

# Makeup of germs in newborn's gut may triple allergy, asthma risk

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(HealthDay)—A relatively rare abnormality in the makeup of germs in

an infant's gut may triple the risk for allergies and asthma in childhood, new research warns.

Millions of bacteria and fungi can be found in everyone's gut, but the new study suggests that an out-of-whack combination of bugs, present in less than 10 percent of newborns, may undermine immune system function.

The result: A much higher risk for allergies by 2 years of age and asthma by age 4, the researchers said.

"Previous studies from the last couple of decades have suggested that bacteria in the baby's gastrointestinal tract might be associated with these conditions," explained co-senior study author Susan Lynch. She is director of the Colitis and Crohn's Disease Microbiome Research Core at the University of California, San Francisco.

"However, they were only able with previous technology to evaluate a handful or a few dozen microbes," Lynch explained.

This latest study is the first to harness cutting-edge genetic testing to conduct an in-depth census of both bacterial and fungal content in a newborn's gut, according to Lynch.

The team discovered that at 1 month of age, there was "a small group of children with a distinct gut community that put them at higher risk" for childhood asthma and allergies.

In 2003, investigators began collecting and freezing stool samples from 130 infants aged 1 month. All were born in the Detroit region, and represented a racially and economically diverse group.

Years later, researchers applied newly developed [genetic testing](#)

technology to map each child's bacterial and fungal gut environment using samples obtained during the first month of life.

Children were classified into three different gut microbial groups. The smallest group included 11 children who lacked key bacteria on the one hand, and an excess of certain gut fungi on the other.

The investigators then determined that childhood asthma and allergy risk was much higher among such children.

Further analysis revealed that microbes (and their fat molecules) normally found in infant guts help to keep inflammation in check and boost the regulatory power of so-called T cells, the worker bees of the immune system. Such microbes and their molecules were lacking among high-risk infants, whose guts also contained other types of fats previously linked to adult asthma.

But are such children doomed to develop [childhood asthma](#) and allergies?

"At this point, unfortunately, we cannot yet say it is a near certainty," said Lynch, who added that her team is continuing to follow the children in the study.

Meanwhile, the team has identified certain factors—some modifiable, some not—that could affect the way a newborn's [gut](#) develops.

For one, boys are more susceptible to the problem than girls, although why that is so remains unclear. Pet ownership may also play a role.

"A number of studies in the last 15 years, including our own work, have suggested that pets in the home, especially dogs, seem to lower the risk for allergic disorders," said Lynch.

Why? Dog-owning residences appear to host a greater diversity of bacteria and fewer types of fungus, the study authors said.

"This raises the possibility that early life exposure to dog-associated microbes during the critical period of microbiome development may promote appropriate microbiome development," Lynch added.

Dr. R. Balfour Sartor, a distinguished professor of medicine, and also of microbiology and immunology, at the University of North Carolina School of Medicine in Chapel Hill, described the study as both "elegant" and "fascinating."

"And it suggests that perhaps one of the issues, at least in western societies, is that the environment in early life is actually too clean, which could be why previous studies have also shown that having pets, as well as siblings, may be protective against allergies and asthma," he said.

"I wouldn't tell parents, based on this, to go out and get a pet," Sartor added. "But it's certainly an interesting thing to consider."

The report by Lynch and colleagues was published online Sept. 12 in *Nature Medicine*.

**More information:** Visit the [American Academy of Allergy, Asthma & Immunology](#) for more on allergies and asthma.

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