The culture club

So, you're clean eating, gluten free, fasting, eating avocados like their going out of fashion, chugging down green juices with the latest wonder powders and using coconut oil to cook and apply to every part of the body from top to toe to achieve an enviable state of health and wellness. But health trends come and go, and whether they stand the test of time is usually based on popularity over real results.

One area of health that has always been popular is the gut and the one thing we know for sure is that an efficient gut equals good health. Probiotics have been hip for a while now and this is one trend with a lot of research to back up the claims. The discovery of how to sequence the bacteria that live in the gut has widened this area of research and allowed scientists to explore it in a similar way to DNA 20 years ago.

Good digestion insures that your body can process foods efficiently and deliver all the essential nutrients without bloating or other digestive complaints that can impact on how you feel day-to-day and the role of gut bacteria in this context is well established. But these clever microbes are not just about good digestion and new exciting research is drawing associations between the microbiome and areas of healthy you may never have considered before.

What's the deal with bacteria?

The body is full of bugs that make up one of the most complex ecosystems in the world with over 400 different species living in the gut. Generally, these bugs are not harmful and many have a beneficial role to play in the body.

Gut bacteria are essential in the process of breaking down food to extract nutrients that are required for our survival. Bacteria help to synthesize certain vitamins including B12, folic acid and thiamin that are required for energy metabolism, red blood cell production and maintaining a healthy nervous system. These microbes also teach our immune systems to recognize foreign invaders and produce anti-inflammatory compounds that fight off disease-causing bacteria. Clever stuff.

Nurture your own culture club

The community of bacteria in your gut is specific to you and is referred to as your microbiome. The diversity of your microbiome is especially important to help maintain a healthy gut as bad bacteria are limited and tightly controlled by the good variety. If your diet is unhealthy and rich in sugary or processed foods then there's a chance that the good bacteria in your gut will become weakened, impacting on health as you provide an all-you-can-eat buffet for bad bugs to thrive on and take over. A buildup of bad bacteria may result in a number of health problems such as food allergies, yeast infections or inflammatory bowel disease.

Interestingly, the trend for carbohydrate free diets could have an impact on the diversity of bacteria in your gut. A high fat and protein diet is not necessarily the issue as bacteria will find something to live on in the gut but the diversity of bacteria and their activity may change in the absence of carbohydrates. Like us, bacteria prefer to live on carbohydrates (glucose) and from this they produce short chain fatty acids that are good for your gut. Once carbohydrates are taken out of the diet, bacteria start to thrive on amino acids that make up proteins, which produces other compounds that are considered more poisonous than beneficial

What are probiotics?

Probiotics are beneficial bacteria that contain strains that have been shown to have a positive health benefit. There seem to be a lot of interesting foods labelled as being probiotics ranging from chocolate through to tea but to get the most benefit you need to look for well researched strains such as Lactobacillus or Bifidobacterium with at least 10 billion bacteria per serving. Some foods such as kimchi are also touted as being a probiotic and although they may have health benefits for your gut the strains they contain (and there are many strains) are often not well researched and so cannot be classed as such.

How do probiotics benefit health?

One of the key benefits of probiotics is in maintaining good digestive health and research has shown how they can help with common digestive complaints such as diarrhoea and constipation. Probiotics have also been shown to be of benefit for people suffering with IBS and food intolerances such as lactose intolerance.

Immunity is also a key area of research. Around 80% of the immune system resides in the gut and studies have shown that probiotics are successful in preventing upper respiratory tract infections (coughs and colds)

as well as reducing the infection time. Probiotics are also essential for anyone that has had to take antibiotics that have an apocalyptic effect on all the bacteria in the gut. Taking probiotics alongside medication and for a few weeks afterwards should be a common place recommendation to help restore your microbiota.

The future of probiotics

Where things get very exciting is in the research that is starting to put science to the concept of that "gut feeling" by exploring the relationship between gut bacteria and how this may impact on behaviour, metabolism and mood via a signaling pathway called the gut-brain axis with early findings suggesting a possible link to conditions such as obesity and depression.

The future of gut bacteria is also fascinating as researchers at Kings College London predict that we may be able to receive individualized probiotic advice relating to the unique diversity of strains that make up our own personal microbiota. Researchers have commented that it is naive to think that a 'one-size-fits-all' approach to probiotics and that in the future. Metagenomic testing may be able to map your microbiome by sequencing every gene in every living organism in your gut. This would provide data on the functions of your microbes as well as viruses, fungi, virulent genes and antibiotics resistance. Understanding this may help link in with the research around the how certain bacteria strains are associated with specific health conditions.

It may also be time to ditch expensive skin care products in place of probiotics to achieve a healthy, clear, glowing complexion. Whilst the link between skin and gut bacteria is complicated, it has been shown that the health of your microbiome may be a significant player in the quest for healthy skin. If your gut is overrun with bad bacteria or yeast then this can increase the permeability of the gut, which can result in inflammation as the immune system produces inflammatory cytokines in response to microbial toxins that enter your system. Inflammation is at the root of skin conditions such as acne and research has shown how probiotic strains such as Lactobacillus casei and Lactobacillus plantarum may help to regulate the cytokines. This doesn't mean you can just pop a probiotic and expect great skin but there is an association with your microbiota.

Do we need to take probiotics?

If you have a healthy lifestyle and balanced diet then their maybe no need to invest in a probiotic but there is certainly no harm in taking them daily. Probiotics are intended to be used in a therapeutic context as they help to deliver a beneficial dose to the gut that you may not be able to achieve by eating foods such as probiotic yoghurt.

What is the best way to take probiotics?

This is up to you really. Probiotics are available in a capsule or tablet form such as Healthspan Super50 Pro (60 capsules for £28.50). This form of probiotic is freeze-dried and activated on entering the gut. Other sources of probiotic yoghurt and drinks do contain beneficial strains but these are often not in as greater volume as a supplement or with as much variety. You also need to be aware of the high sugar content of certain probiotic foods as some brands of 'shot' drinks have been shown to contain as much as 2 tsp of sugar. Probiotic foods are a good way to help maintain good bacterial levels but to make a real impact on the diversity of your microbiome you need a supplement. Like all supplements, the key is to take them regularly to get the most benefit and this is even more important with probiotics as you are essentially trying to increase the amount in the gut.

What to think about when choosing and taking supplements

If you're considering taking a probiotic supplement then there are a few things you should consider when buying and whilst taking them.

1. *To be effective you need to choose a supplement that contains at least 10 million bacteria per serving.*
2. *Don't take a probiotic supplement with hot food and drinks like tea or coffee as this can lessen the chance of the bacteria getting to your gut unharmed. Give it 30 minutes after taking them before you reach for the teapot.*
3. *Alcohol can also render the bacteria in probiotic supplements useless so avoid knocking back with a glass of pinot!*
4. *Research suggests that breakfast might be the best time of day as this is when bacteria have the greatest chances of surviving the acidic conditions in the upper part of the gut.*

5. *Make sure you check the check the expiry date because once that's passed there may not be any live bacteria left in the product.*
6. *Choose a probiotic that includes a wide variety of strains to get the most benefit.*