

Food Allergy Testing

This resource summarizes how IgE antibody triggered food allergy is diagnosed and the tests that are available to help. IgE antibody triggered food allergy is the most common type of food allergy.

To prevent allergic reactions, people with food allergy must know what foods to avoid. Without a diagnosis, it may be difficult for them to know what food or foods trigger allergic reactions. Getting a diagnosis also provides information about the severity of the food allergy, the best treatment should an allergic reaction happen and the best plan for monitoring the food allergy.

What is food allergy?

Eating exposes the immune system to many different food proteins. The immune system learns to recognize and remember food proteins and typically considers them harmless. Food allergy happens when the immune system treats specific food proteins as harmful. Food proteins that can trigger allergic reactions are called food allergens.

The most common type of food allergy can develop when the immune system makes a type of antibody against certain food proteins. These antibodies are called immunoglobulin E and are also known as IgE antibodies. IgE antibodies interact with the cells of the immune system that contain inflammatory messengers like histamine.

When a person with food allergy eats their food allergen, IgE antibodies trigger a sudden, fast release of very large amounts of histamine and other inflammatory messengers into body tissues. These inflammatory messengers cause the inflammation that triggers allergic reactions. They can affect the skin, the respiratory tract (for breathing), the gastrointestinal system (for digestion) and/or the cardiovascular system (for blood flow).

The signs and symptoms of an allergic reaction can include hives, swelling, wheezing, coughing,

difficulty breathing, vomiting, faintness, weakness and passing out. The symptoms often come on quickly.

Some people with food allergy are at risk for severe allergic reactions. It is important to respond right away or as soon as a severe allergic reaction begins. For more information on how to respond to a person having a severe allergic reaction, please see [Severe Allergic Reactions to Food: Children and Teens \(HealthLinkBC File 100a\)](#).

Is food allergy different from food intolerance and food sensitivity?

Food sensitivity is a general term. It can be used for many conditions that can cause symptoms after eating certain foods. Examples include food allergy, celiac disease, irritable bowel syndrome (IBS), heartburn and food intolerance such as lactose intolerance. Food sensitivities should be diagnosed so that the best treatment options and a monitoring plan can be identified.

Unlike food allergy, food intolerance does not involve the immune system. The signs and symptoms of food intolerance typically happen when a person does not have enough of a specific enzyme to completely digest or metabolize part of a food. Lactose intolerance is an example of food intolerance caused by a lack of the lactase enzyme needed to digest lactose, the natural sugar in milk.

How is food allergy diagnosed?

Allergists and pediatric allergists are medical doctors. They have training in immunology and the diagnosis and treatment of conditions that affect the immune system. They have advanced training in diagnosing and recommending treatment and monitoring plans for patients with different types of food allergy, including IgE antibody triggered food allergy.

Family doctors and pediatricians can also diagnose food allergy. They will refer their patients to an allergist or pediatric allergist when

a more detailed assessment would be helpful.

There are three main steps an allergist will use to diagnose food allergy:

1. Detailed health history and physical exam.

The health history and physical exam determines how likely a food allergy is the cause of a person's symptoms after eating a food. The history also helps to identify which foods should be suspected. It is the most important step to a diagnosis because it helps to determine which foods to test, if any. Sometimes, the health history and physical exam will show that food allergy tests are not needed.

2. Testing suspected foods.

Testing the suspected foods shows whether the immune system is making IgE antibodies to the foods that are tested.

3. Diagnosis.

The allergist gathers and analyses all the information from the first two steps. This step is very important **because a diagnosis cannot be made using just the test results. The allergist needs to analyze the test results together with the results of the health history and physical exam to make a diagnosis.**

What types of food allergy tests are available?

There are two main types of food allergy tests available. They are skin prick tests and food-specific IgE antibody blood tests.

Skin prick tests measure whether a food-specific IgE antibody is made by the body. They are done by putting a protein extract of the food on the skin. The skin is scratched lightly to make sure the extract comes in contact with the immune system in the skin. If the person makes an IgE antibody to the suspected allergen, a hive-like bump called a wheal will form on their skin. If the wheal reaches a certain size, it means the person makes an IgE antibody to the food protein tested and the test result is positive. Skin prick tests can be done in an allergist's or pediatric allergist's clinic.

Food-specific IgE antibody blood tests

measure the amount of a food-specific IgE antibody in the blood. A medical lab takes a small amount of blood to analyze the amount of a food-specific IgE antibody. If the level of IgE antibody is above normal, it shows that the person's immune system makes an IgE antibody to the specific food protein and the test result is positive.

The results of food-specific IgE antibody blood tests are not available immediately. The test results are sent to the allergist so they can be analyzed together with the results of a person's health history and physical exam. A follow up conversation with the allergist is needed to learn the diagnosis.

How accurate are positive skin prick and food-specific IgE antibody blood tests?

Some people make an IgE antibody to a food but do not have an allergy to it. They can eat the food without having an allergic reaction. If they only had a skin prick test or IgE antibody blood test done for that food, the result would be positive. If the result was used to make a diagnosis, it would be an incorrect diagnosis.

To get the correct diagnosis, the doctor uses the health history and physical exam to assess if a food allergy is likely before testing for IgE antibodies. If the health history and physical exam indicate a food allergy is unlikely, the allergist may not offer a skin prick test or IgE antibody blood test.

The goal for a person with food allergy is to avoid only the foods that they react to. Some labs offer a test that measures IgE antibodies to a standard set of many different foods at the same time. This test is often called panel testing. Panel testing increases the risk of positive test results to foods that do not cause symptoms and the risk of an incorrect diagnosis.

Why do some people make IgE antibodies to a food and do not have an allergy to the food?

There are many other immune system factors that enable IgE antibodies to trigger an allergic reaction. Some people make IgE antibodies to

food but their immune system does not make the factors to allow an allergic reaction to happen. People who make an IgE antibody but tolerate the food are not allergic to it. They are said to be only sensitized to it. Note that even though the words sound the same, being sensitized to a food is not the same as having a food sensitivity.

How accurate are negative skin prick and food-specific IgE blood tests?

Negative test results are pretty reliable. A negative skin prick or IgE antibody blood test to a food means the immune system is not making an IgE antibody to the food. This means they are unlikely to have IgE antibody triggered food allergy.

Can food allergy tests predict the severity of a food allergy?

Skin prick test and IgE antibody blood test results are not very good at predicting the severity of food allergy. The health history and physical exam are also analyzed to better predict the severity of allergic reactions. Helpful health history information includes the severity of past allergic reactions and other health conditions such as asthma.

Can babies be tested for food allergy?

Yes, babies and young children can be tested for food allergy. Pediatric allergists see children from birth to 18 years of age. There is no minimum age for food allergy testing.

Can children grow out of their food allergy?

Some children may grow out of their food allergy. A pediatric allergist should monitor children with food allergy. Repeating skin prick testing and food specific IgE antibody testing over time can help the pediatric allergist with monitoring. They can determine if a child has outgrown their allergy and can recommend when it is safe and appropriate to add the food to the diet.

How can you tell if a child is outgrowing their food allergy?

Food-specific IgE antibody tests can be helpful for monitoring a child with food allergy. When a child is outgrowing their food allergy, the level of food-specific IgE antibody will be lower than what it was, but can still be positive.

For this reason, food allergy tests cannot confirm whether a child has outgrown their food allergy. The child's doctor may suggest an oral food challenge to confirm that a food allergy has been out grown.

An oral food challenge involves eating the food allergen to see if an allergic reaction still happens. They are offered when there is a history of a severe reaction. Oral food challenges are only done in a medical clinic under the direct supervision of an allergist or pediatric allergist. If an allergic reaction happens, the allergist will be present to detect and treat it right away. Do not try oral food challenges at home.

Are there other recommended tests to help diagnose food allergy?

Food elimination diets remove a group of foods from the diet on a trial basis to see if this stops the signs and symptoms of allergic reactions.

Food elimination diets can be tempting to try. They can be hard to follow and are rarely needed for a diagnosis. Elimination diets that restrict a lot of foods can also lead to malnutrition, especially in children. If a child with a higher risk of developing food allergy avoids a tolerated food for a long time, it may increase their risk of developing an allergy to that food.

An allergist can tell you whether an elimination diet would be helpful. They can provide a list of foods to stop eating for a specific trial period based on the person's health history and test results. A registered dietitian can provide advice and guidance to help the person meet their nutrition needs and support meal planning for the trial. Whether and how each food should be added back to the diet should be discussed with the allergist. Some foods should only be reintroduced in a medical clinic during an oral food challenge.

What tests are not recommended to diagnose food allergy?

Food-specific IgG antibody testing measures the level of food-specific IgG antibodies in the blood. The immune system makes IgG antibodies to proteins found in foods that you regularly eat. Some people claim that having food-specific IgG antibodies signals a food allergy or sensitivity, but there is no evidence that this is true. High levels of IgG antibodies to foods regularly eaten are found in people without food allergies. It is normal to have IgG antibodies to foods that you tolerate. This is the reason why this test is not recommended.

Combined food-specific IgG and IgE antibody testing provides a total count of the food-specific IgG and IgE antibodies in the blood. Since the levels of food-specific IgG antibodies do not indicate a health concern, the total count is not helpful for diagnosing food allergy.

How can I prepare for my visit with the allergist?

- Ask the allergist's clinic if there is anything you can do to prepare for the visit
- You may be asked to stop taking some medications before your visit. Ask the allergist's clinic for a list of medications to stop temporarily
- If possible, write down a description of each of your reactions. If you can, it may be helpful to keep a food and symptom diary. This is a daily record of what you ate and when, along with symptoms you experienced and when. Bring it with you to your visit
- Take photos of visible symptoms and bring the photos with you to your visit
- Bring a list of prescription and over the counter medications and supplements you take

What to expect during the visit

- Expect to answer detailed questions about your child's or your own health history
- Have a list and description of medical conditions, health problems, past reactions and symptoms ready
- You may be asked to allow a physical exam
- You may have skin prick testing offered
- You may be offered a requisition for food-specific IgE antibody blood tests
- A follow-up visit may be recommended

For More Information

For additional information, see the following resources:

HealthLink BC www.healthlinkbc.ca – get medically approved non-emergency health information.

HealthLinkBC File #100a Severe Allergic Reactions to Food: Children and Teens
<https://www.healthlinkbc.ca/healthlinkbc-files/food-allergy-child-teenager>

Asthma Canada: Asthma Basics
<https://asthma.ca/asthmabasics>

Government of Canada. Common food allergens
<https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-allergies-intolerances/food-allergies.html>

Food Allergy Canada.
<https://foodallergycanada.ca/>

FARE: Unproven diagnostic tests.
<https://www.foodallergy.org/resources/unproven-diagnostic-tests>

Last Updated: October 2019

©2019 Province of British Columbia. All rights reserved. May be reproduced in its entirety provided the source is acknowledged. This information is not meant to replace advice from your medical doctor or individual counselling with a health professional. It is intended for educational and informational purposes only.