

You are what your gut bacteria eat

By vegan naturopath Robyn Chuter.

You've heard the saying "You are what you eat" a thousand times. But have you ever thought about what the trillions of bacteria that inhabit your gut might be eating, and how this impacts on your health?

Your gut microbiome is comprised of roughly 500-1000 species of bacteria, whose combined numbers run into the trillions, outnumbering your own cells; along with fungi, yeasts, archaea and viruses.

In case you're feeling a little grossed out by the idea that your insides are teeming with 'foreign' life forms, consider this: even *your own cells* contain bacteria DNA. The tiny mitochondria inside most of your cells, which produce the energy that you need in order to think, move yourself around, make hormones, digest food, excrete wastes, and do all the other activities your body engages in on a daily basis, are thought to have originated from bacteria that were incorporated into the cells of very early life forms. The way our mitochondria carry out their metabolic functions still betrays signs of their bacterial ancestry ([1](#)). We truly are more 'bug' than human!

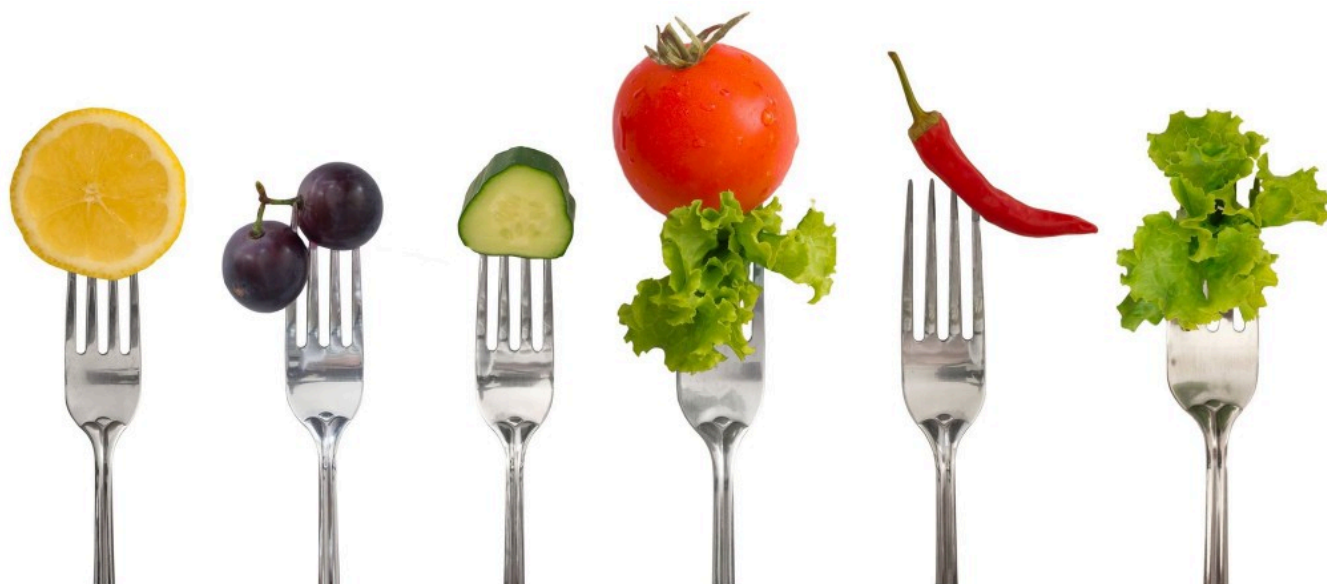
But back to those bacteria that inhabit your gut. It turns out that each person has a bacterial profile that is quite unique to them – like a fingerprint. However, while the proportions of various different species may vary quite substantially from one individual to the next, all humans' microbiomes can be broadly classified into two categories: a microbiome dominated by *Prevotella* species, and a microbiome dominated by *Bacteroides* species ([2](#)).

'So what?', you might be asking at this point. Well, for starters, having more *Bacteroides* overall, or more of certain *Bacteroides* species in your colon, is associated with a higher risk of developing bowel cancer (3), type 1 diabetes (4) and coeliac disease (5).

The good news is that you have an amazing degree of control over the dominant type of bacteria you grow in your gut. It all comes down to what you put in your mouth. You see, only a certain proportion of the food you eat nourishes you. The remainder – the parts of the food that are either indigestible, or that escape digestion; as well as the byproducts of your own digestion of food – feeds your gut bacteria.

Eat a diet high in fat, and you will end up with a *Bacteroides*-dominant enterotype, as these bacteria thrive on the bile acids produced in order to digest fat. Unfortunately, the bacteria metabolise those bile acids into compounds that are strongly implicated as causes of bowel cancer and inflammatory bowel disease (IBD) (6, 7).

Eat a diet rich in carbohydrate, and *Prevotella* species will happily ferment the indigestible residues in your colon, producing short chain fatty acids, including butyrate, that protect against cancer and IBD (8).



Even more remarkable, your gut microbiome begins to shift within *just 24 hours* of changing your diet in either direction ([9](#)). Starve those bile acid-eating *Bacteroides* by reducing your fat intake, and they will drop off pretty rapidly; feed your *Prevotella* with the fibre and resistant starch from legumes, vegetables, whole grains, fruits and nuts, and they will begin replicating at a rapid rate, 'squeezing out' unfavourable bacteria.

This has powerful implications for those already suffering from a microbiome-related condition, such as IBD or bowel polyps, and also for people who are genetically at higher risk of such conditions: Researchers investigating the link between gut bacteria and type 1 diabetes, found that the sudden upswell of the implicated *Bacteroides* species preceded development of the disease by about 8 months, and that it occurred at the time that solid foods were introduced ([10](#)).

The types of foods that babies are weaned onto may have long-term implications for their health, with Western-style dietary patterns dominated by animal products and fibreless refined carbohydrates, establishing an enterotype that sets us up for Western-style diseases.

In my own practice, I've seen remarkable recoveries from supposedly incurable conditions such as ulcerative colitis and rheumatoid arthritis, in clients who have adopted the low fat, high nutrient, wholefood plant-based diet that I prescribe. Until a couple of years ago, I always attributed these recoveries to an increased intake of antioxidants, decreased triggering of the immune system by antigen cross-reactivity, and other factors involving the interaction of food components with our human cells.

Since the explosion of research on the human microbiome and its effect on our health, I now know there are other mechanisms contributing to the dramatic improvements in health that result from adopting a wholefood plant-based diet, that

are mediated by the teeming colonies of invisible life forms that make our bodies their home.

Whether or not you're a nerd like me who is fascinated by every detail of the microbiome, here's what you need to know: If you look after your gut microbiome, it will look after you!