# Can respiratory tract infections, allergies and inflammation be prevented by targeted nutrition?

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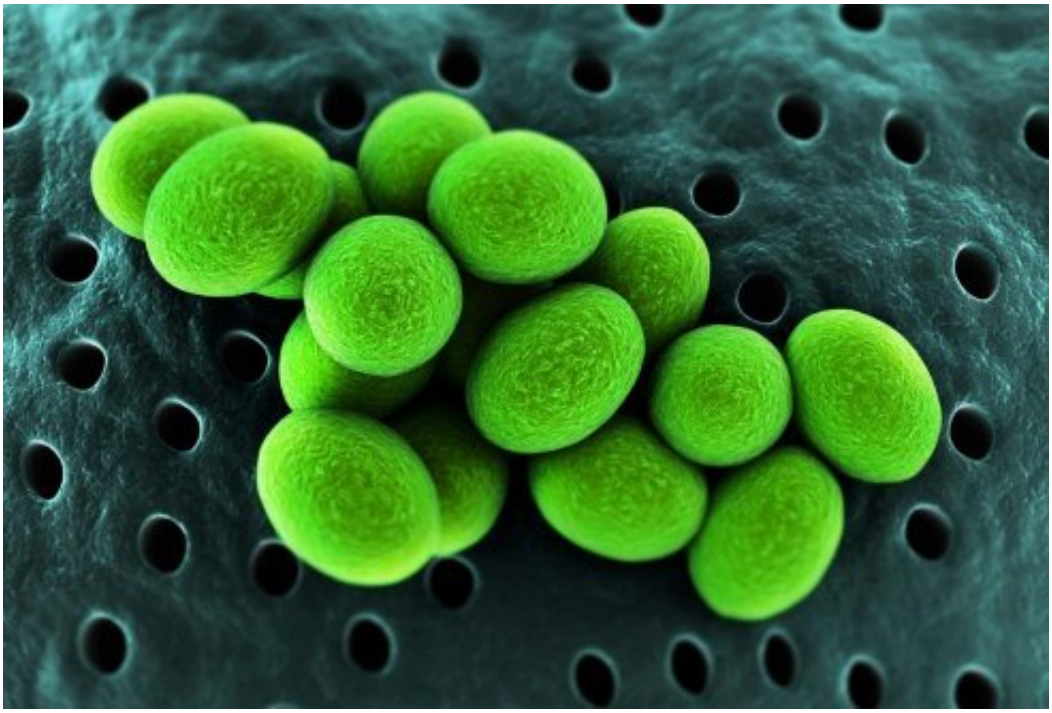

With targeted nutrition and additional micronutrients the resistance against respiratory tract infections, allergies and inflammation can be increased. That is vitally important for children under the age of 5 years and people aged 65 and over, who suffer from these complaints the most. The resistance in tissues covered with a mucous membrane in the

area of the mouth, throat, and nose has scarcely been investigated. Such research could, however, yield important results says Professor Joost van Neerven. On Thursday 2 October he will accept the position of Professor Mucosal Immunity (endowed chair) at Wageningen University.

Up until now research into the resistance in tissues with a mucous membrane (the so-called mucosal immunity) has mainly focused on the gastrointestinal tract. And subsequently how diarrhoea or chronic inflammation of the gastrointestinal tract could be combatted along this route, for example with food, explains Professor Van Neerven in his inaugural lecture Mucosal Immuninity: Barriers, Bugs and Balance. Now, however, it appears that certain nutritional components, including (raw) milk, clearly have a positive influence on the immunity in the upper respiratory tract. As a result of this the chances of small children developing an allergy or infection can be reduced and it might be possible to prevent respiratory tract infections and chronic inflammations in the elderly as well.

The mucous membrane has a complex role in the immune system, explains Joost van Neerven. First of all it forms a barrier against pathogens ('bugs') and if they still get inside then a balanced ('balance') reaction – 'not too little, but also not too vehement' – is vitally important.

## Allergy

Joost van Neerven: "It is already known that the mucosal system in the upper respiratory tract also facilitates immunity against infections and the development of allergies. But how this works and which mechanisms are involved is still largely unknown. We suspect that lymphoid tissue at the back of the throat plays a role. More research is very useful, especially to see how nutrition can have a positive effect on this. With the knowledge that emerges from this research we can develop targeted

strategies to help prevent these conditions, not only via the diet but also via mucosal vaccinations in the mucous membrane."

In his inaugural lecture, Professor Van Neerven explains that immune-related diseases and conditions via the mucous membranes mainly occur in children under 5 years old and in people aged 65 years and over. The world population is growing rapidly and, on average, is also becoming older. It is expected that in 2050, 16% of the world's population – more than 1.5 billion people – will be older than 65 years. The elderly are susceptible to both non-allergic inflammatory diseases and for infections. For an ageing population it can therefore be expected that there will be a strong increase in both of these in the near future, says the Professor.

Besides infections, children under 5 years are also susceptible to the development of allergies. In the rich West, the number of allergies has increased markedly in recent decades and currently about 25 to 30% of young children develop an allergy; a considerable proportion of these children develop asthma. In developing countries the figures are still lower at present but recent studies have shown that in Asia the number of children with an allergy is rising rapidly.

Van Neerven: "The societal costs that arise from the direct and indirect medical costs and absence due to illness are high. If prevention via the diet is possible then the same level of treatment can be achieved against far lower costs. Conducting further research into this is therefore definitely worthwhile."

## Less antibiotic use

This knowledge is not only important for human health but can also be used for agricultural animals says Professor Van Neerven: "The prevention of respiratory tract infections in animals by means of targeted

nutrition will not just result in higher production but also in reduced antibiotic use."

Provided by Wageningen University