

THE GUT MICROBIOME: Influencing infant's future health

WHAT IS THE GUT MICROBIOME?

As well as containing human cells, our bodies are made up of thousands of microbial cells, including bacteria. The highest number of these microbes are found within the gastrointestinal tract, and are more commonly referred to as the gut microbiome¹.

HOW DOES THE GUT MICROBIOME DEVELOP?

The early years of life are a crucial period to support the development of a healthy gut microbiome². Developing rapidly from birth, our gut microbiome reaches a more diverse, adult-like composition by 3 years of age². This can be influenced by environmental factors including mode of delivery at birth, gestational age and nutrition³.

The first
1000 days
of life are key for supporting a healthy gut microbiome^{2,4}

WHY IS THE GUT MICROBIOME IMPORTANT?

The gut microbiome is an essential element for our overall health^{12,5}, playing a key role in:

DIGESTION AND ABSORPTION:

A healthy gut microbiome is key to proper digestive functioning. It helps the body to digest certain foods that the stomach and small intestine are not able to.⁶



IMMUNE FUNCTION:

As 70-80% of our body's immune cells are found in the gut,⁷ the gut microbiome is essential for optimal immune system development, and has the potential to lower the risk of disease in infancy and beyond.²



GUT-BRAIN AXIS:

The microbes in the gut can influence brain function,⁸ affecting mood, anxiety, sociability and cognition.⁹



NUTRITION: A KEY INFLUENCER FOR A HEALTHY GUT MICROBIOME

BREAST MILK AND THE GUT MICROBIOME

Breast milk is gold standard nutrition to support infant health¹²

Breast milk provides bioactive components such as oligosaccharides, live bacteria and their metabolites, which all help to support a healthy gut microbiome.^{2,13,14}

Human Milk Oligosaccharides (HMOs) are a complex pool of carbohydrates that exist in high levels in human milk, with prebiotic and other important benefits¹⁵

PREBIOTICS are substrates that pass to the gut where they stimulate the growth or activity of beneficial bacteria⁹

PROBIOTICS are beneficial bacteria that affect the host microbiota when ingested in adequate amounts¹⁰

SPECIFIC NUTRITIONAL COMPONENTS CAN SUPPORT A HEALTHY GUT MICROBIOME

POSTBIOTICS are bioactive compounds produced by beneficial bacteria, which have biological activity in the host¹¹

SYNBIOTICS are a combination of prebiotics and probiotics⁹

To find out more about the gut microbiome and its role in overall health visit eln.nutricia.co.uk

1. Gerritsen J, et al. Genes Nutr. 2011;6:209-40; 2. Wopereis H, et al. Pediatr Allergy Immunol. 2014;25:428-38; 3. Penders J, et al. Pediatrics. 2006;118:511-21; 4. Why Thousand days. Available at: <http://thousand-days.org/the-issue/why-1000-days/> [Last accessed July 2019]; 5. Lee KN, et al. World J Gastroenterol. 2014;20:8886-97; 6. Gut Microbiota Info - Gut Microbiota for Health [Online]. Available at: <https://www.gutmicrobiotaforhealth.com/en/about-gut-microbiota-info/> [Accessed: August 2019]; 7. Furness JB, et al. Am J Physiol. 1999;277(5 Pt 1):G922-8; 8. Yang L, et al. Nurs Res. 2016;65: 76-88; 9. Gibson GR, et al. Nat Rev Gastroenterol Hepatol. 2017;14:491-02; 10. Schrezenmeir J, et al. Am J Clin Nutr. 2001;73(Suppl2):361S-364S; 11. Patel RM, et al. Clin Perinatol. 2013;40:11-25; 12. WHO. Going for the gold by supporting mothers to breastfeed <https://www.who.int/mediacentre/news/statements/2008/s08/en/> [Accessed July 2019]; 13. Chirico G, et al. J Nutr. 2008; 138: 1801S-06S; 14. Pannaraj PS, et al. JAMA Pediatr. 2017; 171: 647-654; 15. Bode L. Glycobiology. 2012;22:1147-62;16