



Food Allergy Testing: Questions and Answers

Scott H. Sicherer, M.D.

Who should be tested for food allergy?

Testing should be considered when symptoms such as hives, redness of the skin, itchiness, swelling of the lips or eyelids, throat tightness, wheezing, breathing trouble, coughing, vomiting, or diarrhea occur shortly after eating. Some chronic illnesses are sometimes associated with food allergy, including eczema (atopic dermatitis) and infantile digestive problems (significant vomiting, diarrhea). Asthma and hay fever are not commonly associated with food allergy.

What do the tests measure?

The tests determine the presence of IgE antibody directed to particular foods. (IgE is the allergic antibody that mediates most food allergy reactions.) Some laboratories offer other types of testing (cytotoxic testing, IgG antibody testing, provocation/neutralization, and others), but these should be considered unproven and experimental.

What types of tests are available?

Two commonly used tests are blood (CAP-RAST) and skin prick tests. The blood tests require a small sample of blood to be sent to a laboratory, where the amount of IgE antibody to the specific food is measured. The result is reported as a numerical value.

Skin tests are performed by exposing a tiny area of scratched skin to the food being evaluated. This is accomplished either by pricking the skin with a small needle or probe through a drop of the food extract, or by using a pricking device that has been presoaked in the extract. A positive skin test results in a mosquito-bite-looking bump at the site of the test within minutes.

How are the tests interpreted?

The easiest test result to interpret is one that is negative; it is very unusual to have IgE-mediated reactions to a particular food when the skin or blood test to that food is negative.

Unfortunately, the interpretation of positive tests is not so straightforward. Positive tests indicate that IgE is present but do not, in isolation, prove that a reaction will occur upon ingestion of the food. In fact, people who “outgrow” their food allergy usually continue to have a positive test result to the food for many years.

To further complicate matters, some proteins in foods are cross-reactive with similar allergenic proteins in nonfoods (pollen) or in other foods. This cross-reactivity can lead, for example, to a positive skin test for soy in a person with peanut allergy or a positive test to wheat in a person with grass pollen allergy, even though the person has not had symptoms of an allergy to those cross-reacting foods.

Do the test results indicate the level of severity of a reaction?

Neither the size of the skin test reaction nor the level of specific IgE antibody in the blood test necessarily correlates with the type or severity of symptoms. Consider an allergy evaluation with a “2+” positive skin test and a positive CAP-RAST test to peanut. One person with these results may be eating peanut every day without symptoms, while a different person may experience anaphylaxis from peanut. Similarly, that second person may

experience only an itchy mouth on one occasion, anaphylaxis on another, and a mild case of hives on yet a third occasion of peanut exposure.

The level of specific IgE antibody measured using a particular method of RAST test (CAP-RAST FEIA uses units called kU_A/L, which indicate a concentration of specific IgE) was recently reported to be useful in determining the chance of true reactivity to certain foods. For example, an IgE antibody level of more than 7 kU_A/L to egg, more than 15 to milk, more than 14 to peanut, and more than 20 to codfish was highly predictive (greater than 95 percent chance) of providing some type of allergic reaction among highly allergic children. Unfortunately, lower values, unless virtually undetectable, may still indicate a potential for having an allergic reaction. This test may prove useful in following levels of particular IgE antibodies over time to see if they are falling (perhaps indicating that the allergy is being outgrown).

As you can see, the interpretation of these tests can be quite confusing. Your doctor must always interpret these tests in the context of the individual medical history. Even the selection of which foods to test must also be decided carefully and in the context of the medical history, since up to one-half of positive tests may not accurately reflect an allergy. Lastly, like any test in medicine, the results are occasionally wrong and should be repeated if an error is suspected.

Is there a definitive way to determine whether someone is or is not food allergic?

Oral challenge tests are definitive but carry a risk of serious reactions. These tests are conducted by giving gradually increasing amounts of the suspect food under a doctor's supervision while observing the patient for symptoms. These tests should be performed only by trained personnel, with emergency treatment immediately available. The tests might be used to verify the accuracy of a positive IgE test, to determine if an allergy has been outgrown, or for a variety of other reasons. In cases of non-IgE-mediated reactions (some gastrointestinal allergies), an oral challenge may be the only definitive way to diagnose a food allergy.

In summary, food allergy tests are helpful in identifying or excluding food allergy as a cause of symptoms, but decisions regarding what tests to perform and how to interpret them are complex. Furthermore, removing foods from the diet or adding foods back to the diet can have serious medical consequences.

Your doctor will interpret the test results within the context of your complete individual medical history and will use the results as just one of several pieces of information to guide in decision making. Improved food allergy tests are in development and will, we hope, provide more definitive results than those currently available.

Scott H. Sicherer, M.D., is associate professor of pediatrics, Jaffe Food Allergy Institute, Mount Sinai School of Medicine, New York. He is also a member of FAAN's Medical Advisory Board.

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