

THE GUT MICROBIOME: DYSBIOSIS

Dysbiosis is an imbalance in the gut microbiome, characterised by fewer health promoting bacteria and an increase of disease promoting bacteria¹, or a restriction of microbial diversity within the gut².

Dysbiosis is influenced by multiple aspects such as genetic, prenatal and environmental factors.



Dysbiosis Causes

Factors associated with dysbiosis:

- Antibiotics³
- C-section delivery⁴
- Diet^{3,5}
- Genes⁶
- Stress³

Dysbiosis and Implications for Health

Dysbiosis in the earliest years of life has been associated with long term health conditions:

- Asthma^{7,8}
- Autism spectrum disorder⁹
- Diabetes^{10,11}
- Food allergies^{12,13}
- Inflammatory bowel diseases¹⁴
- Obesity and metabolic disorder¹⁵

What can we do to prevent dysbiosis?

Taking simple actions can help to support the gut microbiota and the immune system:

- Breastfeeding supports the developing gut microbiome¹⁶
- Eating a wide range of healthy foods and consuming pre- and probiotics¹⁷
- Exercising and maintaining a healthy weight¹⁸
- Exposure to nature or a rural environment¹⁹

REFERENCES:

1. Wilkins LJ, et al. *Sci Rep* 2019;9:12918
2. Petersen C, Round JL. *Cell Microbiol.* 2014;16(7):1024–1033
3. Hawrelak JA, Myers SP, Altern. *Med. Rev.* 2004;9:180–197
4. Dominguez-Bello MG, et al. *Proc. Natl. Acad. Sci. USA.* 2010;107:11971–11975
5. Vangay P, et al. *Cell.* 2018;175(4):962–972.e10
6. Zoetendal EG, et al. *Microb. Ecol. Health Dis.* 2001;13:129–134
7. Abrahamsson TR, et al. *Clin Exp Allergy.* 2013
8. Sokolowska, M, et al. *asthma res and pract* 2018;4,1
9. Fattorusso A, et al. *Nutrients.* 2019 Feb 28;11(3):521
10. Karisson FH, et al. *Nature.* 2013;498:99–103
11. Giongo A, et al. *ISME J.* 2011;5:82–91
12. Canani RB, et al. *ISME J.* 2016;10(3):742–750
13. Thompson-Chagoyan OC, et al. *Pediatr Allergy Immunol.* 2010;21(2p2):e394–e400
14. Frank DN. *Proc Natl Acad Sci USA.* 2007;104:13780–13785
15. Arslan N. *World Journal of Gastroenterology.* 2014;20(44):16452–63
16. Van den Elsen LWJ, et al. *Front Pediatr.* 2019;7:47
17. Valdes A M, et al. *BMJ* 2018;361:k2179
18. Aoun A, et al. *Prev Nutr Food Sci.* 2020;25(2):113–123
19. Nielsen CC, et al. *Environ Int.* 2020;142:105881



BREASTFEEDING



EXERCISE



HEALTHY FOOD



NATURE

