

September 2014 • Facts

Food Allergies

Peanut, Egg, and Milk

What defines a food allergy?

A *food allergy* is an abnormal reaction to food that is caused by the immune system. Normally, the immune system protects us from disease. But sometimes it can cause problems. That's what happens with a food allergy. The immune system mistakenly "thinks" the food is dangerous. It creates antibodies that cause an unpleasant and maybe dangerous reaction.

A food allergy is different from a *food intolerance*. That's because there is a different underlying cause. The immune system does not cause a food intolerance. Something else, like a missing enzyme, is the cause. For example, a person could have a milk allergy or a milk intolerance. A milk allergy is caused by an abnormal immune response. Milk intolerance is caused by a lack of the enzyme called lactase.

Peanut, egg, and milk allergies

Allergies to peanuts, eggs, and milk are fairly common. Some people with allergies to these foods have severe, even life-threatening, reactions. Others have mild reactions. When people are allergic to one of these foods, wouldn't it be nice if they could know if they:

- Might have a severe reaction?
- Could eat the food raw, cooked, or neither?
- Will get over it?

Now there is testing that can help answer these questions for peanut, egg, and milk allergies. It's called *food component testing*. Food component testing can also help a doctor decide if, when, and what kind of oral food challenge to do for the patient.

Food component testing is different from other allergy testing

Other allergy tests are based on a crude extract of the food. These extracts contain proteins that cause an allergic reaction. They also contain proteins that don't. And they contain proteins that cross-react with pollen or other allergens. So they don't always correlate very well with symptoms in many people. They don't predict who will and who won't have a general reaction. Nor do they predict who will have a severe reaction.

Food component testing is based on the specific proteins that cause a reaction. They are more specific and correlate better with the allergic reaction.



Facts about food allergy

- About 5% of children have a food allergy.¹
- About 4% of teens and adults have a food allergy.¹
- About 0.6% of Americans are allergic to milk.²
- About 0.8% of Americans are allergic to peanuts.²
- About 0.9% of Americans are allergic to eggs.²
- Egg, milk, and peanut allergies are the most common allergies in U.S. children.
- Egg allergy is the most common allergy in children with atopic dermatitis.
- Peanut allergy tends to last a lifetime; milk and egg allergies are often outgrown.

Facts

How does food component testing work?

This testing is done on a sample of blood. It cannot be done as part of a skin test. The food component test looks for IgE antibodies to specific proteins in the food. These proteins can all cause an allergic reaction. Some of them cause only a mild or moderate reaction. Others cause a severe reaction. Knowing which protein the person reacts to can give an idea of how severe the reaction will be. It might also give an idea if the allergy will persist and whether the person has to stay completely away from the food.

How does food component testing help?

Information from the test will help an allergic person know how to live better with the allergy. Here are some examples.

Peanut allergy³⁻⁵

Peanut component testing can tell if the allergic person is likely to have a severe reaction to peanuts. For example, if the test says the person is sensitive to the peanut component Ara h 1, 2, or 3 protein, the person is at risk for a severe, maybe even life-threatening, reaction. This is true even if the person has only had mild reactions in the past. This means the person should completely stay away from peanuts. He/she should not eat peanuts or foods that contain peanuts. He/she should also stay away from foods that might be contaminated with peanuts. This can happen when a food without peanuts is prepared in the same place as a food with peanuts. The person should also carry an epinephrine injector and know how to use it. It may save the person's life if he/she has a severe reaction.

If the test says a person is sensitive only to Ara h 8, the person has a low risk of a severe reaction. The person might even be able to eat peanuts. An oral food challenge could tell if it's safe to eat peanuts. People should be sure to clear it with their allergist before eating peanuts in any form.

Egg allergy⁶

Egg component testing can tell if the person is allergic to raw egg, cooked egg, or both. If the test says the person has a high level of antibodies to *ovalbumin*, he/she is at high risk of a reaction to raw or slightly cooked eggs. So the person should not eat an omelet or scrambled, fried, or poached eggs.

If the test says a person has a low level of antibodies to ovalbumin, he/she is at low risk of a reaction to raw or slightly cooked eggs.

If the test says a person has a high level of antibodies to *ovomuroid*, he/she is at high risk of a reaction to both raw (slightly cooked) and cooked (baked) eggs. This means the person shouldn't eat eggs or anything made with eggs. The person should stay away from eggs completely.

Food allergy diagnostic strategy²

- Medical history and exam
- History of reaction(s) to each suspect food
- Skin scratch test and/or specific IgE serum test
- Food elimination diet
- Oral food challenge

Living with food allergies²

People with a food allergy need to:

- Avoid the food that is causing the allergy
- Carry and use epinephrine if needed for anaphylactic response
- Learn how to eat healthy while avoiding the food
- Learn how to read and interpret food labels
- Get allergy testing every year (for milk and egg allergy) or every 2-3 years (for peanut allergy) to see if still allergic
- Reintroduce food into diet when possible (only if doctor approves)

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If the test says a person has a low level of antibodies to ovomucoid, he/she might be able to eat baked eggs and baked goods that contain eggs. This could include quiche, soufflé, cakes, and muffins. An oral food challenge can tell if this is safe. People should be sure to clear it with their allergist before eating baked eggs.

Milk allergy⁷⁻⁹

There are several important proteins in milk. These include casein, α -lactalbumin, and β -lactoglobulin. The most important one is casein. This is because more people are allergic to casein. It's also because IgE antibodies to casein are better at detecting milk allergies.

If the test says a person has a high level of antibodies to *casein* or *β -lactoglobulin*, he/she is at high risk of having a reaction to heated milk. The person should stay away from cooked or processed foods that include milk or casein.

If the test says a person has a low level of antibodies to casein, he/she is at low risk of a reaction to extensively heated milk. The person might be able to eat baked goods such as waffles and muffins that contain milk. An oral food challenge can tell if this is safe. People should be sure to clear it with their allergist before eating heated milk.

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