

Probiotics

There are about at least three times more bacteria in our gut than there are cells in our body. This collection of organism is called the microbiome. It is the largest component of our immune system, responsible for **85% of your immunity**. Our immunity depends on both the volume and diversity of these bacteria. It also depends on the balance between good bacteria (about 90%) and harmful microbes (10%).

Beneficial bacteria produce vitamins, proteins, enzymes, anti-cancer substances (such as butyrate), most of our melatonin (sleep hormone) and neurotransmitters such as serotonin (prevent anxiety and depression). It also produces antibiotic-like substances and some bacteria break down toxins and gluten. It is essential for good health. But these good bacteria are under threat as never before.

In the past we obtained beneficial bacteria from small amounts of soil found in our food and from fermented foods. Bacteria are normally in a state of balance but the harmful ones can get the upper hand. This is more likely after taking certain such as steroids, antibiotics, non-steroidal anti-inflammatories (like ibuprofen), acid-blocking drugs or the pill, or from taking a diet high in sugar, alcohol and processed foods.

In these situations and in many gut disorders taking probiotics will help. This is like taking an extra helping of good bacteria. **These probiotics can be found in many yoghurts such as Actimel and Yakult**. However these yoghurts tend to be very high in sugar and contain adulterated milk and chemical flavourings so they are **not ideal**.

Note if a food just says it contains live bacteria on the packet this doesn't mean it is a probiotic –it must say probiotic on the label.

Some probiotics are freeze-dried but these are not very effective. An ideal probiotic should contain a live culture, be in a dark bottle and kept in the fridge.

Supplements of probiotics are also widely available. The bacteria most commonly used in these are lactobacilli and bifidobacteria. Surprisingly these are not even in the top 60 gut bacteria in terms of numbers in our gut but they have been shown to have a helpful effect. One of the problems with these supplements is that surveys have shown that they do not always have the bacteria listed on the label or do not have them at the stated strength.

The most important healthy bacterium is bacteroides. Unfortunately as this is anaerobic it does not survive in supplements, which may be the reason bacteria in probiotics do not colonise the intestine.

An ideal supplement should have a few different species in them but the exact number is not critical as there are already tens of thousands of species living in the gut so the numbers don't make a huge difference. Supplements can be capsules, tablets or powder.

A combination of lactobacilli, bifidobacteria and soil bacteria such as bacillus subtilis work well. **A good probiotic should contain at least 8 billion cells per gram.** Probiotics with much higher concentrations are unnecessary. As good bacteria can kill harmful bacteria and release toxins, probiotics can sometimes initially cause "die-off" symptoms such as tiredness or rash. If this happens then stay on a low dose and increase the dose when these "die-off" symptoms disappear and then build up to a therapeutic dose.

Some bacteria commonly found in probiotics include **Lactobacillus Acidophilus** which helps to reduce candida (thrush); **Lactobacillus Plantarum** (from sauerkraut and in the prescribable probiotic VSL 3) which helps in inflammatory bowel disease, reduces gut permeability (leaky gut), colonises areas that E coli inhabit and removes harmful bacteria and **Lactobacillus Brevis** (from sauerkraut and pickles) which helps with vaginosis and increases immunity. **Lactobacillus rhamnosus** helps destroy harmful bacteria, reduces tumour formation and increases antibody levels. **Lactobacillus salivaris** helps with digestion and absorption of nutrient, protects the mucosal lining and repairs the intestinal tract. (**Bifidobacterium Lactis/Animalis** (from fermented milk products) which helps protect from gastro-enteritis and boosts immunity and **Bifidobacterium Longum** which helps protect against food intolerances and some studies suggest it protects against colon cancer.

It is important to rotate different probiotics to get the best effect.

In a chronic condition it will take at least 6 months to re-establish normal gut flora and then the dose can be reduced. **It is a complete waste of money taking probiotics if you do not feed them.** With the right food they can increase to trillions in days, with the wrong food they will die off rapidly. Sugar and refined carbohydrates like white flour products will damage friendly bacteria, as will antiseptics, chlorine, gluten, fizzy drinks, many medications and processed food. GMO foods specifically target good bacteria. Foods which encourage the growth of good bacteria include fibre from most vegetables (onions, leeks, garlic, asparagus are good) and low-sugar fruits (pectin from pears and apples is a good food source for them), nuts and seeds. Surprisingly dark chocolate is a useful growth medium.

One way to test if the probiotics are active and contain enough bacteria is to take several and see if this produce wind and bloating –this will only occur if there are enough bacteria in them.)

The therapeutic dose for an adult should be 15-20 billion bacterial cells daily.

For 12-16 years old use 12-15 billion daily.

For 4-10 years old take 8-12 billion daily.

For 2-4 years old 4-8 billion daily.

For 1-2 years old 2-4 billion daily.

For under 12 months 1-2 billion daily.

Probiotics are normally taken with food but **don't take them with a hot drink** as this can kill the bacteria inside them. Also it is best to filter water as **chlorinated water can kill the bacteria** (that's why chlorine is put in the water)

Probiotics are widely available at health food shops but check the concentration of bacteria in the products.

However you have to encourage the good bacteria in probiotics to grow and thrive. As mentioned, have plenty of food with insoluble fibre, especially from vegetables. These remain partially digested and remain in the colon acting as food for them. Good bacteria can also be found in fermented foods such as kefir, sourdough, pickled food, sauerkraut, cider vinegar and some unpasteurised cheeses.

Kefir can be found at many supermarkets. Start with a tablespoonful in the morning before breakfast and build up. It is an excellent way of improving gut bacteria.