HdGreen

Havre de Grace Green Team

THINK GREEN

EAT GREEN

WHATIS OUR GUT MICROBIOME?

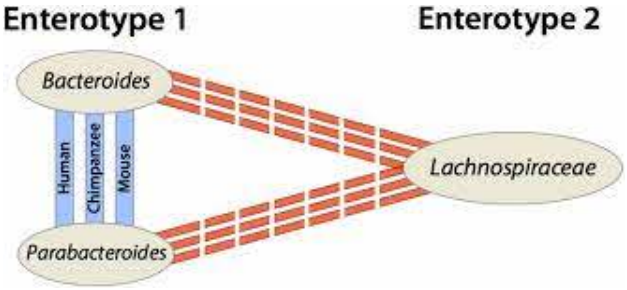
With the flood of probiotic supplements and fermented food and drink on the market - all claiming to promote "good gut health" - where should we place our confidence? As we will learn, there is not much hard science proving that these foodstuffs will boost the health of our gut microbiome. What research does indicate is that a gut biome with diverse types of bacteria will function well, performing its digestive and regulatory functions, as well as fighting off pathogens.

Researchers agree that the single most important factor in maintaining a healthy gut biome is a healthy diet. Coincidentally, this is also what's best for our environment: buying and preparing (local) whole foods, avoiding highly processed foods and, of course, reducing meat consumption. These steps will contribute to the health of our planet as well as that of its human inhabitants.

First, let's find out how our gut biome functions.

The human body contains *trillions* of microorganisms. Called **microbes**, for short, these bacteria, funghi, and protezoa live mainly on our skin and in our intestines. How numerous are these bacteria cells? They actually *outnumber our body's human cells ten to one*. Here is a comprehensive look at the human microbiome in a Fast Facts article from the University of Washington's Center for

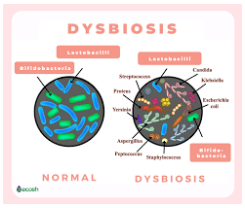
We will focus on the bacteria that live in our intestines. The **gut microbiome** is a huge community of trillions of bacteria and fungi that inhabit every nook and cranny of your gastrointestinal tract, and have a major influence on your metabolism, body weight, propensity to illness, immune system, appetite and mood. These microbes are crucial for the functioning of our digestive system, not only aiding in digestion of food, but also helping our bodies to absorb and synthesize nutrients.



Do we all have the same type and amount of bacteria in our gut biome? No. A fairly recent discovery is the human **enterotype**, of which there are three. Our enterotype identifies our gut biome's specific bacteriological ecosystem, similar to blood-typing. Interestingly, enterotypes are influenced by our long-term diet. So the enterotype of someone who lives in sub-Saharan Africa, for instance, would be different from an individual who consumes a Western diet with plenty of protein and animal fat.

What makes a Healthy Gut?

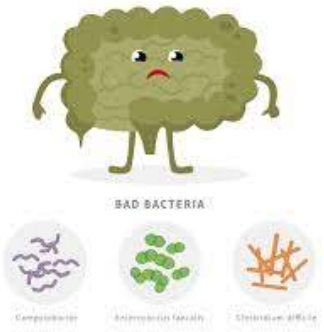
Most research confirms that having a variety of microbes in the gut biome will contribute to its healthy functioning. Having different strains of bacteria means that there is usually a back-up if one strain fails to "perform." It's impossible to measure "good bacteria" in a gut biome; instead, we rely on its evidence in a well-functioning digestive system. Our role can and should be: eating a healthy diet, exercising, getting adequate sleep, and trying to reduce stress levels.



How does a gut biome become imbalanced? Many things can cause disruption to the gut biome – known as **dysbiosis** - emotional stress, disease, overuse of antibiotics, and, especially, poor diet. Scientists agree that several factors can affect the composition of our gut, but *none are more important than diet*. Consuming a diet filled with highly-processed foods, much sugar, and/or artificial sweeteners can contribute to this disruption. Dysbiosis, also called **dysbacteriosis**, basically describes a microbial imbalance in the gut. This imbalance results in the various bacteria's inability to check one

another's growth, as well as failure to fend off outside pathogens.

C. diff (also called **Clostridioides difficile**, **C. difficile**) is an example of an opportunistic bacteria that can afflict a person after treatment with antibiotics. C. diff causes serious diarrhea and inflammation of the colon, and can be difficult to resolve. [We saw a good illustration of this topic in a recently streamed Green Team environmental film, *The Antibiotic Hunters*.]



What are Probiotics?

The World Health Organization (WHO) defines probiotics as "live microorganisms which when administered in adequate amounts confer a health benefit on the host." We can obtain the benefits of probiotics by eating certain foods. The first food that comes to mind is, of course, yogurt. However, we should remember to check yogurt labels for "live" or "active" lactic acid cultures. Yogurt heads a list of many other fermented foods: kombucha, sauerkraut, miso, kimchi, and sour pickles, to name a few. Again, it's important to check labels for the terms "unpasteurized," "natural fermentation," or live lactic acid cultures.

While it has become accepted practice for physicians to recommend patients consume yogurt while taking a course of prescribed antibiotics, widespread claims about the health benefits of probiotics bear little or no scientific proof. In the US, all food labeling must be approved by the Food and Drug Administration (FDA). Both the FDA and the Federal Trade Commission have sent warning letters to various food manufacturers whose products claim to treat a disease or condition. As of 2019, the European Food Safety Authority has rejected all petitions by food manufacturers for health claims on probiotic products in Europe. In fact, the European Union bans the use of the word "probiotic" on packaging of any product, claiming that such labeling leads consumers to believe a health benefit is provided where no scientific evidence exists. For an in-depth look at our gut biome and diet (including a discussion of fermented foods), read this article from the National Institutes of Health.

What about probiotic supplements? A great deal of research has been done on this multi-billion dollar industry, but much remains to be learned about whether they are in fact helpful and safe therapies. Probiotics have shown promise in a variety of health treatments, including the prevention of antibiotic-associated diarrhea. However, in most studies, it is still not known which probiotics are helpful and which are not, the quantity of a supplement a person would need to take, and which individuals are most likely to benefit from supplements.

Studies agree that anyone interested in starting on a path of probiotic supplementation should first consult with a health care professional.

Lastly, we should also mention **environmental chemicals**. Research has shown that dozens of these chemicals, many of them endocrine disruptors, are linked to changes in the gut biome. They range from plastics used in food packaging … to PCBs (polychlorinated biphenyls, which were banned in 1979 but persist in our environment) … to glyphosate herbicide (found in some studies to cause dysbiosis) to name just a few. A *Science Daily* story produced by University of Illinois at Urbana-Champaign suggests that "exposure to these environmental chemicals at various stages of life can alter the gut microbiome" in ways that adversely affect health.

Depending on how and where we purchase food, we can avoid many plastics in the food industry. By growing our own food or shopping organic we can avoid dangerous pesticides and herbicides.

By staying informed we can make better choices.

This newsletter from the **Environmental Defense Fund** walks us through the foibles of the US food industry, while the **Environmental Working Group** offers frequent bulletins on the environment and food.

SOME GREEN THOUGHTS

"The best way to eat is to eat lots of different kinds of foods. Except for breast milk, no one food is perfect."
-Marion Nestle, molecular biologist, public health nutritionist, author

"A health claim on a food product is a strong indication it's not really food, and food is what you want to eat"
*— Michael Pollan, author, **In Defense of Food: an Eater's Manifesto***

"The road to health is paved with good intestines!"
— Sherry A. Rogers, MD, author