

# Is cleanliness wiping out our immune system?

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(Medical Xpress) -- Too much cleanliness has been linked to the alarming rise in auto-immune and allergic diseases in the Western world, says Professor Barbara Fazekas de St Groth from the Centenary Institute. But the answer to this dilemma could lie in our gut.

In an article published on [The Conversation](#), Professor Fazekas de St Groth writes about mounting evidence supporting the "hygiene hypothesis" - a theory suggesting a link between the rise in living standards and immune-related diseases such as allergies, type 1 diabetes and multiple sclerosis.

"We don't know exactly why these diseases continued to rise despite - or indeed because of - improved living standards. The research suggests an infectious cause but we are yet to discover the responsible microorganism.

"One way of narrowing down the huge field of possible factors is to approach the problem from the other end - by understanding the immune system better and how environmental or hygiene factors could change its function."

Professor Fazekas de St Groth claims that the discovery of a small but absolutely essential subset of T cells within the immune system has been vital. [Regulatory T cells](#) or Tregs (pronounced tee-regs) control unwanted immune responses, such as allergies and [autoimmune diseases](#).

"Tregs are distributed throughout the body, particularly at points where we are likely to encounter disease-causing microbes. The most important site is the [gastrointestinal tract](#) (the GIT) where up to 90 percent of our [immune cells](#) are located.

"This ties in neatly with the [hygiene hypothesis](#) because it explains how an infectious event early in life (colonisation of the gut with bowel flora) can produce a life-long effect on the immune system."

Professor Fazekas de St Groth says we are only just starting to understand our gut microbes, many of which cannot be cultured and were discovered only by sequencing their DNA.

"There is now a massive sequencing effort - the Human Microbiome Project - which, like the Human Genome Project, will serve as the foundation of further studies to understand our gut microbes.

"The major concern now is whether research findings will come in time to preserve our natural gut ecosystem before it's too late."

Provided by University of Sydney

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