



Role of prebiotics and probiotics for managing gut health

To understand the role prebiotics and probiotics play in keeping our gut healthy, we first need to understand what the 'gut microbiome' is.

The gut microbiome

The gut microbiome refers to the trillions of bacteria that live in our stomach and intestines. There are over 1000 different bacterial species. These good bacteria help us to stay healthy by guarding against bad bacteria and viruses, helping us to digest and absorb food, produce vitamins and boosting our immune system (preventing us from getting sick!).

Each of us have our own special set of gut bacteria that is affected by our diet, disease, medications, smoking and age.

Why care about your gut health?

The evidence for the importance of maintaining a healthy gut has strengthened each passing year. We rely on the peaceful relationship we have with our gut to keep us healthy and strong.

A healthy gut supplies you with energy and nutrients, prevents against disease, promotes normal gut function, supports mental health and boosts heart health. When bad bacteria overrun the gut, it may contribute to stress and anxiety, poor sleep, obesity and illness.

An example of this imbalance of bacteria occurs when we take antibiotics. The antibiotics wipe out good gut microbiota and may allow harmful bacteria to grow in its place.

What's a healthy microbiome look like?

We want many different types of good bacteria and a similar amount of each bacteria type. Prebiotics and probiotics both play a part in helping us achieve a diverse and healthy gut.



Prebiotics

The most important components of a diet for gut health are dietary fibres, prebiotic fibres and resistant starch. We often talk about fibre generally – but no single fibre will do it all.

Dietary fibre is the indigestible parts of plant foods, including vegetables, fruits, grains, beans and legumes. There are two main types: soluble (absorbs water) and insoluble (does not absorb water). Most fibrous foods contain a mix of both. Dietary fibre keeps our bowel healthy by bulking our stools and preventing constipation. It also helps to keep us full, and can assist in blood sugar and cholesterol control.

Prebiotic fibres are special types of fibre that help our microbiome grow, multiply and function by ‘feeding’ it. This means that it must pass through the stomach unchanged, and make its way to the gut where it will be broken down and used as food for the good bacteria. The specific gut bacteria type that prebiotics most often target are lactobacilli and bifidobacterium. They also produce beneficial short chain fatty acids that reduce inflammation, aid digestion and strengthen our immune system.

It is important to know that not all fibres are prebiotic. Some of the best *sources of prebiotics are*; chicory root fibre or inulin (added to many high fibre/low sugar products), Hi-Maize resistant starch, prebiotic powder supplements, green banana flour and potato starch. Great whole food sources of prebiotics include; jerusalem artichoke, raw onion and garlic, asparagus, konjac noodles, tigernuts, green bananas, spirulina, oats, barley, rye and legumes.



Resistant starch is a type of prebiotic. It is not technically a fibre, but a type of starch that acts like prebiotic fibre. It resists digestion in the stomach and arrives in the colon completely intact. The bacteria feed on resistant starch, and produce a short chain fatty acid called 'butyrate' which provides exceptional benefits over that of other prebiotics. It keeps our gut cells healthy, reducing inflammation and risk of bowel cancer.

Good sources of resistant starch include; potato starch, green banana flour, legumes, rye bread, pumpernickel, lentils, barley, raw oats, cooked and cooled grains, cold pasta and cold potato.

Probiotics

Probiotics are living bacteria found in food, drinks or supplements (tablets, capsules, sachets) that can benefit our health by improving the balance of good and bad bacteria. Probiotics compete with and reduce the bad bacteria and stimulate our immune system to work better. They can also help us to digest fibre. Although a lot of research has been done on probiotics, there's still a lot to be learnt, and the scientific evidence for probiotics is continually growing.

Specific situations in which the evidence suggests probiotics may be useful include:

- When taking antibiotics
- Preventing the *Costridium difficile* ("C-diff") bug
- When travelling overseas
- Constipation
- Irritable Bowel Syndrome
- Ulcerative Colitis

Different probiotic types have different functions. Additionally, the same probiotic can have different impact on the gut microbiota in different people.



Probiotics are found in fermented foods such as yoghurts with active cultures, yakult, kefir, kombucha, miso, sauerkraut, and kimchi. The science is lacking for claims around some foods and probiotic strains.

Some of the most commonly used and recommended strains are lactobacillus and bifidobacterium, because they survive the passage to the gut. These form part of a healthy microbiota, and can be found in yoghurt, yakult and fermented dairy products.

It is important to know that the effect of probiotics only exists while you are actually taking them, but this does not mean they do not have a use temporarily. For example, when taking antibiotics, having a probiotic may reduce the 'hit' that your good bacteria take, and may speed up the time that the healthy microbiota takes to re-establish itself. If you are taking a probiotic for general health or 'immune function,' it means you will need to take it every day for continued benefits.

While the evidence is still emerging, we may all benefit from selecting and incorporating healthy probiotic foods into our diet.

Putting it all together

- Eating a diet rich in fruit, vegetables and wholegrains (including foods high prebiotic fibre and resistant starch) is a fantastic way to take care of your gut.
- Including well-researched food sources of probiotics daily, such as yoghurt and fermented milk products, will give you a dose of healthy bugs plus other healthy nutrients.
- Avoiding smoking and excessive alcohol consumption, managing stress and exercising regularly will provide the perfect environment for your gut microbiota to thrive!
- If you want to supplement with a probiotic, talk to your dietitian, doctor or pharmacist about which one might be right for you.