FARE
Food Allergy Research & Education

Food Allergy Facts and Statistics for the U.S.

What Is a Food Allergy?

- A food allergy is an adverse health effect resulting from a specific immune response that occurs reproducibly on exposure to a given food.[1] The health effect, called an allergic reaction, occurs because the immune system attacks food proteins that are normally harmless.
- Food-induced anaphylaxis is a serious allergic reaction that is sudden in onset and may cause death.[1]
- A treatment for peanut allergy was approved in January 2020 by the U.S. Food and Drug Administration, but this treatment is not appropriate for every peanut allergy patient and is approved only for patients from age 4 through age 17.[69] There are no approved treatments for other food allergies. Strict avoidance of food allergens and early recognition and management of allergic reactions to food are important measures to prevent serious health consequences.[1]

To Which Foods Are People Allergic?

- More than 170 foods have been reported to cause reactions in the U.S.[1]
- Eight major food allergens – milk, egg, peanut, tree nuts, wheat, soy, fish and crustacean shellfish – are responsible for most of the serious food allergy reactions in the United States.[1]
- The most common food allergies in children are allergies to peanut, milk, shellfish and tree nut.[9]
- The most common food allergies in adults are allergies to shellfish, milk, peanut and tree nut.[7]
- Allergists consider sesame allergy to be an emerging concern. Sesame has caused severe reactions, including fatal anaphylaxis.[2,3,4,5,6]

How Many People Have Food Allergies?

- Approximately 32 million people in the United States have food allergies.[7,8,9]
- Nearly 11 percent of people age 18 or older – more than 26 million adults – have food allergies.[7,8]
- Results from a 2015-2016 survey of more than 38,000 children indicate that 5.6 million children, or nearly 8 percent, have food allergies.[8,9] That's one in 13 children, or roughly two in every classroom.
- Studies published in 2018 and 2019 estimate the U.S. population that reports convincing symptoms of allergic reactions to specific foods.[2,7,9]
    - shellfish: 8.2 million
    - milk: 6.1 million
    - peanut: 6.1 million
    - tree nuts: 3.9 million
    - egg: 2.6 million
    - fin fish: 2.6 million
    - wheat: 2.4 million
    - soy: 1.9 million
    - sesame: 0.7 million

- In a 2007 survey of 9,500 children conducted by the Centers for Disease Control and Prevention, 3.9 percent were reported to have a food or digestive allergy within the past year.[10]
- About 40 percent of children with food allergies have multiple food allergies (more than one food to which they're allergic).[9]

Food Allergies Are on the Rise

- The Centers for Disease Control & Prevention report that between 1997-1999 and 2009-2011, food allergy prevalence among children increased by 50 percent.[11]
- In the United States, the prevalence of childhood peanut or tree nut allergy appears to have more than tripled between 1997 and 2008.[12]
- The prevalence of childhood food allergy has increased at a rate of 2.1 percent per decade among blacks, 1.2 percent per decade among Hispanics and 1 percent per decade among whites, according to a study of self-reported allergy.[13]

Food Allergy Is a Serious Public Health and Economic Issue

- A food allergy is an impairment that limits a major life activity and may qualify an individual for protection under the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973.[14]
- Caring for children with food allergies costs U.S. families nearly $25 billion annually.[15]

Food Allergy Reactions Are Serious and Can Be Life-Threatening

- Every three minutes, a food allergy reaction sends someone to the emergency room.[16]
- Each year in the U.S., 200,000 people require emergency medical care for allergic reactions to food.[16]
- Pediatric hospitalizations for food allergy tripled between the late 1990s and the mid-2000s. Between 2004 and 2006, an average of 9,500 children received in-patient hospital care for food allergies each year.[10]
- More than 40 percent of children with food allergies have experienced a severe allergic reaction such as anaphylaxis.[9]
- Medical procedures to treat anaphylaxis resulting from food increased by 377 percent between 2007 and 2016.[68]

Serious Allergic Reactions (Anaphylaxis) Require Immediate Treatment

- Prompt injection of epinephrine (adrenaline) within minutes of the onset of anaphylaxis symptoms is crucial to successfully treating an anaphylactic reaction. A self-injectable epinephrine device is available by prescription.[17]
- Not recognizing the severity of an anaphylactic reaction and treating promptly (i.e., within minutes) with epinephrine is a risk factor for fatalities.[18,19,20]
- More than one dose of epinephrine may be required.[21]
- It is possible to have anaphylaxis without any skin symptoms, such as rash or hives.[22]
- Symptoms of anaphylaxis may recur after initially subsiding (known as a biphasic reaction). Experts recommend an observation period of 4 to 6 hours in the emergency room to monitor that the reaction has been resolved.[21,23]

Food Allergy Impacts Quality of Life

- About one in three children with food allergy reports being bullied as a result. Among children with allergies to more than two foods, over half report being bullied due to food allergy.[24]
- Compared to children who do not have a medical condition, children with food allergy are twice as likely to be bullied.[25]
- More than one-quarter of parents surveyed during food allergy appointments report that their children do not participate in camp or sleepovers because of food allergy. More than 15 percent do not go to restaurants, and more than 10 percent avoid child care settings or playdates at friends' houses. Ten percent home-school their children to prevent food allergen exposure.[26]
- Among parents of young children in the first year after food allergy diagnosis, most avoid restaurants and about half restrict social activities or travel.[25]
- Mothers of food-allergic children under age five have significantly higher blood-pressure measurements and report significantly greater levels of psychosocial stress than mothers whose preschool-aged children do not have food allergies.[27]

Who is at Highest Risk for Developing Food Allergy?

- Compared to non-Hispanic white children, African American children are at significantly elevated risk of developing food allergy.[9]
- Children from rural communities are less likely to have food allergies than children from urban centers.[28]
- Children from households earning less than $50,000 per year are less likely to report food allergies than are children from households earning more than $50,000 per year.[9]
- Among inner-city children with a family history of hay fever, eczema or asthma, one preschool-aged child in 10 is allergic to eggs, milk, or peanuts.[29]
- Compared to children without food allergy, children with food allergy are more than twice as likely to have asthma and more than three times as likely to have respiratory allergy or eczema.[10]
- Food allergies may trigger or be linked to eosinophilic gastrointestinal diseases.[30]
- While most food allergies develop during childhood, medical records data suggest that at least 15 percent of patients with food allergies are first diagnosed in adulthood.[31] More than one in four adults with food allergies report that all of their food allergies developed during adulthood, and nearly half of adults with food allergy report developing at least one food allergy during adulthood.[7]

Who Is at Highest Risk for Fatal Anaphylaxis?

- Although a severe or fatal reaction can happen at any age, teenagers and young adults with food allergies are at the highest risk of fatal food-induced anaphylaxis.[18,19,20]
- Individuals with food allergies who also have asthma may be at increased risk for severe or fatal food allergy reactions.[18,20]

Under What Circumstances Do Reactions Occur?

- Food allergy reactions typically involve foods that are believed to be safe. Allergic reactions can result from mislabeling or cross-contact during food preparation.[19,32,33,34]
- Limited skin contact with peanut butter or inhaling peanut butter from a short distance is unlikely to elicit a significant allergic reaction. These results cannot be generalized to more

extensive contact or to other forms of peanut.[35,36] *Note: Limited contact with peanut butter presents a greater risk to young children, who frequently put their hands in their mouths.*

- Food proteins released into the air in vapor or steam from cooked foods can potentially cause allergic reactions. Reactions from vapor or steam can resemble reactions to inhaled allergens that cause hay fever or asthma symptoms, such as pollen or animal dander.[37,38]

Where Do Reactions Occur?

- Reports suggest that the majority of fatal food allergy reactions are triggered by food consumed outside the home.[18,19,20]
- One study looking at peanut and tree nut allergy reactions in restaurants and other food establishments found that reactions were frequently attributed to desserts, that Asian restaurants and take-out dessert stores (bakeries, ice cream shops) were common sources of foods that triggered reactions, and that the food establishment was often not properly notified of a food allergy by the customer with the allergy.[39]
- Research on self-reported reactions occurring on commercial airlines indicates that peanut and tree nut reactions on planes have resulted from ingestion, contact and inhalation. Ingestion of an allergen remains the main concern for severe reactions.[40,41,42]

Are Food Allergy Reactions Common at School?

- More than 15 percent of school-aged children with food allergies have had a reaction in school.[43,44]
- In a 2013-2014 survey of schools participating in a program to provide undesignated (stock) epinephrine for emergency use, over 600 schools – more than 10 percent – reported at least one case of anaphylaxis.[45]
- Approximately 20-25 percent of epinephrine administrations in schools involve individuals whose allergy was unknown at the time of the reaction.[46]
- In one large school district during the 2012-2013 school year, more than half of the 38 individuals who were treated with district-supplied emergency epinephrine were experiencing their first severe reaction.[47]
- Food allergy reactions can happen in multiple locations throughout the school, and are not limited to the cafeteria. Care must be exercised during bake sales, classroom parties and opportunities for snacking.[20,46]

Avoiding Allergens Requires Careful Reading of Labels and Stringent Cleaning Procedures

- Even trace amounts of a food allergen can cause a reaction.[48,49,50,51,52,53]
- Some studies have shown that most individuals with peanut and soy allergies can safely eat highly refined oils made from these ingredients. However, cold-pressed, expeller-pressed, or extruded oils should be avoided. Talk to your doctor about oils made from ingredients to which you are allergic.[54,55,56,57,58,48]
- According to the Food Allergen Labeling and Consumer Protect Act (FALCPA) the major eight allergens must be declared in simple terms, either in the ingredient list or via a separate allergen statement. However, FALCPA does not regulate the use of advisory/precautionary labeling (e.g., “may contain,” “made in a facility that also processes”).[59]
- Advisory/precautionary labeling is voluntary. The terms do not reflect specific risks, and random product testing has found allergen levels ranging from undetectable to amounts that can cause allergic reactions.[1,32]

- A study showed that peanut protein was detected in 7.3 percent of products bearing advisory/precautionary labeling for peanut.[33]
- A study showed that peanut can be cleaned from the hands of adults by using running water and soap or commercial wipes, but not by applying antibacterial gels. In addition, peanut was easily removed from surfaces by using common household cleaning sprays or sanitizing wipes but not by wiping with dishwashing liquid.[60]

Can Food Allergies Be Outgrown?

- Although allergies to milk, egg, wheat and soy often resolve in childhood, research suggests that children may outgrow at least some of these food sensitivities more slowly than was found in previous decades, with many children still allergic beyond age 5.[1]
- Allergies to peanuts, tree nuts and shellfish are generally lifelong.[1]

Food Allergy Prevention and Treatment

- The Learning Early About Peanut Allergy (LEAP) study provided evidence that the age at which a child first eats peanut and the frequency of peanut in the diet can influence whether the child develops an allergy to peanut. LEAP findings demonstrate that early, sustained consumption of peanut products is associated with a substantial and significant decrease in the likelihood of developing peanut allergy.[61]
- In 2017, findings from LEAP and related studies led to the release of new guidelines for introduction of peanut.[62]
- A follow-up to the LEAP trial, Persistence of Oral Tolerance to Peanut (LEAP-On), showed that decreased peanut allergy risk among children who consumed peanut throughout early childhood persists even after the children avoid peanut from ages 5 to 6.[63]
- Several immunotherapy approaches are being investigated. Immunotherapy involves intentional exposure to the food allergen, starting with very small amounts and increasing more or less gradually depending on the approach and the protocol. The goal of immunotherapy is to raise the threshold dose of food protein that results in a food allergy reaction. Successful immunotherapy can result in the ability to eat a significant/increased amount of the problem food without a reaction. This can be lost if the problem food is not consumed on an ongoing basis. Immunotherapy results in sustained unresponsiveness when a patient can discontinue exposure for a period of time and still safely eat the problem food. However this is typically only for weeks to several months. Some therapies under investigation include:
    - Oral immunotherapy (OIT)* – To raise the threshold dose at which food allergy reactions occur, progressively greater amounts of allergen are eaten (usually every 2 weeks and under medical supervision) until a maintenance dose is reached. Reported rates of desensitization – that is, increased food allergen tolerance, typically to a preset target amount – vary widely for OIT, ranging from 30 percent to more than 90 percent of trial participants.[64,65] Side effects can be severe, including anaphylaxis and eosinophilic esophagitis.[65] A treatment for peanut allergy was approved in January 2020 by the U.S. Food and Drug Administration, but this treatment is not appropriate for every peanut allergy patient and is approved only for patients from age 4 through age 17.[69]
    - Sublingual immunotherapy (SLIT)* – Food protein is dissolve in liquid and held under the tongue for a time before being spat out or swallowed. As with OIT, the dose of allergen is increased over time until a maintenance dose is reached, although the doses typically used in SLIT are smaller. The desensitization achieved with SLIT can

be equivalent to desensitization achieved with OIT, but SLIT is less likely to cause serious allergic reactions.[66]

- Epicutaneous immunotherapy (EPIT, or skin patch) – EPIT delivers food protein via patches applied to the skin. Clinical trials indicate that EPIT can result in desensitization, especially to peanut. Compared to OIT, EPIT has a better safety profile. [67]

*Oral immunotherapy and sublingual immunotherapy are being conducted both in clinical trials and in private practice.

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