Chapter 8. Feeding your gut microbiome

If our gut microbiome is so vital to our health, how do we ensure we have enough of the right types? Good question—we wondered the same thing, and scientists are still searching for answers. That said, we've identified foods that naturally contain microbiota (a.k.a. probiotics). Here's what we know so far.

Fibre & prebiotics

Take a trip to your local market and you're sure to find them: garlic, onions, leeks, asparagus, Jerusalem artichokes, bananas, and even seaweed. Step outside onto the nearest lawn and you might find them there, too, in the form of dandelion leaves. High-fibre foods are everywhere, just waiting for you to discover their hidden benefits.

Why is fibre so good for us? Dietary fibre can only be broken down and fermented by enzymes from the microbiota living in our colon. Short chain fatty acids (SCFAs) are released in the fermentation process, which effectively help clean house in the colon. SCFAs crank up the acidity in the colon—which limits the growth of some harmful bacteria—stimulate immune cell activity, and help maintain normal blood glucose and cholesterol levels. In short, fibrous foods feed not just us, but also our beneficial gut bacteria.

> <callout> **A fibre by any other name…**
> The fibres that support higher SCFA levels are sometimes called prebiotics because they play this supportive role. They include inulin, resistant starches, gums, pectins, and fructooligosaccharides.

Probiotics & fermented foods

Probiotics aren't limited to high-fibre foods. Fermented foods like kefir, yogurt with live active cultures, pickled vegetables, tempeh, kombucha tea, kimchi, miso, and sauerkraut also fall into the probiotic category. So, if probiotics are so readily available in foods we eat, is changing our diet enough to change our gut microbiome?

The truth is, we still don't know yet. Once established, our microbiome is openly hostile to newcomers—the party in our gut has a guest list, and there are bouncers at the door. If newcomers hope to make themselves at home in our gut, they'll need to get through a robust security system.

B-vitamins

<suggested visual component: table of prebiotics/probiotics, mechanisms, and outcomes: https://www.mdpi.com/1422-0067/22/13/6803/htm Figure 1>

Our gut microbiota is our body's primary pharma manufacturer—the bugs that make drugs. A large portion of those drugs are B-vitamins.

B-vitamins are mainly absorbed from the small intestine, but excess B-vitamins that aren't absorbed in the small intestine pass to the colon where they provide several benefits:

- Regulating immune cell activity
- Supporting the survival (or thrival) of certain bacteria
- Stamping out pathogenic bacteria
- Controlling colitis, or inflammation in the colon

<callout> **How much B-vitamin does our gut microbiome make?**
While we're not sure the exact amount, researchers have estimated our gut microbiome makes up to 86 percent of the recommended daily allowance (RDA) of vitamin B6, 37 percent of the RDA of vitamin B9, 31 percent of the RDA of vitamin B12, and 27 percent of the RDA of vitamin B3.

Vitamin K2

We need vitamin K to form blood clots and maintain bone and cardiovascular health. We get vitamin K from leafy greens, fermented foods, and through production of complex molecules called menaquinones by our gut microbiota. In fact, we get approximately 10 to 50 percent of our RDA of vitamin K from our microbiome.

We still don't know a lot about how our gut microbiome produces K-vitamins. We just know that our gut microbiome supplies menaquinones so that other microbiomes can use them for growth. Our gut microbiome is so pro-vitamin-K that it actively interferes with some patients' responses to anti-coagulants.

Protein

<suggested visual component: diagram of digestion of proteins https://www.mygenefood.com/blog/can-undigested-protein-contribute-to-leaky-gut/>