Prebiotics and probiotics.

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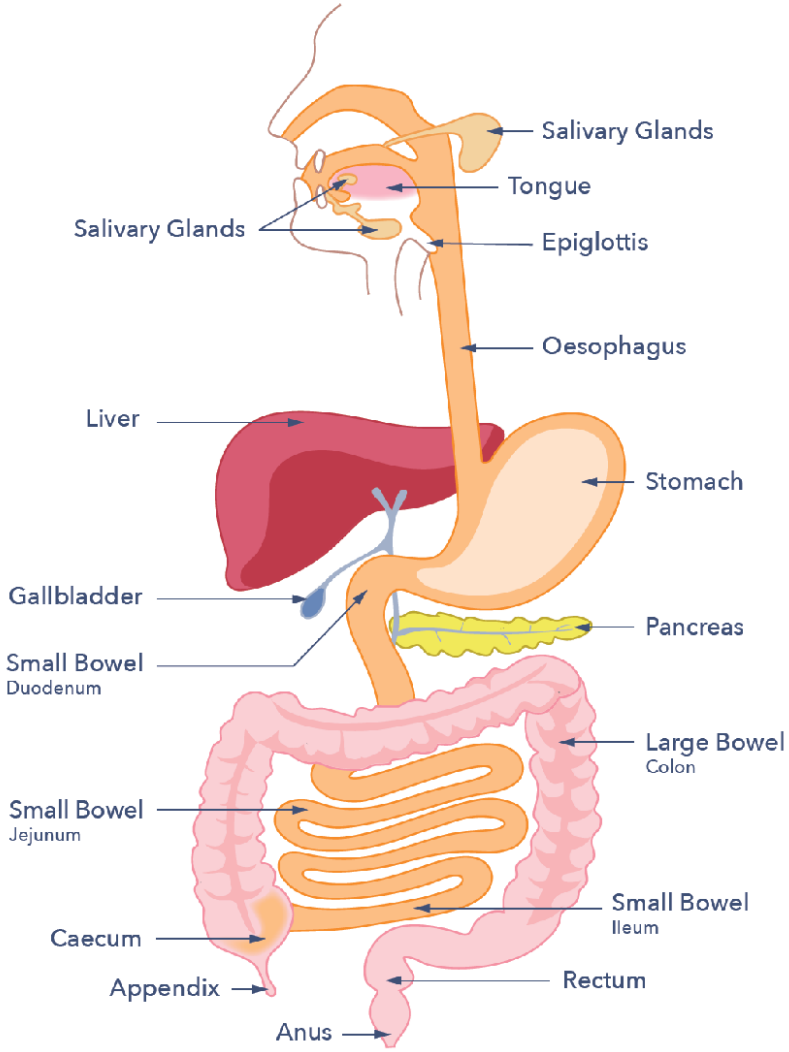
Guts UK is the charity for the digestive system. Funding research to fight diseases of the gut, liver and pancreas.

THE DIGESTIVE SYSTEM



OVERVIEW

Our gut's diverse ecosystem is made up of trillions of different microbes (bacteria and other tiny organisms). This is called the gut microbiome. The microbes in our gut benefit us beyond just the gut itself. They help our immune system and affect our mental health. We've all heard of the benefit of prebiotics and probiotics in our diets. But do we really understand them and their differences?

There are thousands of news articles, blogs and opinions. It can be hard to find exact definitions and reliable sources. To tackle this tricky subject, we've made a guide. It covers all you need to know about prebiotics, probiotics, and fermented foods.

Prebiotics

A good way to explain prebiotics is by thinking of them as fertilisers. These help the plants we want to grow in our gardens. In the same way, prebiotic foods help the right types of bacteria thrive in our guts. This supports our gut's ecosystem. Prebiotics are specific foods not fully digested by the body. In the large bowel, gut bacteria ferment them, releasing short chain fatty acids (SCFAs). These compounds benefit our health in many ways, such as helping to maintain the barrier of the gut. The barrier prevents infection from transferring from the gut into the body. Recent studies show that prebiotics may help blood sugar and appetite control. They may also help with inflammation, insulin sensitivity, and weight control. But evidence from human studies is still limited, and results are mixed. So, watch this space! It is generally agreed, though, that a diverse range of SCFA-producing bacteria in the gut is key to gut health. A prebiotic is defined as a substrate that is selectively utilised by host microorganisms, conferring a health benefit. This means it is used by gut microbes specifically and benefits gut health. Many plant foods contain various

types of prebiotics. Prebiotics can also be made artificially and added to foods or supplements. Most people do not need these supplements though. A diet rich in a variety of plant foods will supply enough.

Examples of foods containing prebiotics:

Fruit & Veg	Nuts & Grains	Other
Bananas	Almonds	Chickpeas
Apricots	Cashews	Black beans
Dates	Hazelnuts	Silken Tofu
Garlic	Rye	Lentils
Leek	Spelt	Soya
Onions	Barley	
Artichoke	Wheat	
Asparagus		

Some prebiotic-containing foods are high in FODMAPs. FODMAPs are fermentable oligosaccharides, disaccharides, monosaccharides, and polyols. If you have a digestive condition, like irritable bowel syndrome (IBS), these groups of foods may sometimes cause symptoms. If you think they are causing you problems, work with a dietitian. Tolerance of these foods varies. Because FODMAP-containing foods are high in prebiotics, it is important to include what you can tolerate to help maintain your gut microbiome. For diverticular disease, the general advice is to eat a healthy balanced diet with good sources of fibre. The advice is likely to be individual for people with inflammatory bowel disease (IBD) for what they can tolerate. If you feel that FODMAPs are causing symptoms, a dietitian could help you to safely exclude the ones that cause you problems. Ask your GP for a referral.

Probiotics

Probiotics were first described by a scientist in 1907. He proposed there was a link between fermented milk products and living longer and more healthily. Probiotics are now defined as: "Live microorganisms that when administered in adequate amounts, confer a healthy benefit on the host."

These helpful microorganisms (bacteria or yeasts) found in food (or supplements) support our gut microbes. For instance, probiotics help our gut microbes protect us against potentially harmful bacteria. They may also help to increase short chain fatty acid production, which, as we have already learnt, is beneficial for health.

Examples of probiotics are specific strains of *Lactobacillus* or *Bifidobacterium*.

Despite the hype, there is no strong evidence for specific recommendations. Research evidence for the short and long-term use of probiotics is still limited and most research has been done with probiotic supplements. For a probiotic to be effective in the gut, it helps if it survives the acidity of the stomach. It must then endure a long journey through the small intestine to the large intestine. It also needs to use nutrients from the diet, not cause illness and have a beneficial effect on the host. No easy task!

There may be times when taking a supplement is appropriate. It may help to support your gut microbiome when travelling, as food habits then are inconsistent. You may struggle to eat a variety of plants due to digestive issues. A probiotic supplement may help but again, evidence is limited. Probiotics can't replace the nutritional adequacy of a varied diet. Ask your doctor for a referral to a dietitian if you have a limited choice of what to eat. Some evidence suggests probiotics can prevent antibiotic-related diarrhoea.

When it comes to treatment of digestive conditions, again, evidence supporting benefit is variable. There has been research into using probiotics to treat IBS and whilst one specific strain can't currently be advised, they may be worth considering. Guidance suggests trying them for at least three months and monitoring their effect. Any benefit is likely to be specific to IBS symptoms. There is no evidence that probiotics are helpful for people with diverticular disease or for people with inflammatory bowel disease (IBD).

Right now, there isn't enough evidence to support other health claims or specific probiotic strains for general health. The evidence for their usefulness is inconclusive. The specific microbe or microbes they contain is an issue. We have thousands of gut microbes. Their numbers vary in each of us. This gives us a unique gut microbiome. The benefits provided by one strain might be different to another so we can't generalise when considering them as treatment.

Also, probiotics are classed as food, not medicine. This means they don't go through the same rigorous testing and regulation. Current regulations prevent companies from making health claims about probiotics.

If you want to take a probiotic, ask the manufacturer, your doctor, or dietitian for evidence that it helps your condition. See the examples above. Talk to your doctor or dietitian if you take immune-affecting medicine or have low immunity. They can also advise you if it may benefit your digestive condition. They will understand any research that has been done with probiotics. The specific type of bacteria, dose and delivery method of the probiotic are important. If you have a healthy gut and no digestive symptoms, then you should eat a variety of plant foods rather than taking a probiotic. A varied diet supports a varied and health-supporting gut microbiome.