

A simple definition of *food allergy* is “an inappropriate response of the immune system that results in symptoms.” Our immune system keeps us free from disease by recognizing a “foreign invader” when it enters the body and responding to the presence of the invader by releasing defensive chemicals (called *inflammatory mediators*) into our body’s tissues and its bloodstream to destroy the threat to our health.

All the food we eat comes from foreign material – plants and animals – that we consume as nourishment. Normally, our immune systems see this material as “foreign but safe” due to a complex process of tolerance that occurs when we digest and absorb food. When something goes wrong in this process, a person becomes “sensitized” to the food, and from then on the immune system sees that food as “foreign and a threat.”

Whenever that food enters the body again, the immune system treats it as if it will cause disease. The symptoms that we experience as a result of our body’s defense action are called *allergy*.

An adverse reaction to a food that results in clinical symptoms, but which is not caused by a reaction of the immune system, is called *food intolerance*. In contrast to food allergy, food intolerance is usually triggered by small-molecular-weight chemical

example, a reaction to a pharmacologically active agent, such as tyramine, in food that causes migraine headache)

A tendency to react adversely to a component of food that causes no ill effects in the majority of the population is considered to be an idiosyncratic response. Therefore, food intolerance is usually defined as an idiosyncratic response to a food, or a component of food, that is not caused by a response

allergy and atopic dermatitis (eczema) in childhood.

Gluten-sensitive enteropathy, more frequently known as *celiac disease*, is a chronic disorder of the intestines. It is caused by an immunologically-mediated reaction to gluten, an important protein that occurs principally in wheat, rye, barley, and to some extent in oats.

A person who has celiac disease develops a number of symptoms that

Food Allergy vs. Food Intolerance

by Janice Vickerstaff Joneja, PhD, RDN



of the immune system. Because toxins in foods will cause ill effects in anyone who consumes them, food poisoning is not usually considered to be food intolerance within this definition of the term.

Although any food protein can be potentially allergenic, relatively few are known to cause most allergic reactions. In addition, an allergenic protein

may include digestive-tract upset such as diarrhea, abdominal cramping and distress, and inadequate absorption of food. In children, this may cause inadequate growth, and in adults an inability to gain weight. Other symptoms may include anemia, infertility, recurrent sores in the mouth, and sometimes skin rashes known as *dermatitis herpetiformis*.

Celiac disease is a distinct medical condition, unrelated to allergy, and has its own diagnostic tests. Treatment is strict avoidance of wheat of all forms, rye, barley and oats.

Other allergenic foods, present on some lists, absent on others, include sesame seed and products containing sesame seed, mustard seed, corn, and kiwi fruit. Food additives rarely cause IgE-mediated hypersensitivity reactions and therefore do not appear on allergen lists. The exception is sulfite, which is included on many food allergen lists.

Editor's Note: Dr. Janice Vickerstaff Joneja has a PhD in medical microbiology and immunology and has taught courses at the University of British Columbia. ■

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substances and biologically active components of foods.

The physiological mechanisms that cause adverse reactions to foods can be diverse and complex, and many are still poorly understood. In general terms, food intolerance is defined as “a non-immunologically-mediated adverse reaction to a food or a food additive.”

There are three main categories of non-immunologically-mediated adverse reactions to foods:

- *Toxic reactions* (for example, food poisoning in response to a microbial toxin in a food)
- *Metabolic dysfunction* (for example, enzyme dysfunction such as lactase deficiency causing lactose intolerance)
- *Pharmacologic responses* (for

example, a reaction to a pharmacologically active agent, such as tyramine, in food that causes migraine headache)

can induce an allergic reaction only in an atopic person who has been sensitized to it. Most of the severe allergic reactions to food occur in response to a surprisingly small number of foods.

The foods most commonly associated with allergic reactions are milk, egg, wheat, soy, peanut, tree nuts, fish, and shellfish. While these are the most common, the *severity* of reactions associated with these foods varies. For example:

- Peanuts, tree nuts, shellfish, fish, milk, and egg account for most reported cases of anaphylactic reactions in children and adults.
- Soy is less frequently reported as a highly allergenic food, although it is often associated with severe cases of