

# Gut microbiome and health

**Despite the abundance of evidence linking the gut with human health, researchers still have a long way to go to fully understand what constitutes a healthy microbiome.**

Healthy adults typically harbour over 1000 different species of bacteria, archaea, viruses and eukaryotic microbes that together make up the 'microbiome'.<sup>1</sup> With the ratio of human to bacteria cells approximating 1:1, we are as much bacteria as we are human.<sup>2</sup> This thriving ecosystem of organisms is now considered to be one of the most exciting and interesting areas of microbiology, and has tremendous potential to impact human physiology, both in terms of health and disease.<sup>1</sup>

Thanks to advances in meta-genomics and computational sciences, huge strides have been made recently in understanding how the individual components of our complex human microbiome interact with different areas of the body. Given that it performs a multitude of functions necessary for survival, the gut is no longer considered a benign passenger, but rather an active organ that has been linked to almost every chronic disease, including obesity, cancers and cardiovascular disease.<sup>2</sup>

The creation of reference databases and analysis software has provided invaluable tools to enable researchers to characterise the complex structure of the microbiome.<sup>3</sup> This should allow future studies to look more closely at the functional interactions between the microbiota and the host.

The gut microbiome holds the promise of novel therapeutic molecules for a range of diseases but there are still very few microbiome-based therapies in clinical or pharmaceutical settings.<sup>4</sup> However, as interventions to provide solutions for human health and disease continue to develop, microbiome research is entering some of the most exciting phases; the recent shift towards mechanistic and clinical studies should enable a better understanding of how the microbiome can influence human health.<sup>5</sup>

Given the diversity, variability and complexity of the gut and the interactions between microbial species, there is still a lot to learn and what constitutes a healthy microbiome is still far from being fully defined. Characterising the microbiome in healthy individuals is a crucial initial step if we are to understand its true role in human homeostasis and disease pathogenesis.<sup>3</sup>

## The Spring Conference will focus on the gut microbiome and human health

The Nutrition Society is looking forward to bringing together national and international scientists and other health care professionals with an interest in modulating the gut microbiome to improve human health at this year's Spring Conference. Taking place online on 29-30 March 2021, the conference will bring together experts who are driving technological advancements and striving to understand how nutrition impacts gut microbiome, as well as the interactions between gut microbiome and health research. Keynote Speakers include: *Professor Ian Rowland, University of Reading*, who will be discussing gut microbiota metabolism and the impact on bioactivity and health; *Professor Christine Edwards, University of Glasgow*, who will be looking at the interactions between dietary fibre and gut microbiota for health; and *Professor Paul O'Toole, University College Cork*, will also discuss the diet-microbiome-health

interactions in older people. This conference hopes to play a key role in allowing clinicians and researchers to access the most clinically relevant and evolving data within the field.

To view the full programme and register visit: [www.nutritionssociety.org/events/spring-conference-2021-gut-microbiome-and-health](http://www.nutritionssociety.org/events/spring-conference-2021-gut-microbiome-and-health)

## Gut Microbiome is open for submissions

Focusing on the contributing factors that influence the gut microbiota and in turn how the gut microbiome impacts human health, the scope of the Society's new open access journal *Gut Microbiome* includes research dedicated to the role that different diets, pharmaceuticals and nutraceuticals, prebiotics and probiotics have in shaping an individual's microbiome composition. Now open for submissions, *Gut Microbiome* is currently looking for articles on the topic of '*Biotransformation of food compounds by the gut microbiota*'. This could involve the biotransformation itself, as well the impact on the microbiota and on the host – pre and pro-biotic effects would also fit into this. Submit your article and review the first published papers here: [www.cambridge.org/core/journals/gut-microbiome](http://www.cambridge.org/core/journals/gut-microbiome)

References: **1.** Shreiner AB, Kao JY, Young VB (2015). The gut microbiome in health and in disease. *Curr Opin Gastroenterol*; 31(1): 69-75.; **2.** Lockyer S, et al. (2020). The role of probiotics on the roadmap to a healthy microbiota: A symposium report. *Gut Microbiome*; 1 E2. doi:10.1017/gmb.2020.2.; **3.** Hill C (2020). You have the microbiome you deserve. *Gut Microbiome*; 1, E3. doi:10.1017/gmb.2020.3.; **4.** Mohan S, Mok S, Judge T. (2020) Identification of Novel Therapeutic Molecular Targets in Inflammatory Bowel Disease by Using Genetic Databases. *Clin Exp Gastroenterol*; 13: 467-473.; **5.** Fischbach MA (2018). Microbiome: focus on causation and mechanism *Cell*; 174: 785-790.

## Events Calendar

- **29-30 March, Spring Conference** – Gut Microbiome and Health – [www.nutritionssociety.org/events/spring-conference-2021-gut-microbiome-and-health](http://www.nutritionssociety.org/events/spring-conference-2021-gut-microbiome-and-health)
- **22-21 June, Irish Section Conference** – Nutrition, Health and Ageing: translating science into practice – [www.nutritionssociety.org/events/irish-section-conference-2021-nutrition-health-and-ageing-translating-science-practice](http://www.nutritionssociety.org/events/irish-section-conference-2021-nutrition-health-and-ageing-translating-science-practice)
- **The Obesity Webinar Series** – This six-part series provides an opportunity to hear from leading experts in their respective areas of obesity research – [www.nutritionssociety.org/events/obesity-series](http://www.nutritionssociety.org/events/obesity-series)
- **Continue your professional development around your busy schedule** – Pre-recorded versions of recent NSTA webinars are available to listen to at a variety of different times on the website – [www.nutritionssociety.org/demand-webinars](http://www.nutritionssociety.org/demand-webinars)

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