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ASTHMA, ALLERGIES  
& THE GUT

WHITEPAPER



## ASTHMA / ALLERGIES

Asthma is a common respiratory disease affecting an estimated 5.4 million people in the UK and is characterised by coughing, shortness of breath and wheezing.

Asthma has a relatively low fatality but has a negative impact on the quality of life with symptoms such as insomnia, fatigue and reduced activity levels. Unfortunately, currently there is no cure to treat this condition. Asthma is triggered by an inappropriate response to allergens (pollen, animal fur, mould etc) causing swelling of the breathing tubes carrying air. The swelling of airways is a response to an inflammation reaction caused by an allergen.

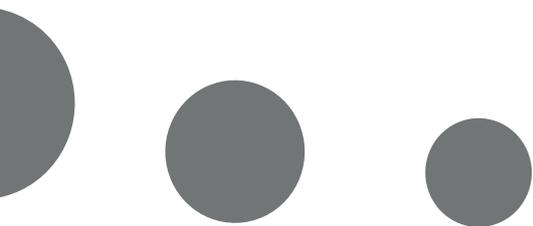
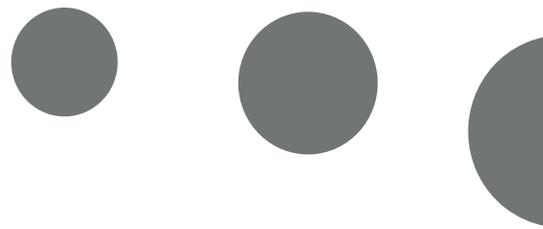
There are multiple reasons behind asthma, one of which is through a genetic predisposition to the disease. Other causes include environmental factors – i.e. direct exposure to particular allergens, diet composition and birth delivery method<sup>(132)</sup>.

Recent findings point out to the role of our microbial communities in the control of asthma and allergies. For instance, the increased representation of certain bacteria *Akkermansia*, *Bifidobacterium*, *Faecalibacterium*, *Lachnospira*, *Veillonella*, and *Rothia* in infants make them more protective to allergy and asthma later in their life. Interestingly the protective role of the bacteria was effective only during the first 100 days of the life of new-borns. This suggests that there is a critical window in early life when the exposure to certain groups of bacteria gains health benefits<sup>(133, 134)</sup>.

Colonisation of the digestive system with *Faecalibacterium*, *Lachnospira*, *Veillonella* and *Rothia* was associated with the increased amounts of acetate (SCFAs)<sup>(134)</sup>. SCFAs are believed to alleviate inflammation and asthma<sup>(135)</sup>.

The supplementation of a diet with fibre (inulin), favourable for the production of SCFAs by microbes, had a positive effect on reducing inflammation in airways in human studies. Therefore, fibre supplementation is a promising strategy to manage asthma and allergies<sup>(136)</sup>.





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NeoVos, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE

Tel: 01332 830990 Email: [hello@neovos.com](mailto:hello@neovos.com)

[neovos.com](http://neovos.com)