

# Lowdown on Gut Health



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The gut microbiome consists of up to 100 trillion microbial cells harboured by each individual person, primarily as bacteria residing in the large intestine.<sup>1</sup>

There are many species of bacteria and the diversity among the microbiome of individuals is immense.



Individual humans are about 99.9% identical to one another in terms of their host genome<sup>2</sup>, but can be up to 90% different from one another in terms of their gut microbiome<sup>3</sup>

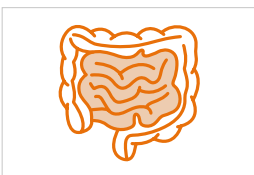
## What are the key functions of the gut microbiome?

Research strongly supports maintaining a balance of more beneficial gut bacteria is not just vital for supporting healthy digestion and metabolism, it has a magnitude of other functional properties to support our physical and mental wellbeing.

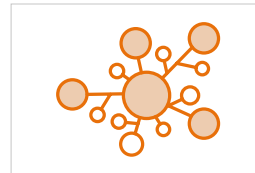
These microbial cells alongside bacteria include fungi, parasites and viruses that form the gut microbiome. They function as a second brain known as the enteric nervous system, which controls gastrointestinal functions, responding to food digested and changes in the surrounding chemical environment.

The health of this complex ecosystem relies on diversity. The more diverse the gut microbiome the greater its functional capability, including how it interacts with human cells. Each microbe relies on interaction to thrive, this competition for space and food keeps the gut microbiome alive and ultimately keep us alive too by performing pivotal functions which include:

- 1 Absorption of micronutrients from foods and digest dietary fibre.



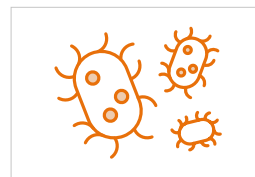
- 2 Synthesis of key nutrients including vitamins B and K, amino acids, hormones and neurotransmitters such as serotonin that is produced predominately in the gut. Low serotonin levels can be linked to food cravings, anxiety, and depression<sup>4</sup>.



- 3 The gut bacteria stimulate the production of specific cells that fight infection which travel via blood circulation or the lymphatic system and interact with the central nervous system<sup>5</sup>.



- 4 Many different types of bacteria in your intestines can significantly control risk of certain disease such as obesity and metabolic syndrome. Imbalance in the gut (known as dysbiosis) can contribute to metabolic syndrome as well as allergies, colorectal cancer, diabetes, and eczema to name a few. Interesting, animal studies and proof of concept studies using faecal transplantation have demonstrated the role of the gut microbiota in regulating insulin resistance states and inflammation<sup>6</sup>.



- 5 The enteric nervous system in the gut communicates with the parasympathetic nervous system (rest and digest mode) and sympathetic nervous system (fight or flight mode) both regulating heart rate, breathing, fighting inflammation and relaxation.

This explains why when we are feeling excited, stressed, or anxious it can lead to constipation or diarrhoea.



- 6** Response to medicines and infections and supports natural detoxification.



The health of our gut microbiome relies on plant diversity and is key to a functioning healthy gut. Evidence has shown people who have higher plant diversity (up to 30 different types of plant-based foods a week) had overall better gut health and immunity when compared to those that had less than 10<sup>7</sup>. This is due to the increased production of short-chain fatty acids (SCFAs)<sup>9</sup>.

Beneficial gut bacteria such as strains of Bifidobacterium have shown to be important for the diversity and robustness of the gut microbiome. Increasing the intake of wholegrains and fermented foods and drinks may be a good way to increase the abundance of Bifidobacterium<sup>9</sup>.

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**These bacteria colonise from different types of dietary fibres found in plants or products with added fibre. Research has also shown it to be found in Quorn mycoprotein once cooked, as this promotes a release of  $\beta$ -glucans<sup>10</sup>.**

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Staying well hydrated and eating lots of fibre increases the bulk and softness of stools and increases gut transit time. It also binds to other compounds, which can help regulate blood sugars and lower cholesterol. The Scientific Advisory Committee on Nutrition recommends 30g fibre per day as part of a healthy diet. It is important to note that, a sudden increase in fibre can cause gastrointestinal symptoms such as bloating or loose stools. It is thus recommended to increase gradually and consume with plenty of water.

#### **Take home message**

Gut health is a complex and fascinating topic, but it is important to take a step back and look at the bigger picture. Exercise, stress levels, sleep, where you live and where you travel, substances such as drugs and alcohol, medication, even how you were born (c-section vs vaginal) can all influence our gut health.

Diet is one of the most effective ways of influencing our gut microbiome. By increasing your fibre intake gradually - aiming for 30g a day - and ensuring you are having a variety of colourful plant and fungi based foods is essential to optimising gut health.

#### **Where to find Quorn mycoprotein**

Quorn mycoprotein is the unique whole food at the heart of every single Quorn product. There is a huge range of great tasting Quorn<sup>®</sup> products and ingredients available, all of which can easily be used to recreate your favourite recipes with a nutritious and sustainable twist.

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Visit [www.quornnutrition.com](http://www.quornnutrition.com) and [www.quorn.com](http://www.quorn.com) for more information about Quorn mycoprotein, products and recipes.

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