Gut: Probiotics and Prebiotics — Part 4

Let's start with fermented foods. Humans have a long history of consuming fermented foods. According to Professor Keith Steinkraus at Cornell, "The processes required for fermented foods were present on Earth when man appeared on the scene. When we study these foods, we are, in fact, studying the most intimate relationships with between man, microbe, and foods." These foods, like honey, berries, fruit, and fruit juices, were consumed very, very early on, probably before we were even human. Definitely, our primate ancestors still consumed them. Fermented foods are about as Paleo or ancestral as you can get. Without knowing anything about microbes, our ancestors recognized the therapeutic qualities of these foods, and virtually all contemporary hunter-gatherers that have been studied consume some kind of fermented foods.

Measurements of the chemical content within ancient Neolithic vessels suggest that intentional fermentation of fruit, rice, or honey beverages has been common practice for close to 10,000 years. There are numerous references to alcohol production during antiquity, but we also know that fermentation of cereals, dairy, vegetables, fish, seafood, and meats was a significant part of ancestral dietary practices.

Fermented foods have several advantages over commercial probiotic products. First, as I mentioned, hominids have been eating fermented foods for more than 2 million years, and we're adapted to getting microbes from foods for this reason. Second, there's some evidence that probiotic bacteria in foods may be better able to survive the stomach acid. This is one problem with many commercial probiotics. One study showed that 35 percent of all lactic acid bacteria isolated from raw fruits and vegetables can survive gastric conditions. Third, fermented food has other benefits. It increases the bioavailability of mood-regulating B vitamins, magnesium, and zinc and may improve vitamin D status.

Fourth, the concentration of probiotic organisms is significantly higher in some fermented foods. For example, one cup of kefir contains approximately 2.35 trillion colony-forming units, or CFUs. Compare that to most probiotic supplements that only have a few billion, and even the high-potency products like VSL-3 or Elixa that have 500 billion, and this is especially true for homemade fermented foods that you can ferment for longer periods to increase their microorganism content. Finally, fermented foods are much cheaper than commercial probiotics. You can make really large batches of sauerkraut, and only using cabbage, which is one of the cheaper vegetables.

Some of the most common fermented foods include kefir, that can be made from milk, water, or coconut, young coconut water; yogurt; sauerkraut; kimchi; beet kvass; and kombucha. Clinically,

I found kefir to be the most therapeutic, especially homemade kefir made from pasture-raised organic milk, if patients can tolerate it. It's rich in beneficial microbes. It also contains fat-soluble vitamins like vitamin A and K2, and natural transfats. Note that even patients with lactose intolerance can often tolerate kefir when it's been fermented for 24 hours because that virtually eliminates the lactose. Also, studies have shown that kefir may be able to reverse lactose intolerance. In other words, if the patient is lactose intolerant, and they consume small amounts of kefir and gradually ramp it up over time, they actually become able to tolerate lactose. If a patient is intolerant to the proteins in dairy, however, they probably still won't be able to tolerate kefir because the fermentation doesn't change the proteins significantly enough to change the antigenicity of the milk, but they can make kefir from water, coconut water, or other beverages.

As part of your ADAPT enrollment, I'm providing a 50-page guide to fermented foods that you can give to your patients in the PDF generator. It's a great service to offer them. This is a big change that people can make on their own and really impact their gut health. This guide covers the basic equipment and guidelines for fermentation—where to buy starters and cultures; books; websites and other helpful resources; as well as recipes for vegetable, dairy, and fruit ferments. We also have recipes for condiments like horseradish, mustard, chutney, and fish sauce and beverages like kombucha and beet kvass. You can use the handout generator to add your own branding, as with all the other handouts in the PDF generator, and then there's also a Kresser Institute-branded version for you as a clinician in the supplemental materials for this week.

Given my enthusiasm for fermented foods, you might think I don't recommend commercial probiotics at all. On the contrary, I think both are important and useful in a treatment plan. Commercial probiotics can be used to achieve more specific goals, for example as part of an antimicrobial protocol or to address a particular symptom like constipation or diarrhea or to provide strains that may not be available in fermented foods. Also, you'll find that some patients don't tolerate fermented foods very well, and this is especially true for those who are amine intolerant or histamine or tyramine intolerant.

As I said before, the research on probiotics is vast, and we could spend a year covering that alone. Also, we've already discussed probiotics like Terra Flora. Seed synbiotic, MegaSporeBiotic, Saccharomyces boulardii, Lactobacillus plantarum, Bifidobacteria infantis, and others in the context of specific treatment protocols during the gut section. What I want to discuss here is basic considerations about probiotic use outside of therapeutic protocols, for example, for ongoing maintenance and general health. In this case, I will typically recommend a synbiotic with an advanced delivery technology and evidence-based lactic acid strains such as Seed, which we will talk about more shortly, and possibly a broad-spectrum soil-based product such as Terra Flora in conjunction with fermented foods.

Seed is one of the new generation of probiotics that contain both probiotics and prebiotics with a delayed-released algae-based delivery system that allows the probiotics to withstand the harsh environment of the small intestine and stomach, making it through all the areas of digestion and

reaching the colon. Twenty-four clinically studied naturally occurring human-derived strains are in the Seed product, and these strains are not found in yogurt or other fermented foods and beverages or in most supplements. We found this to be a phenomenal maintenance synbiotic and is often better tolerated by our sensitive patients or those who have had trouble tolerating probiotics in the past, and I suspect that this is because of this delayed-release delivery system so that the probiotics are actually reaching the area that they are supposed to get to, and also, they are not being deposited in the small intestine. If someone has SIBO or overgrowth of bacteria in the small intestine, other probiotic products might exacerbate their symptoms because the bacteria is being deposited or exposed there, whereas in this case, it makes it all the way to the colon without that happening.

The recommended dose ultimately is three capsules daily before bed. You want to take it a little bit away from food, but generally, I would recommend starting with a lower dose, so maybe one capsule a day and then building up slowly. For very sensitive patients, you may even want to have them open the capsule and do half or one-third of a capsule for a while before they increase.

Fermented foods provide huge amounts of lactic acid bacteria like Lactobacillus, Bifidobacteria, and Streptococcus. We've been consuming these strains for millennia, and they're also very well
studied. Fermented foods are a more concentrated source of some of these types of bacteria than some commercial products, and they have additional benefits, as we've already discussed.

In addition to lactic acid bacteria in products such as Seed and then the fermented foods, I will sometimes recommend a product with soil-based organisms. I tend to do this with patients who do not tolerate Seed or lactic acid probiotics and/or those who need more support. Up until recently, all humans and still today people in rural areas on farms and in the developed world consume milligram quantities of these types of bacteria found in soil and water. These include species from the Bacillus genus, which is a gut-adapted endospore-forming bacteria that survives stomach acid completely intact and has a lot of beneficial effects, including antimicrobial properties. It is not as easy to consume these in the diet now as it is to get the lactic acid bacteria. One way to do it would be to eat unwashed fruits and vegetables in a little dirt, but I think this is problematic given all the toxins that can be in soils now.