

IN THIS CHAPTER

- » Grasping what food allergies really are and what they're often mistaken for
- » Spotting early symptoms and knowing which ones signal serious trouble
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- » Getting familiar with today's major treatment and prevention approaches
- » Building a toolkit for managing food allergies safely every day

Chapter **1**

Food Allergies 101 — Just the Basics

Food allergies have become a major public health issue, affecting millions of children and adults in the United States alone. Nearly 1 in 13 children and 1 in 10 adults now live with a food allergy, and chances are you know someone who reads ingredient labels, carries epinephrine, or avoids certain foods just to stay safe. As food plays such a central role in daily life — from school lunches to family gatherings to travel — allergies impact daily routines, social experiences, and peace of mind.

At the same time, the field of food allergy is changing quickly. In just the past decade, researchers, allergists, and families navigating food allergies have seen

major advances in food allergy prevention, diagnosis, and treatment. Early introduction of allergenic foods has transformed how families think about preventing allergies in infants. New treatment approaches, including multiple forms of immunotherapy and biologic medications, are giving many people options they never had before. Rapid developments in testing, school guidelines, labeling policies, and emergency preparedness are also reshaping how patients, families, and allergists understand and manage food allergies.

Whether you're living with a food allergy, caring for someone who is, or simply trying to understand this fast-moving field, this chapter lays the foundation for the rest of the book. Here, you get the basics of what food allergies are, how to spot them, how allergists diagnose them, and what you can do to stay safe and confident.

Understanding Food Allergies

Food allergies are everywhere today. But what is a food allergy, really?

A *food allergy* happens when your immune system mistakes a harmless food protein for a threat. Instead of ignoring the food — which is what it normally does — the immune system overreacts. In most cases, this reaction involves an antibody called IgE, which triggers a quick release of chemicals like histamine. That's why symptoms often appear within minutes to two hours of eating a food.

The sections ahead break down what sets a true food allergy apart from other reactions, which symptoms to watch for, and who is most likely to develop one.

Recognizing what is and isn't an allergy

People often use the word allergy to describe all kinds of food-related symptoms, but not all reactions qualify. Here's some clarification (Chapter 4 explores these in greater detail):

- » **True (IgE-mediated) food allergies** involve the immune system, can occur with even tiny amounts of food, and can be unpredictable or severe. Symptoms may include hives, swelling, vomiting, coughing, wheezing, or dizziness. Some food allergies are non-IgE-mediated, usually with gut-focused symptoms. Your allergist helps tell these apart.
- » **Food intolerances**, like lactose intolerance, don't involve the immune system. They're uncomfortable but not dangerous, and symptoms depend on how much you eat.

- » **Masqueraders**, such as reflux, infections, celiac disease, or irritable bowel syndrome, can mimic allergic reactions but require different evaluation and care.



REMEMBER

If a reaction affects breathing, multiple body systems, or causes dizziness, always treat it as allergy until proven otherwise.

Listing common symptoms

Food allergy symptoms show up in different parts of the body (Chapter 3 examines these symptoms):

- » **Skin:** Hives, flushing, itching, swelling
- » **Gut:** Vomiting, nausea, cramps, diarrhea
- » **Airways:** Coughing, wheezing, throat tightness, hoarseness
- » **Circulation:** Dizziness, faintness, rapid heartbeat
- » **Neurologic:** Confusion, headache, or a sense of impending doom



WARNING

When symptoms spread across body systems (hives and vomiting or swelling and coughing) or feel severe (trouble breathing, dizziness), this may signal anaphylaxis, a medical emergency requiring immediate epinephrine.

Identifying who tends to develop food allergies and why

Food allergies can develop in anyone, but some people are more likely to develop them than others. Understanding these risk factors can help with earlier recognition of symptoms and guide when closer follow-up may be helpful:

- » **Age and stage of life:** Many food allergies begin early in life. Allergies to cow's milk and egg often start in infancy or early childhood and are commonly outgrown. In contrast, allergies to peanuts, tree nuts, fish, and shellfish are more likely to persist into adulthood. Adults can also develop food allergies for the first time. Shellfish and tree nuts are the most common culprits of adult-onset food allergy.
- » **Family history and allergic conditions (known as the allergic march):** Food allergies often run in families. A child is more likely to develop a food allergy if a parent or sibling has eczema, asthma, hay fever, or a food allergy. These are known as *atopic* conditions. Many children move through what's called the atopic or allergic march: where eczema in infancy may be followed by food

allergies in early childhood and later by seasonal allergies or asthma. Skin also plays an important role. When a baby's skin barrier is inflamed or damaged, which often occurs during eczema, tiny cracks in the skin allow food particles to enter. The immune system may mistake these food proteins as invaders instead of friends, which can increase their risk of developing a food allergy.

» **Genes and environment:** Food allergies are often determined by a combination of genetic and environmental factors. These include:

- When and how foods are introduced in infancy
- The *gut microbiome* (the helpful bacteria and other microbes in the digestive system that guide healthy immune development)
- Infections and use of antibiotics early in life
- Vitamin D levels
- Living environment (urban versus rural)
- Exposure to air pollution

These factors influence how the immune system learns to tolerate foods — or react to them. This helps explain why some people with known risks, such as eczema or a family history of allergies, go on to develop food allergies while others do not.



REMEMBER

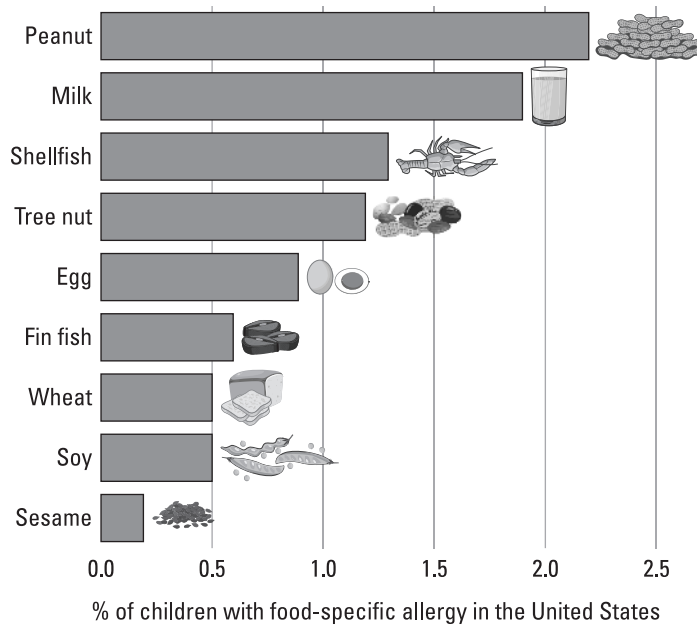
Your risk level isn't your destiny. Having these risk factors doesn't mean that you'll definitely develop a food allergy. Many children with eczema never go on to have food allergies, and many adults develop food allergies even without a family history of allergic conditions. The most important steps are knowing what symptoms to watch out for and working closely with an allergist to decide if testing, monitoring, or treatments are needed.

Spotting the Top Nine Food Allergens

Most food allergies are caused by a small group of foods commonly referred to as the Top Nine (refer to Figure 1-1). These foods account for most allergic reactions in the United States and are required to be clearly listed on food labels to help people avoid accidental exposures.

Even though each allergen behaves a little differently, knowing where these foods commonly appear — and where they can unexpectedly hide — can make everyday eating feel safer and less stressful:

FIGURE 1-1:
The Top Nine
food allergens in
U.S. children.



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- » **Milk:** One of the most common allergies in infants and toddlers; often outgrown, but not always. Milk proteins (casein and whey) can hide in baked goods, processed meats, and even nondairy creamers.
- » **Eggs:** Another common childhood allergy that many children outgrow. Egg can appear in baked goods, pasta, sauces, and snack foods.
- » **Peanuts:** One of the most persistent and severe allergies. Peanut flour and peanut oil may show up in sauces, baked goods, fried foods, and snack foods.
- » **Tree nuts:** Includes almonds, walnuts, pecans, cashews, pistachios, hazelnuts, macadamia nuts, brazil nuts, and pine nuts. Tree nuts often hide in desserts, pesto, and dairy substitutes.
- » **Soy:** Widely used in processed foods. Look for names like soy protein, soy lecithin, or vegetable protein.
- » **Wheat:** Often confused with gluten sensitivity or celiac disease. Wheat can show up in soy sauce, licorice, and meat extenders.
- » **Fish:** Usually persistent; reactions can be severe. Fish proteins can linger on shared grills or fryers, increasing the risk of cross-contact.
- » **Shellfish:** *Crustacean* shellfish include shrimp, crab, and lobster. *Molluscan/bivalve* shellfish include clams, mussels, oysters, scallops, squid, octopus, and abalone. Shellfish allergy is usually persistent and frequently develops in adulthood. Cross-contact in restaurants is common.

- » **Sesame:** Recently added to the U.S. priority list due to rising prevalence. Sesame hides in tahini, oil, sushi, hummus, breads, baked goods and is sometimes listed as “natural flavors.”



TIP

Get comfortable with alternate names and common hiding places for each allergen you manage. Make a one-page watch list for your pantry, school forms, and travel bag, and revisit it regularly as products and labels change.

Beyond the Top Nine: Can You Be Allergic to Any Food?

Yes. Although the Top Nine allergens account for most reactions, almost any food protein can become an allergen. If your body decides a protein looks suspicious, it can trigger an allergic response.

Here are some examples of less common allergens and why they matter:

- » **Fruits and vegetables:** These often trigger *pollen-food allergy syndrome (PFAS)*. For example, people allergic to birch pollen may react to raw apples or carrots because the proteins look similar to the immune system. Symptoms usually stay in the mouth (itchy lips, tongue, or throat), but severe reactions can happen, especially with nuts or soy.
- » **Seeds and spices:** Mustard, coriander, cumin, and fenugreek can cause reactions. Spices are tricky because they're often hidden in seasoning blends or labeled vaguely as “natural flavors.”
- » **Legumes beyond peanuts:** Chickpeas, lentils, and peas can cause allergy, particularly in people allergic to peanuts. This doesn't mean all legumes should be avoided, but it's worth discussing any cross-reactivity risk with your allergist.
- » **Gelatin and meat allergies:** Gelatin (from animal collagen) can trigger reactions in some people. A significant condition that's becoming more prevalent is *alpha-gal syndrome (AGS)*. AGS develops after a certain tick bite and causes often delayed reactions to mammalian meat (beef, pork, lamb). Symptoms usually show up hours after eating.
- » **Other surprises:** Corn, rice, kiwifruit, and avocado have been reported as allergens. Although rare, these cases remind you that allergies aren't limited to the usual suspects.

The goal should be precise avoidance based on your history — enough to stay safe without unnecessarily restricting your diet.



TIP

If you notice symptoms after eating a food that's not on the Top Nine list, don't dismiss it. Keep a food and symptom diary and share it with your primary care provider or allergist. Record information on what you ate, when symptoms started, what symptoms you experienced and how they evolved over time.



REMEMBER

Most people with food allergies react to one or more of the Top Nine. Uncommon allergies do occur, and careful evaluation helps keep your diet as open as possible.

Diagnosing Food Allergies

A food allergy diagnosis relies on your medical history and the right testing tools, interpreted together. No single test can diagnose an allergy on its own. Here are the methods allergists use:

- » **Skin prick tests (SPT):** A quick and widely used test where a tiny drop of allergen is placed on the skin and lightly pricked. If IgE antibodies are present, a small itchy bump appears. SPT shows *sensitization*, not severity, and must be interpreted alongside your history. Refer to Chapter 6 for more information.
- » **Blood tests (specific IgE):** These tests (see Chapter 7) measure levels of IgE antibodies to specific foods. Higher numbers don't always mean a true allergy, and low numbers don't always rule one out, but the results are helpful when combined with symptoms and timing.
- » **Oral food challenge (OFC):** The gold standard for food allergy diagnosis (check out Chapter 8). Under careful supervision, you eat increasing amounts of a food to see whether symptoms occur. This test provides clarity when skin or blood tests are uncertain or when your allergist suspects an allergy may have been outgrown.
- » **Advanced testing:** In certain cases, allergists may use testing such as component testing or cell-based assays for additional insight (flip to Chapter 9). These tests refine — but don't replace — standard diagnostic tools.

Averting Food Allergies

Can food allergies be prevented? Not in every case, but research has uncovered several powerful ways to lower the risk, especially during infancy and early childhood. These strategies focus on helping the immune system learn to

tolerate foods instead of reacting to them (Part 4 discusses prevention in greater detail):

- » **Introduce allergenic foods early and regularly.** Studies show that introducing foods like peanut and egg in the first year of life and continuing them routinely may help reduce the likelihood of developing food allergies. This approach is especially helpful for infants with eczema or a family history of allergy.
- » **Control eczema early and consistently.** Eczema isn't just a skin condition; it's a major risk factor for food allergies. Moisturizing daily, treating flares promptly, and minimizing irritants all help maintain a strong skin barrier and lower risk.
- » **Support a healthy gut environment.** The gut plays a key role in immune learning. A diverse diet, exposure to a variety of flavors and textures, and factors that support a healthy microbiome all play a role in training the immune system toward tolerance instead of reactivity. Although this is an emerging area of research, growing evidence links gut health to food allergy risk.



REMEMBER

Together, these strategies help set the immune system on a path that makes food allergies less likely, though they can't eliminate risk entirely.

MY LESSONS IN PREVENTION AND CARE

Advice about when to introduce allergenic foods has changed dramatically over the years — and not always in ways that were easy for families to understand or follow. When my daughter, Riya, was born in 2006, the guidance was clear: Avoid introducing peanut until age 3. At the time, this was considered the safest approach.

Riya had severe eczema, now recognized as one of the strongest risk factors for food allergy development. Following the recommendations of the day, my family delayed introducing peanut, just like many families trying to do the right thing. However, I now know that avoiding peanut may actually increase the risk.

Riya ultimately developed a severe peanut and tree nut allergy, and as both a parent and a physician, I carried a deep sense of guilt. I wondered whether I had missed something or whether a different choice might have changed her path.

The truth is that my family was doing the best we could with the information we had. That experience — the uncertainty, the fear, and the desire for clear answers — shaped the course of my career. It strengthened my commitment not only to prevention, but also to helping families navigate every stage of eczema and food allergy care — from

early recognition and accurate diagnosis to effective management and emerging treatment options that can improve outcomes and quality of life.

My goal is simple: to ensure families today have science-driven guidance and practical tools that help them feel informed, supported, and empowered at every step of their food allergy journey.

Managing Food Allergies

Managing food allergies is an active, everyday process. It involves understanding how reactions happen, knowing how to prevent them, and being prepared to treat symptoms quickly and confidently. Here are the core skills and strategies you'll use throughout daily life (refer to Part 5 for more information):

- » **Avoiding the allergen:** Effective management starts with identifying your allergen in all its forms. This includes reading ingredient labels carefully, recognizing alternate names, watching for hidden sources in processed foods, and understanding how cross-contact can occur in shared kitchens, restaurants, schools, or during travel.
- » **Recognizing when symptoms are mild versus serious:** It's important to distinguish isolated or mild symptoms (such as a few hives or mild stomach discomfort) from signs of a more serious reaction, including symptoms that involve more than one body system or any breathing or throat symptoms. Recognizing early escalation helps you act quickly if a reaction worsens.
- » **Using epinephrine promptly and correctly:** Epinephrine is the first-line treatment for anaphylaxis and is fast, safe, and effective. Know when to use it, how to use your device (auto-injectors, nasal devices, or others), why a second dose may be needed, and why antihistamines can't replace epinephrine during a severe reaction.
- » **Following a personalized emergency action plan:** A written action plan spells out how to recognize symptoms, when to treat, and when to call 911 or go to the emergency room. Sharing the plan with schools, caregivers, coaches, and workplaces ensures everyone knows what to do in an emergency and where to find epinephrine.
- » **Managing related allergic conditions:** Asthma, eczema, and hay fever (*allergic rhinitis*) commonly overlap with food allergies. Keeping these well controlled (for example, maintaining daily asthma controller medications or consistent eczema care) lowers the risk of severe reactions and makes symptoms easier to interpret.
- » **Staying connected with your allergist:** Food allergies can change over time. Some are outgrown, some require repeat testing, and others may qualify for

treatments like immunotherapy or biologics. Regular follow-up keeps your care plan current and tailored to your needs and can help determine when an oral food challenge (OFC; see Chapter 8) may be appropriate to reassess or introduce foods back into your diet safely.

Considering Treatment Options

For many years, managing food allergies meant complete avoidance and carrying epinephrine. Today, new therapies aim to increase safety, raise thresholds, and improve quality of life. These therapies include:

- » **Oral Immunotherapy (OIT):** A structured program where patients eat tiny, increasing doses of the allergen to reduce the severity of accidental exposures. OIT doesn't cure allergies, but it can make daily life safer (Chapter 11 explains OIT in greater detail).
- » **Sublingual Immunotherapy (SLIT):** Instead of swallowing the allergen, small doses are placed under the tongue. SLIT (see Chapter 12) uses lower doses than OIT, with a different side-effect profile.
- » **Epicutaneous Immunotherapy (EPIT):** A patch-based approach that delivers microdoses of allergen through the skin (refer to Chapter 13). This option is actively developing and shows promise, especially for children.
- » **Biologics (such as omalizumab):** These medications (see Chapter 14) target specific immune pathways to reduce reactivity or support therapies like OIT.

TRACKING HOW GUIDANCE HAS EVOLVED

Food allergy prevention advice has changed dramatically over the past two decades. Not long ago, parents were told to delay allergenic foods. For peanuts, this advice was to avoid until age 3.

A major turning point came in 2015 with the Learning Early About Peanut (LEAP) Study, which showed that early peanut introduction reduced the risk of peanut allergy in high-risk infants, meaning babies with severe eczema, an existing egg allergy, or both. In response, major allergy and pediatric organizations updated their guidelines, and early introduction is now widely recommended, though research in this area is still evolving. (See Chapter 16 for a deeper look at how prevention guidelines have changed.)

Working with Your Allergist

A strong partnership with your allergist is one of your most powerful tools. Together, you'll review reaction details, discuss changes in symptoms, interpret test results, and plan next steps. Your allergist can help you:

- » Understand which symptoms point to allergy versus intolerance or other conditions
- » Decide when testing or retesting is needed
- » Consider when treatments such as immunotherapy or biologics may be appropriate
- » Update action plans, especially during transitions like school changes, travel, or new exposures

Bringing photos, a good history of reactions, and questions to each visit helps your allergist build the clearest picture possible and keeps you in the driver's seat of your care.

HOW TO READ A FOOD ALLERGY HEADLINE WITHOUT BEING MISLED

When researchers talk about *risk*, they mean the chance that something will happen — in this case, the chance that a person develops a food allergy.

So, when a headline says “X doubles the risk of food allergy,” the important follow-up question is: *doubles from what?*

Here are the most common ways researchers report risk — and what they really mean:

- **The raw numbers (the most helpful):** This shows the real number of people affected in the group studied. For example, in the Learn Early About Peanut (LEAP) study, peanut allergy developed in 3.2 percent of babies who ate peanut early (about 3 out of 100 babies), compared to 17.2 percent of those who avoided it (about 17 out of 100 babies). That means about 14 fewer children out of every 100 developed peanut allergy. This kind of information helps you understand the real-world impact.

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- **The ratio (sounds dramatic, need context):** You may see phrases like “five times lower risk” or “risk tripled” in news stories. The issue is that these ratios don’t tell you how common the problem was to begin with. For example, if a study is looking at a million people, a “risk tripled” from 1 in a million to 3 in a million is still *very rare*. On the other hand, if a study is only looking at 5 people, a risk tripling from 1 in 5 (20 percent) to 3 in 5 (60 percent) is much more significant. Same headline, very different story.
- **The odds (often confusing):** *Odds ratios* compare the odds of something happening in one group to the odds in another. The tricky part is that odds ratios can make differences look bigger than they really are, especially when a condition is fairly common. For example, imagine if someone studies two groups of children and finds that in group A, 4 out of 10 had a food allergy, and in group B, 6 out of 10 had a food allergy. Headlines might report this as “Children in group B had *more than twice the odds* of having food allergy.” Although accurate, food allergy is a common condition, so this difference isn’t as shocking as it sounds. When in doubt, go back to the raw numbers to see the real number of people affected.

Tip: Whenever you see a striking statistic, ask two questions: How many people were actually affected? And compared to what? Those two questions will take you a long way.