

# Allergic responses to common foods could significantly increase risk of heart disease, cardiovascular death: Study

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Sensitivity to common food allergens such as dairy and peanuts could be an important and previously unappreciated cause of heart disease, new

research suggests—and the increased risk for cardiovascular death includes people without obvious food allergies.

That increased risk could be comparable to—or exceed—the risks posed by smoking, as well as diabetes and rheumatoid arthritis, the researchers report.

UVA Health scientists and their collaborators looked at thousands of adults over time and found that people who produced antibodies in response to dairy and other foods were at elevated risk of cardiovascular-related death. This was true even when traditional risk factors for [heart disease](#), such as smoking, [high blood pressure](#) and diabetes, were taken into account. The strongest link was for cow's milk, but other allergens such as peanut and shrimp were also significant.

The troubling finding represents the first time that "IgE" antibodies to common foods have been linked to increased risk of cardiovascular mortality, the researchers report. The findings do not conclusively prove that [food](#) antibodies are causing the increased risk, but the work builds on prior studies connecting [allergic inflammation](#) and heart disease.

Approximately 15% of adults produce IgE antibodies in response to cow's milk, peanuts and other foods. While these antibodies cause some people to have severe food allergies, many adults who make these antibodies have no obvious food [allergy](#). The new research found that the strongest link with [cardiovascular death](#) was in people who had the antibodies but continued to consume the food regularly—suggesting they didn't have a severe food allergy.

"What we looked at here was the presence of IgE antibodies to food that were detected in blood samples," said researcher Jeffrey Wilson, M.D., Ph.D., an allergy and immunology expert at the University of Virginia School of Medicine.

"We don't think most of these subjects actually had overt food allergy, thus our story is more about an otherwise silent immune response to food. While these responses may not be strong enough to cause acute allergic reactions to food, they might nonetheless cause inflammation and over time lead to problems like heart disease."

## Unexpected food allergy findings

The researchers were inspired to investigate the possibility that common food allergies could be harming the heart after members of the UVA team previously linked an unusual form of food allergy spread by ticks to heart disease. That allergy, first identified by UVA's Thomas Platts-Mills, M.D., Ph.D., is transmitted by the bite of the lone star tick, found throughout much of the country.

The allergy—commonly if inaccurately called the "red meat allergy"—sensitizes people to a particular sugar, alpha-gal, found in mammalian meat. The symptomatic form of the allergy, known as "alpha-gal syndrome," can cause hives, upset stomach and breathing difficulties—even potentially deadly anaphylaxis—three to eight hours after affected people eat beef or pork. (Poultry and fish don't contain the sugar, so they don't trigger a reaction.)

To see if other food allergies could be affecting the heart, a team including Wilson, Platts-Mills and collaborators from UVA, as well as Corinne Keet, M.D., Ph.D., of the University of North Carolina, reviewed data collected from 5,374 participants in the National Health and Examination Survey (NHANES) and the Wake Forest site of the Multi-Ethnic Study of Atherosclerosis (MESA). Of those people, 285 had died from cardiovascular causes.

Among the NHANES participants, IgE antibodies to at least one food was associated with a significantly higher risk of cardiovascular death,

the researchers found. This was particularly true for people sensitive to milk, a finding that held true among the MESA participants as well. Additional analysis also identified peanut and shrimp sensitization as significant risk factors for cardiovascular death in those individuals who routinely ate them.

"We previously noted a link between allergic antibodies to the alpha-gal red meat allergen and heart disease," Wilson explained. "That finding has been supported by a larger study in Australia, but the current paper suggests that a link between allergic antibodies to food allergens and heart disease is not limited to alpha-gal. In some ways, this is a surprising finding. On the other hand, we are not aware that anyone has looked before."

## Allergies and the heart

While this is the first time that allergic antibodies to common foods have been linked to cardiovascular mortality, other allergic conditions—such as asthma and the itchy rash known as eczema or atopic dermatitis—previously have been identified as risk factors for cardiovascular disease.

The researchers speculate that allergic [antibodies](#) to food may be affecting the heart by leading to the activation of specialized cells, called [mast cells](#). Mast cells in the skin and gut are known to contribute to classic allergic reactions, but they are also found in the cardiac blood vessels and heart tissue. Persistent activation of mast cells could drive inflammation, contributing to harmful plaque buildup that can cause heart attacks or other heart damage, the researchers believe.

The scientists underscore, however, that this is not yet certain. It's possible that other genetic or environmental factors could be at play. It's even possible that cardiovascular disease could increase the risk for food

sensitization—meaning that [heart disease](#) could up your risk for food allergies, rather than the other way round—though the new results suggest this is unlikely.

The researchers are calling for further studies to better understand the implications of their finding before recommending any changes in how doctors treat or manage food allergies.

"This work raises the possibility that in the future a blood test could help provide personalized information about a heart-healthy diet," Wilson said. "Though before that could be recommended, we still have a lot of work to do understand these findings."

The researchers have published their findings in the *Journal of Allergy and Clinical Immunology*. The research team consisted of Keet, Emily McGowan, David Jacobs, Wendy Post, Nathan Richards,

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Provided by University of Virginia

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