

Close link between gut health and food allergies, says food and health expert

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Credit: AI-generated image ([disclaimer](#))

For most people, when they think of their gut, the first thing that comes to mind is the area around the stomach—which is half true.

When doctors or [health professionals](#) talk about the gut, they refer to the billions of microbiomes and other microorganisms that exist in the

intestinal tract. As one of the most important organs in your body, the gut is responsible for the digestion, absorption and utilization of nutrients. It also makes up 70% of a person's immune system.

So, it's safe to say that poor gut health can lead to a string of negative effects on the body—including the increased risk of a [food](#) hypersensitivity to certain proteins—and it could mean the body lacks the types of colonies in the microbiome that are crucial for a healthy digestive system.

Those microbiomes are especially important when it comes to allergies. But what does gut health have to do with allergies?

Food and health expert, Associate Professor Alice Lee from UNSW School of Chemical Engineering, has devoted her career to researching this area.

"Generally, if you have good gut health, then typically your chances of developing allergies are lower compared to someone with poor gut health," says A/Prof. Lee.

"We now know that the [epithelial cell](#), the single cell layer that forms the lining of both the small and large intestine of our gut, looks very different in people with food allergies compared to those without and this can be attributed to the microbiome and how those cells process food proteins."

Food allergies

Food allergies are hypersensitive reactions to a specific food antigen with most people developing them from a very young age. In Australia, almost every two in 100 people live with a nut allergy and approximately 3% of infants have a [peanut allergy](#). It's becoming so common that many

schools and early learning centers have banned peanuts from school lunches altogether.

A/Prof. Lee says while genetics do play a role in the development of allergies, epigenetics, such as the environment factors, also dictate how the infant immune system develops.

"The gut microbiomes found in people with allergies is less diverse than people without allergies," she says.

"The maternal diet can influence the immune system of the infant. During pregnancy, avoiding allergens altogether is no longer recommended, and it's important for the mother to have a [balanced diet](#) to ensure their baby gets a good share of the nutrients needed to support healthy gut bacteria.

"Whether it's through breastmilk, or infant formula, the protein in the milk is the first thing babies are exposed to and this can influence their child's hypersensitivity towards that protein as their immune system develops.

"We also see the development of allergies through other epithelial cells such as the skin.

"Kids can present with a weak skin barrier or some kind of skin microbiome deficiency. And at a young age, they can be exposed to allergens through things such as almond oils which are found in baby creams, lotions, or body wash or traces of wheat protein in oatmeal baby bath soak—so it's not always through the consumption of these proteins."

Living with a food allergy

There is still some hope for young kids living with an allergy. About 80% of babies allergic to egg and milk grow out of it by the age of four. This is a stark contrast to children with nut allergies where only 20% grow out of it and the remaining 80% of people carry it into adulthood. For these people, absolute avoidance of their allergens is very important.

Recently, the Food and Agriculture Organization of the United Nations and the World Health Organization [recommended setting the regulatory levels](#) for each allergen to standardize the allergen regulation policy worldwide. This work is crucial in supporting the development of international food safety standards and guidelines relevant to the management of food allergens.

Is there a way to outgrow allergies quicker?

"Science hasn't yet taught us how to speed up the process of growing out of an allergy. The best treatment option we currently have is allergen-specific immunotherapy which has shown promising results," says A/Prof. Lee.

"Currently, at least 60% of patients who have gone through immunotherapy successfully develop desensitization and can consume their allergens in much higher doses after the therapy. However, we're continually striving to improve the efficacy and safety of the treatment."

Get to know your foods

Since the increase in production of plant-based protein alternatives, such as pea and other legume proteins, as well as novel substitutes such as insect proteins, new food allergies have also been on the rise.

A/Prof. Lee says people might be sensitized to certain foods but don't

know it. She theorizes that people can still consume foods they are sensitized to because it's at levels lower than their tolerance level.

"For example, you can be sensitized or even allergic to soy protein, but you can still have a small amount of soy protein in foods without any reaction," she says.

"On the flip side, even trace amounts of the allergenic food [protein](#) can trigger a life-threatening reaction."

Health supplements

While [probiotic supplements](#) are touted to help maintain digestive health, it doesn't mean they are the magic pill to end allergies altogether.

"These days, there are supplements or health-conscious drinks such as probiotic or kombucha promising to correct problems in our gut. This is only one small piece of a large pie," says A/Prof. Lee.

"We know that your gut microbiome changes when you have an allergy and restoring the gut microbiome could help the body respond better to the therapy, but there are other parts to this puzzle.

"There is current research looking at the efficacy of combining immunotherapy with both probiotic and prebiotic supplements and initial analysis of the data has shown positive results.

"However, there's still a way to go before we know the exact dosage of those supplements and in which combinations are needed to have that impact and how they work in the body.

"In the [allergy](#) prevention and treatment space, it's the billion dollar question."

Provided by University of New South Wales

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