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IMMUNE SYSTEM
& THE GUT

WHITEPAPER



IMMUNE SYSTEM AND THE GUT

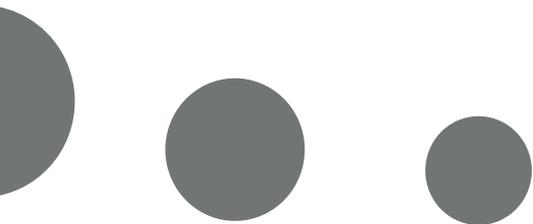
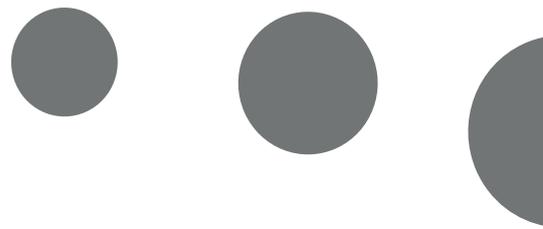
The immune system is our defensive system, protecting us from invasions of harmful pathogenic life forms (bacteria, viruses and fungi) and toxins. The immune system is a very complex structure of organs, cells and proteins functioning together in unity.

Microbes start colonising our gut during the very early days of life. Within this period, the so-called window of opportunity, contact with microbes plays a crucial role in the maturation of a balanced immune system⁽¹⁵⁷⁾. Communication between the immune system and the microbiota begins in the very beginning of our life – at birth. Initial exposure of a newborn to microbes depends on the mode of delivery, i.e. vaginal vs caesarean section. A vaginal delivery contributes to development of the healthy microbiota similar to the one in the gut of the mother's and leads to the formation of the healthy immune system⁽¹⁵⁸⁾. On the contrary, birth by caesarean section (CS) has been associated with abnormal microbiome and the impaired immune system, predispositions to infections, allergies and inflammatory disorders^(159, 160, 161). Breastfeeding appears to be another important determinant shaping a newborn's microbial environment, promoting the growth of beneficial bacteria such as *Bifidobacterium*⁽¹⁵⁷⁾. More detailed insights into early microbiome and its long-term effects on our health are pivotal in understanding, preventing and treating immune-related illnesses.

Several studies have identified a considerable difference between the microbiota of urban and agrarian (rural) populations. The main attribute of the microbiota from urban societies is the lack of microbial diversity leading to the increase of chronic diseases⁽⁵⁾.

It is becoming increasingly recognised that the gut microbiota shapes our immune system and by having a healthy gut which is diverse and rich in beneficial bacteria leads to a stronger immune system with less illnesses, infections and allergies.





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