis. These metabolic and neurological effects highlight its role in promoting whole-body health.

Cohort studies from longevity regions like Italy and Japan have found *B. adolescentis* at stable or elevated levels in centenarians and nonagenarians, while reductions in this species are associated with dysbiosis, chronic inflammation (“inflammaging”), and metabolic dysfunction. Although *B. adolescentis* typically declines with age, its preservation into later life appears beneficial and signals a healthier gut environment. Diets rich in prebiotics and reduced antibiotic use likely help maintain these microbes.

While more clinical trials are needed, current evidence positions *B. adolescentis* as a promising probiotic species supporting gastrointestinal, metabolic, and neurological health. Higher levels of *B. adolescentis* are emerging as a microbial marker of healthier aging.

iVS-1[®]

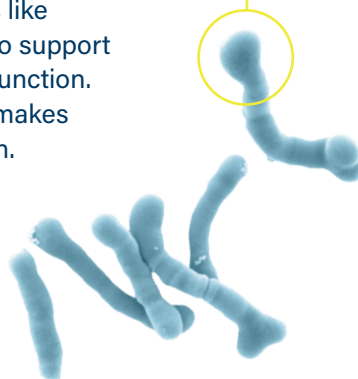
from Synbiotic Health

B. adolescentis

Bifidobacterium adolescentis iVS-1[®] from Synbiotic Health is a next-generation probiotic discovered through the In Vivo Selection (IVS) platform at the University of Nebraska, designed to naturally thrive in the human gut.

Clinically shown to significantly strengthen gut barrier function by enhancing tight junction proteins, reducing inflammation, and promoting mucin production, iVS-1[®] also excels in producing beneficial compounds like GABA for cognitive and gut health, and folate to support DNA synthesis, immunity, and cardiovascular function. Additionally, its high number of lactase genes makes it highly effective in improving lactose digestion.

Bifidobacterium adolescentis iVS-1[®] is the first foundational *Bifidobacterium* strain offered by Synbiotic Health to optimize microbiome health and increase longevity, health span and overall well-being.





Synbiotic Health was founded in 2018 by four leading microbiome researchers from the University of Nebraska, Lincoln: Dr. Bob Hutkins, Dr. Andy Benson, Dr. Jens Walter, and Dr. Tom Burkay, who together have over 100 years of experience in the field. Tim Brummels joined the company as CEO in 2019. Their signature probiotic strain, iVS-1®, was discovered in the university's research labs and is exclusively licensed to Synbiotic Health. The company's mission is to develop foundational probiotic microbes aimed at improving quality of life, supporting healthy aging, and enhancing overall human health.

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