UNDERSTANDING PROBIOTICS

MAKING GOOD BACTERIA WORK FOR YOU

KELSEY ALE, NTP & EMILY BYK
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We think of food as something that delivers nutrients: carbohydrates, fats, proteins, vitamins, and minerals. But food can do more than give us the building blocks and fuel that we need. It can also contribute to an environment that keeps us healthy and prevents disease.

As you read this, if you are in good health, you have over 400 species of microorganisms living in your gastrointestinal tract, weighing about 5 pounds. This colony in your gut is a complex ecosystem, and its influence cannot be underestimated. For every cell in your body, there are ten microorganisms in your gut. The total number of different genes in this colony is 50-100 times the number of yours. Collectively, they process as much metabolically as your liver.

Introducing probiotics - or prebiotics - can support this population in a way that benefits you. Supplements can help achieve, restore, or maintain a climate that keeps you in optimal health.

**WHAT ARE PROBIOTICS?**

The *microbiome* is defined as the collective of microorganisms in the human body and their respective genetic material. The *microbiota* are all of the resident microorganisms in a particular location, such as the intestinal tract or skin. Microbiome is the country; microbiota are the inhabitants.

The World Health Organization (WHO) defines probiotics as “live strains of strictly selected microorganisms which, when administered in adequate amounts, confer a health benefit on the host.”

The word *probiotic* comes from Greek, meaning “for life.” A probiotic supplement contains viable microorganisms that will survive your digestion process, arrive in your intestines, and exert a beneficial effect. They can either stimulate growth or enhance activity of certain bacteria.
HOW DO PROBIOTICS WORK?

Most of the microorganisms living in your GI tract are either benign or helpful; common examples are *Bifidobacteria* and *Lactobacilli*. Some are not, and can cause disease, like *Clostridia*. Usually, a delicate balance keeps the harmful ones in check. When the balance is disturbed, the opportunistic bad guys can multiply and spread, causing disease related to infection or inflammation.

Using probiotics helps maintain or restore an optimal balance. There are multiple probiotic products, with varying strains and doses, depending on your need. In all cases, those making supplements ensure that the contents are safe and functional.

*Prebiotics* are substances that set the stage for specific changes in the performance of your gut bacteria. They are mostly non-digestible carbohydrates, which arrive intact to your intestines. Once there, their presence enhances the environment to stimulate growth of certain microorganisms or activity of those already there.

Prebiotics may be used as an alternative to probiotics or as an additional support for them. If used alone, they do take longer to have an effect. But they can safely be taken long-term. They may even be an alternative to antibiotic therapy for those with a sensitivity.

WHY IS IT IMPORTANT TO KEEP THE MICROBIOME BALANCED?

The organisms in the microbiome play numerous roles on a daily basis:

- Produce necessary enzymes and nutrients, including vitamin B12, thiamine and riboflavin, and Vitamin K, which is needed for blood coagulation.
- Help digest our food.
- Help modulate our immune responses.
- Prevent infections by crowding out harmful microorganisms.

Imbalances in the microbiome can affect autoimmune diseases, like diabetes, rheumatoid arthritis, multiple sclerosis, and fibromyalgia. Disease-causing microbes can slowly accumulate, quietly changing your metabolic processes and eventually causing an immune response against your own tissues.

Inflammatory bowel diseases (Crohn’s, ulcerative colitis) and irritable bowel syndrome can improve with probiotic use.
The right combination of microbiota at the right time can have even more dramatic effects:

- Phagocytes – the cells in our immune system that engulf and destroy invaders – go down in number as we age. It has been suggested that probiotic supplements could slow or even counteract this loss.
- Allergies are increasing at an alarming rate in western societies, but remains at the same low levels in developing countries. This may be due to reduced *microbial pressure*. Recent evidence suggests that early exposure to a range of bacteria may prevent allergies in later life.
- Those who are lactose intolerant are deficient in the enzyme that hydrolyzes this large sugar into simpler ones. The right microbiota, however, can break them down.
- A healthy microbiome can wipe out *Helicobacter pylori*, the bacteria commonly associated with stomach ulcers.
- Perhaps most exciting is a link between gut health and cancer prevention. There is less colorectal cancer in people who regularly eat fruits and vegetables, which are full of natural prebiotic carbohydrates. And some strains of bacteria have been shown to prevent the establishment, growth, and spread of tumors in animal testing.

The list goes on. Clearly, there are innumerable benefits to tending to the microbiome and coaxing its population to our advantage.

**TAKE CONTROL OF YOUR GUT HEALTH**

Clearly, it is worth determining that your microbiome is fine-tuned to provide optimal benefit to you.

There are many packaged probiotic supplements on the market. Check with your doctor if you have any specific condition that you’d like to balance out, or if you’d like to start taking a general probiotic. Take them with food, or about 20 minutes after eating, in the morning or right before bed.

However, an easy way to start today is to introduce more raw fruits and vegetables (prebiotics) into your diet, and then start bringing in some naturally fermented foods (probiotic).
Sauerkraut, yogurt, kefir, tempeh, and naturally fermented pickles are all great sources.

Your body will let you know fairly quickly when it – and your trillions of roommates – are happy and in good balance.