

Food Allergies

SUMMARY NOTE

- A food allergy is an adverse reaction to food involving an immunological mechanism.
- The clinical symptoms of food allergies range from mild discomfort to severe or life-threatening reactions, which require immediate medical intervention.
- The prevalence of food allergies has been estimated to be around 1-3% in adults and 4-6% in children.
- More than 70 foods have been reported as causing food allergies.
- The only way for allergic individuals to manage food allergies is to avoid eating the food that causes the allergy.
- The foods, which cause the most severe reactions and most cases of food allergies are: cereals containing gluten, crustacean, eggs, fish, peanuts, soybeans, milk, and tree nuts.
- The Codex Alimentarius Commission Committee on Food Labelling recommends always declaring these foods and ingredients derived from them.
- Awareness about food allergies among public food and health officials, and those supplying and preparing food is the first step in protecting individuals with food allergies.
- This note contains links to examples of guidelines with advice to the food industry and caterers on managing food allergen risks.

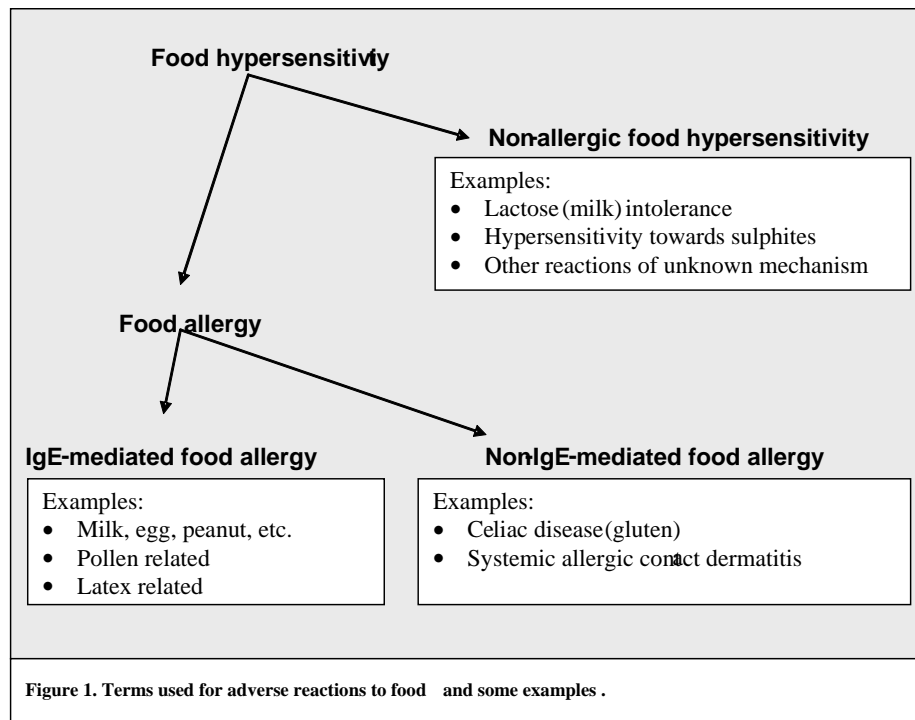
Why are food allergies important health issues?

Individuals with food allergies develop symptoms by eating foods that for the vast majority of the population are part of a healthy diet. Even small amounts of the offending food can cause serious and even fatal reactions in susceptible individuals. Fortunately in most instances the outcome is not death but various symptoms affecting the skin, gastrointestinal tract, respiratory tract, eyes, and/or central nervous system. The only way for the allergic individual to manage food allergy is to avoid eating the food that causes the allergic reaction. In practice avoiding the offending food can be difficult. Food allergies influence the life quality and economy of the food-allergic individual and the economy of the food industry. Consequently, food allergies are a concern for both the food allergic individual and all those involved in supplying and preparing food including family and friends, caterers, restaurants and the food industry.

Food allergy remains the principle safety concern for foods derived from recombinant-DNA. These genetically modified foods contain newly expressed proteins that may present a risk for the food-allergic individual. The Codex Alimentarius Commission's Principles and guidelines on food derived from biotechnology¹ recommends a procedure to assess newly expressed proteins for potential allergenicity. The procedure is designed to screen out newly expressed proteins that are likely to cause allergy. This INFOSAN note on food allergies will provide some basic information about food allergies as well as links to more information.

What are food allergies?

In 2003 the World Allergy Organization proposed a revised nomenclature for allergic and allergic-like reactions². According to this proposal (figure 1), adverse non-toxic reactions to food should be termed food hypersensitivity. When an immunologic mechanism has been demonstrated the appropriate term is food allergy. Food allergy can further be characterized by whether the immunological mechanism involves IgE antibodies or not. Other reactions to food, previously referred to as “food intolerance”, should be called non-allergic food hypersensitivity.



What are the symptoms of food allergies?

The symptoms of food allergies range from mild discomfort to severe, life-threatening reactions, which require immediate medical intervention. Symptoms may be triggered in the skin (e.g. itching, redness, swelling), gastrointestinal tract (e.g. pain, nausea, vomiting, diarrhoea, itching and swelling of oral cavity), respiratory tract (e.g. itching and swelling of the nose and throat, asthma), eyes (e.g. itching and swelling), and/or cardiovascular system (e.g. chest pain, abnormal heart rhythm, very low blood pressure causing fainting, and even loss of consciousness).

Allergic reactions to foods generally occur within a few minutes to one hour after eating the offending food. Symptoms can last for days or even weeks. The specific symptoms and severity of an allergic reaction are affected by the amount of the allergen consumed and by the sensitivity of the allergic person.

How many individuals are affected by food allergy?

The prevalence of food allergies in the general population has been roughly estimated to be around 1-3% in adults and 4-6% in children³. It is however difficult to estimate the prevalence of food allergies because different studies use different methodologies and the occurrence of food allergies changes with age. Egg and milk allergies are the most common food allergies among infants but are often outgrown. Shellfish allergy is more common among adults than children, while peanut allergy is equally common among children and adults.

Which foods can cause allergies?

More than 70 foods have been described as causing food allergies⁸. Several studies indicate that 75% of allergic reactions among children are due to a limited number of foods, namely egg, peanut, milk, fish and nuts³. Fruits, vegetables, nuts and peanuts are responsible for most allergic reactions among adults. Individuals with pollen or latex allergy often experience allergic symptoms when they eat certain fruits, vegetables or nuts⁴. This “cross-reactivity” occurs because the body cannot distinguish between the allergens in pollen or latex and related proteins in food and reacts to both. In Europe and the US peanut and nuts are the foods most commonly reported to cause life-threatening reactions.

The Codex Alimentarius Commission Committee on Food Labelling has listed the foods and ingredients that cause the most severe reactions and most cases of food hypersensitivity. In section 4.2.1.4 of General Standards for the Labelling of Prepackaged Foods⁶ it states: “The following foods and ingredients are known to cause hypersensitivity and shall always be declared:

- Cereals containing gluten; i.e., wheat, rye, barley, oats, spelt or their hybridized strains and products of these;
- Crustacea and products of these;
- Eggs and egg products;
- Fish and fish products;
- Peanuts, soybeans and products of these;
- Milk and milk products (lactose included);
- Tree nuts and nut products; and
- Sulphite in concentrations of 10 mg/kg or more.”

While the Codex list contains the major allergens on a world-wide basis, the prevalence of food allergies varies in different geographical areas. Some countries have chosen to include additional foods on their national list of foods and ingredients that must be declared on food labels. The EU for example has chosen to add celery, mustard and sesame seeds and products thereof to the list of allergens, which must appear on food labels.

Processing and preparing food as well as the food matrix may increase or decrease allergenicity. However, currently, the data are insufficient to give general advice on how to process and prepare food and what food matrix should be used to make a food safe for an allergic person.

From food challenge studies some information is available regarding the amounts of an allergen that may trigger an adverse effect in an individual. Generally doses range from hundred microgram to grams of protein^{3,7}. However, for ethical reasons people who have experienced life-threatening reactions to foods are often not tested. These people may include some of the most sensitive individuals. Case reports have described food-induced life-threatening reactions following kissing or exposure to airborne food particles. However, the amounts, which provoked the reactions, were not established. Hence, with the available studies, it is impossible to draw firm conclusions about the highest dose of an allergen that it is safe to consume for all persons allergic to a particular food.

How can food allergic people be protected?

Awareness about food allergy among public food and health officials, and everybody supplying and preparing food is an important first step in protecting food allergic people. In order to manage allergen risks, manufacturers need to have a thorough knowledge of the ingredients and possible contaminants in a food product. Allergens may contaminate an otherwise allergy-safe food if, for example, the product is made on the same processing equipment as products containing allergens, without adequate cleaning between products. Guidelines for the food industry about key areas they need to consider to manage allergen risks are available^{9,10}. Eating away from home is often risky for an allergic person. Advice for caterers on what to do to limit the risk of one of their customers getting an allergic reaction is available¹¹. The main advice for the caterer is never to guess whether a dish contains a certain food but always to check the ingredients carefully before giving advice to a food allergic customer.

Studies are ongoing in the United States and Europe⁵ to obtain a better understanding of the true prevalence of food allergies. The results of these studies will aid in developing better guidelines for the protection of the food allergic individual. The food allergic individuals need to know what to avoid eating. They are dependent on reliable and easy to find information about ingredients in the foods they buy. Intake of even very small amounts of an ingredient, to which they are allergic, may be fatal.

References

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More information is available at: www.who.int/foodsafety