Study reveals children who undergo baked milk and egg challenges have significantly different allergic reactions

Although the main approach to coping with food allergies is to avoid the allergenic food, studies have suggested that for milk and egg allergens, consuming them in baked form may be tolerated by most children. However, a study published in the *Journal of Allergy and Clinical Immunology* shows that for the population of children that cannot tolerate milk or egg in baked form, they may experience significantly different allergic reaction profiles after consuming baked milk or egg.

"Studies suggest that about 70 percent of children allergic to fresh milk and uncooked egg are able to tolerate the baked form of these foods. For children with milk and egg allergies, being able to consume baked forms of these can make a big difference in their everyday lives," said senior author Dr. Katherine Anagnostou, associate professor of pediatrics in the section of immunology, allergy and rheumatology at Baylor College of Medicine. "This gives the opportunity for an expanded diet, more nutritional benefits and improvement to their social interactions, and overall it helps better their quality of life because they do not have to worry about strictly avoiding every single form of egg or milk."

For this study, Anagnostou and her colleagues looked at the cases of children in the United Kingdom who experienced a reaction during a food challenge to baked milk and egg; specifically, they wanted to determine whether there was any difference between the symptoms that occurred in the children and in the severity of the reactions. The reason a food challenge was needed is because there are not any good predictors of who would tolerate baked milk or baked egg before they were actually challenged. The food challenge remains the gold standard diagnostic tool for food allergies.

Parents of children in the study were provided a standardized recipe for cupcakes that contained either baked milk or baked egg. The families prepared the cupcakes and brought them to the challenge unit, a dedicated area within the hospital where researchers would then gradually administer increasing doses of the cupcake. If the children were able to eat the cupcake with no reactions, they were clearly not reacting to the baked form of milk or egg. However, if they had reactions then the challenge would stop and they would be treated.

The study lasted for a six-year period from 2010 to 2016 and included 189 children. During this time, the team observed 90 children who experienced an allergic reaction to consuming baked milk and egg during the food challenges – 66 while undergoing a baked egg challenge and 24 while undergoing a baked milk challenge.

Two significant findings emerged from the study. The first is that the children who reacted to baked milk mostly presented with respiratory symptoms, like cough and wheeze, whereas the children who reacted to baked egg mostly presented with gastrointestinal symptoms such as abdominal pain and vomiting. Less than a third of the children in the baked egg group experienced respiratory symptoms while almost all (96 percent) children in the baked milk group experienced these. Less than half of the children in the baked milk group experienced gastrointestinal symptoms whereas almost all (98 percent) in the baked egg group had reactions involving gastrointestinal symptoms.

The second important finding is that the severity of the reactions was different. The rates of anaphylaxis between the two groups were similar, but when researchers looked into the severity of anaphylaxis for the children in the baked milk group, they noted that all of the kids in this group...
required two doses of epinephrine to treat their anaphylaxis whereas in the baked egg group the symptoms resolved with a single dose of epinephrine.

Anagnostou acknowledges that although her team studied children that were based in the United Kingdom, this research likely is applicable to children in other Westernized countries with similar rates of food allergies including the United States. More studies are underway to further investigate these findings.


Provided by Baylor College of Medicine

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.