



ALIVE!

THE IMPROBABILITIES OF PROBIOTICS

IF WE READILY SAW the microscopic organisms swimming in lake water the way Antonie van Leeuwenhoek did, we would probably never venture in again. If we could see what lives on our teeth as Leeuwenhoek observed, we might not be able to stomach a kiss in the light. Referred to as “the Father of Microbiology,” Leeuwenhoek was a Dutchman who owned a textile business in the seventeenth century. Though he traded cloth, his were among the first eyes to see bacteria. At the time, traders in textiles used small glass spheres to examine the detail and quality of material. Leeuwenhoek took his small glass spheres to the next level and created extremely high quality magnifying lenses. In 1674 he reported seeing single cell organisms through his lens. The scientists of the day refused to accept his findings until three years later. In 1676 he discovered bacteria. In pond water and in the tartar he scraped from off his own teeth, he observed thousands of “tiny animals” in motion.¹

Since that time bacteria have been found virtually everywhere—from the Antarctic to volcanic lava, from the top of Mt. Everest to the Mariana Trench. There are bacteria that can live in temperatures above the boiling point and in temperatures cold enough to freeze blood. They “eat” everything from sugar and starch to sunlight, sulfur, and iron. There’s even a species of bacteria—*Deinococcus*

radiodurans—that can withstand blasts of radiation 1,000 times greater than the lethal amount.²

We have grown accustomed to thinking of bacteria in relation to disease causation. There are “flesh-eating bacteria” which cause necrotizing fasciitis, a rare but severe soft tissue infection. There are bacteria called *Streptococcus pneumoniae* that, as you can guess, are involved in the development of pneumonia. We have coined bacteria as “germs” that assault our bodies, creating infection and making us sick. Antibiotics were developed as a strategic weapon against bacteria. More recently, our antibacterial soaps and lotions are intended to wield a deadly blow against these microscopic critters, protecting us from invasion. Yet even so, they are still all around us. More bacteria have been found on cell phones than on toilet seats! If we were to assess the world in terms of the number of individual organisms, bacteria are clearly the dominators.

Not all bacteria impart disease or have debilitating qualities though. Neither are we clean creatures that must constantly battle invading germs to maintain health. In reality, we are beings who are largely composed of bacteria. Housed within our digestive tract, from mouth to anus, bacteria thrive. They actually outnumber our human cells. More and more we are learning how extremely influential the community of microbes are when it comes to our physical and mental state.

Though unseen and unknown prior to Leeuwenhoek, bacteria have been used for millennia to make certain foods. Bread, beer, yogurt, sauerkraut, kimchi, kumis, kefir, tempeh, and cheese are all examples. More recently, a whole industry

has been developed based on the belief that bacteria, intentionally introduced into the body, can actually benefit us.

Probiotics are live organisms which, when administered in adequate amounts, confer a health benefit on the host. Probiotic supplements are a booming business. More research is being conducted to ascertain their potential therapeutic benefits. In order to receive benefit from probiotics or foods made with bacteria, it is important that we understand how they work.

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The first point that is extremely significant is strain specificity. There are specific strains of bacteria just as there are specific breeds of dogs. If someone were to recommend that you need an animal, you would do well to ask what kind of animal. If they stated you needed a dog, it would be a good idea to consider what kind of dog. Similarly, if you are told to take probiotics, you would do well to ask what kind. You may have heard that acidophilus is good for you, but what kind of acidophilus? All dogs are the same species, but breeds vary in size, strength, function, and behavior. A Chihuahua would not make a good police dog nor would a Great Dane make a good purse dog. In the same way, the benefit of any probiotic is dependent on the qualities of the specific strains contained in it.

- Animal | Phylum | Bacteria
- Mammal | Genus | Lactobacillus
- Dog | Species | Acidophilus
- Australian Sheep dog | Strain | Lactobacillus acidophilus La-5

To assess the quality of the bacteria in a supplement or food, one needs to know not just the genus and species, but the strain as well. You may read that a probiotic was found to boost the immune system or treat atopic eczema, but not just any probiotic will do. What was the specific strain of probiotic used in the study? That's the breed of bacteria that will do the job. Different strains of acidophilus may vary in

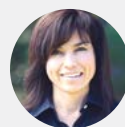
regards to their ability to survive gastric acid and perform. Different strains of bacteria from the same family species have different actions, resulting in specific strains targeting specific needs. For example, Bifidobacterium lactis Bb12 has been found to lower fasting blood sugar levels in type 2 diabetics while Bifidobacterium lactis HN019 has been found to relieve constipation and increase gut transit time.

Many view taking probiotics as a questionable therapy with improbable results. They have found probiotics to be ineffective. One of the reasons for this result could be not taking the right strain. Just as specific dogs are useful for different jobs, different strains of bacteria have different uses. This concept of strain specificity has only become known in the past 20 years.

In Scripture, we see where God shed great light through improbable situations and human beings. Incredible insight was given to a man steeped in cultural philosophy, with an anti-gospel world-view, and who was destroying Christ's followers. Though the apostle Paul struggled with poor vision, he received a magnifying lens on the gospel of Christ that enabled him to see and communicate a depth of spiritual reality that will be of inestimable value to humanity until the close of time. We have the privilege of looking through this same lens in his writings, "beholding as in a glass the glory of the Lord" (2 Corinthians 3:18). 🔥

1. "Leeuwenhoek, Anton van (1632-1723)," *Encyclopedia of Science, The Worlds of David Darling*, 2016, <http://www.daviddarling.info/encyclopedia/L/Leeuwenhoek.html>.

2. "Bacteria," *Microbe World*, 2014, <http://www.microbeworld.org/types-of-microbes/bacteria>.



RISË RAFFERTY, RDN

Risë is a Registered Dietitian Nutritionist. Her understanding of how significantly diet and lifestyle impact one's health and happiness fuels her passion to help, educate, and inspire others.