

"Do I really have **FOOD ALLERGY?**"

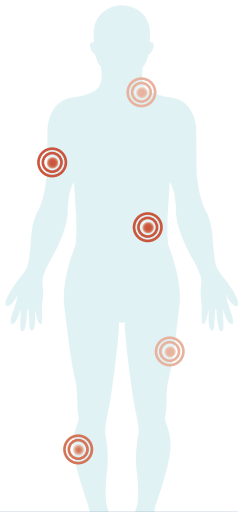


What is Food Allergy?¹

Many people think that they have “food allergy”, or have even been diagnosed with “food allergy”, but these might not be true!

- From the medical perspective, food allergy is overreaction of immune system to some common, otherwise harmless, substances in food.
- Very low level of allergenic substance can cause potentially fatal allergic reaction.
- Patients **must avoid** consuming food that contains the allergen.
- Even among patients with genuine food allergies, many patients will grow out of them.
- While most food allergies start in childhood, sudden onset of food allergies in adults is possible.

Symptoms of Food Allergy¹



Mild

- Itchy skin, swelling, hives
- Gastrointestinal discomfort, nausea



Severe

- Vomiting and diarrhea
- Low blood pressure
- Hoarseness of voice
- Dizziness and fainting
- Difficulty breathing or wheezing
- Anaphylaxis



Anaphylaxis¹

- Can occur within seconds to minutes after exposure to allergen.
- Systemic immune response affecting multiple organ systems, including skin, respiratory, cardiovascular, and gastrointestinal system.



Severe and life-threatening allergic reactions

Note:

Food allergy almost always occurs within minutes of food consumption. Reactions that occur hours or days after food intake may be irrelevant.

8 most common food allergens:^{1,2}



Milk



Eggs



Fish



Crustacean, shellfish



Tree nuts



Peanuts



Wheat



Soybeans

“Food Allergy” is Different from “Food Intolerance”³

Food intolerance



Involve **digestive system**, not immune system.

Patients have difficulty digesting certain foods or ingredients.

Uncomfortable symptoms like bloating, farting, diarrhea, or abdominal pain, but not life-threatening.

Unlike food allergy, patients with food intolerance may be able to consume small amounts of the offending food without triggering serious symptoms.

E.g., **lactose intolerance** is the reduced ability to digest milk sugar, due to insufficient amounts of the gut enzyme called lactase.

Food-Dependent Exercise-Induced Anaphylaxis (FDEIA)⁴



Food allergens are consumed in combination with physical exercise, causing rare but potentially severe allergic reaction.

• Common trigger foods:



Wheat



Shellfish



Peanuts



• Cofactors

(Before or After ingestion of food allergens)



Alcohol



Non-steroidal
anti-inflammatory drugs
(NSAIDs)



Exercise



**Trigger severe
allergic reactions or
even anaphylaxis.**



Individual triggers can vary, further assessment by an allergist is required.



Remember to **avoid cofactors** in case of accidental ingestion of food allergens.

Different Food Allergens



Wheat Allergy⁵

Abnormal immunological reaction to wheat proteins (e.g., omega-5-gliadin).

In Hong Kong, the most common cause of food allergy related anaphylaxis is:

Wheat-Dependent Exercise-Induced Anaphylaxis, WDEIA^{4,6}

- Serious and potentially life-threatening allergic reactions occur within 6 hours of wheat ingestion, in combination with cofactors like alcohol, exercise, and non-steroidal anti-inflammatory drugs (NSAIDs).



Can only be prevented by avoiding wheat ingestion and cofactors.



Celiac Disease (Gluten Intolerance)

- Autoimmune disorder.
- Gluten is a protein found in grains, like wheat, rye and barley.
- Abdominal distention, diarrhea or constipation after consuming gluten-containing items.

Wheat Containing Products



Bakery products

e.g., Bread, muffins, pastries, pancakes, waffles, cakes, cookies, pies, crackers



Meat substitutes or vegan meats

e.g., imitation crab meat, hamburger steak



Sauce, soup thickened with "roux" and gravy



Flour, wheat flour

e.g., pasta, noodles, fried batter



Beverages

e.g., malted milk, ovaltine, beer



Cereals

Wheat-free alternatives



Rice, oats, buckwheat, sago, and quinoa



Corn



Tapioca



Seafood Allergy⁷

Different types of seafood

Shellfish Allergy

- Patients who are allergic to shellfish are usually not allergic to fish.
- Patients may only be allergic to one type of shellfish but not all.
- Shellfish allergy is usually lifelong.

Crustacean or shellfish



Oyster



Scallop



Mussel



Lobster



Shrimp

Fish Allergy



- Caused by fish muscle protein parvalbumin.
- Parvalbumin is heat-resistant, even cooked fish may trigger allergy.
- White fish contains more parvalbumin than red fish.
- Patients may be allergic to white fish, but tolerant to red fish.
- Scombroid fish poisoning and fish parasite (e.g., anisakis) can also induce adverse reactions.

Common white fish



Bass



Cod, haddock



Tilapia



Catfish



Halibut, flounder

Common red fish



Salmon



Tuna



Mackerel

Different Food Allergens



Peanut Allergy⁸



- Usually **persistent**, only around 20% of children will outgrow it.
- Patients should **avoid** peanuts and peanut oil. (Unrefined peanut oil is more likely to cause allergic reactions than refined peanut oil).
- Peanut is legume, thus having small risk of cross reactivity with other legumes such as peas.
- Peanut allergy does not necessarily mean tree nut allergy. Approximately 30% of peanut-allergic individuals are also allergic to tree nuts.

Do Patients with Peanut Allergy Need to Avoid All “Nut” Containing Foods?

Despite having the word ‘nut’ in their name, the following foods are not from tree nut or peanut families, thus may not trigger allergy:



Coconut



Butternut squash



Chestnut



Nutmeg



Pine nut



Water chestnut

**Not from
tree nut or peanut families.**



Tree Nut Allergy?

- Patients may be allergic to more than one kind of tree nuts, at high risk of cross-reactivity with other closely related nuts.
- E.g., Cashews and pistachios share similar allergenic proteins, patients with cashew allergy should avoid pistachios.
- The safest approach is to avoid all tree nuts within the same subclass that causes allergy.

Tree nut allergy may also increase risk of **sesame** allergy.



Different Food Allergens



Egg Allergy¹⁰

- Multiple proteins in eggs can cause allergy, such as ovomucoid and ovalbumin of egg white.
- Ovomucoid is heat-stable, causing allergy to well-cooked eggs.
- Ovalbumin is denatured at high temperature, patients with allergy to ovalbumin may be tolerant to well-cooked eggs.



More common in infants and children, usually **outgrows** in adolescence.

How to Determine a Patient's Tolerance to Egg Products?

- Under the guidance and monitoring of allergist, patients may try to consume different types of egg products in a controlled and stepwise manner, following the "Egg Ladder Protocol".
- Egg products may be re-introduced to the diet of patients who do not have anaphylaxis history.

Egg Ladder Protocol¹¹

Step 1

Try to consume:
Baked goods with egg ingredients

Biscuits, crackers, cakes



Step 2

Try to consume:
Well-cooked eggs

Pancakes, muffins, cupcakes, cookies



Step 3

Try to consume:
Lightly cooked eggs

Omelette, hard boiled eggs, scrambled eggs



Step 4

Try to consume:
Almost raw eggs

Sunny side up eggs, mayonnaise, custard





Milk Allergy^{11,12}

- Several proteins in milk can cause allergy, such as casein, lacto-albumin, and serum albumin.
- Some of the protein allergens can be denatured by heat.



More common in **children**, usually outgrows in adolescence.

Dairy Products that may Cause Allergies Include:

- Whole milk, low-fat milk, skimmed milk, buttermilk
- Butter, yogurt, ice cream, gelato, cheese

Hidden Sources of Milk Include:

- Baked goods and processed meats
- Whey, candies, (e.g., chocolate, nougat and caramel), protein powders, artificial butter flavoring

How to Determine a Patient's Tolerance to Milk Products?

- Under the guidance and monitoring of allergist, patients may try to consume different types of milk products in a controlled and stepwise manner, following the "Milk Ladder Protocol".
- This may allow patients to gradually adapt and increase their tolerance to milk products.

Milk Ladder Protocol¹¹

Step 1

Try to consume:
Baked goods with milk

Muffins, cupcakes, or cookies



Step 2

Try to consume:
Foods containing cheese or milk

Pizza, lasagna, chocolate, custard



Step 3

Try to consume:
Less processed milk

Yoghurt, soft cheese, butter, ice cream



Step 4

Try to consume:
Fresh or pasteurized milk

Milk



Food Allergy **Test and Diagnosis**^{1,13}

After obtaining comprehensive medical history of patients, below diagnostic tests may be conducted by the physician if applicable:



Skin Prick Test

- Consult the physician, and avoid anti-histamines 5 days prior to the test if possible.
- Tiny amount of suspected allergen will be applied to the patient's skin. If the patient reacts to the allergen, the area will become itchy, red and raised, with rash or wheal in 15–20 minutes.

Skin Test may be Rescheduled if:

- Sick or fever
- Poor skin condition (severe eczema or frequent hives)
- Recent severe allergic reaction to suspected foods
- Taking drugs such as anti-histamines, steroids, immunosuppressants, omalizumab, or psychiatric medications

Please **consult your physician** prior to the test.



All tests are prone to false positive results and shouldn't be performed if the physician concludes that the clinical history of the patient does not indicate food allergy.



Blood Test

- Measure the concentration of specific IgE antibodies in blood.
- Can test for hundreds of allergic triggers.
- Please consult your physician if you want to know whether you are allergic to other foods.



Oral Food Challenge

- Gold standard diagnostic test for food allergies.
- Perform when skin prick and blood tests do not provide a definitive diagnosis.
- Patients will ingest test foods in a controlled and stepwise manner under the guidance and monitoring of allergist to ensure safety.

Food Allergy Treatment^{1,13}



Strictly avoid the foods that cause allergies.



Have emergency medications (such as epinephrine autoinjectors) available at all times in case of accidental ingestion and reaction.

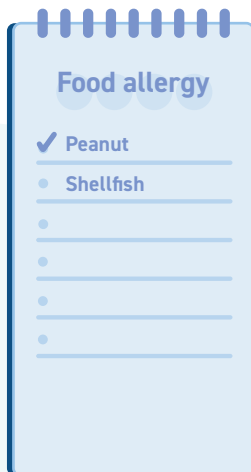
Medicines for Food Allergy Include:

- Adrenaline (also known as epinephrine), such as EpiPen, is a lifesaving emergency medication that immediately begins reversing symptoms of anaphylaxis.
- Antihistamines, which reduce itching, swelling or hives.
- Omalizumab, which reduces allergic reactions to foods.



Oral Immunotherapy

- Consume small, gradually increasing amounts of food allergen on a daily basis, over a period of time.
- Conduct under the guidance and monitoring of allergist to ensure safety.
- Achieve temporary tolerance, but not cure to food allergy.



Emergency Treatment Plan for Anaphylaxis


Patient name: _____ Date of birth: _____

Confirmed / suspected allergens: _____ History of Allergy: _____

Diagnosis of asthma: ☐ Yes (higher risk of severe allergic reaction) ☐ No



Name of emergency contact person: _____ Relationship to the patient: _____

Mobile number: _____ Telephone number: _____ Office number: _____

	Mild to moderate symptoms	Severe symptoms and allergic reactions
Close monitoring and take action	<ul style="list-style-type: none"> Itchy (including eyes) Swelling (lips, face, eyes) Runny nose, sneezing Localized skin redness, burning, hives Abdominal pain, nausea, vomit 	<ul style="list-style-type: none"> Swelling of tongue Tight or hoarse throat Hoarse voice Difficulty speaking or swallowing Shortness of breath, wheezing Chest discomfort, repetitive cough Many hives over body, widespread redness and burning sensation Pale or bluish skin Increased heart rate, or weak pulse Dizziness, anxiety, confusion, faintness Weakness or collapse Shock or loss of consciousness
Take immediate action	<ul style="list-style-type: none"> Get rid of the allergen Close monitoring of the patient for changes Stay with the patient, alert emergency contacts Administer the prescribed medications Give adrenaline if symptoms worsen 	<div>  Do not depend on anti-histamines to treat a severe reaction. </div> <ol style="list-style-type: none"> Have the patient lie down or sit Give adrenaline Call 999 for ambulance Alert emergency contacts If symptoms do not improve after 5 minutes, give one more dose of adrenaline. Admit to hospital



If both inhalers (bronchodilators) and adrenaline are required, give adrenaline first !!!

Medications / Doses	Adrenaline	<input type="checkbox"/>	 300 microgram For patient weight 30 kg or above	<input type="checkbox"/>	 150 microgram For patient weight < 30 kg
	Anti-histamines / doses	_____			
	Bronchodilators	_____	inhalers / doses	_____	
	Other medications	_____			

Guidelines and precautions for using adrenaline autoinjector (EpiPen)¹⁴

01

Adrenaline autoinjector should be used as first-line treatment and prescribed for all patients at risk of anaphylaxis.

02

If indicated, adrenaline autoinjector should be prescribed prior to discharge from the A&E Department together with an immediate referral to an allergy center.

03

The decision for prescribing adrenaline autoinjector should be based on the severity of previous reactions; including objective signs of respiratory involvement, objective signs of cardiovascular involvement and multiorgan involvement (regardless of severity).

04

Patient demographics and comorbidities, specifically history of asthma or chronic obstructive pulmonary disease, should also be considered when deciding on adrenaline autoinjector prescription.

05

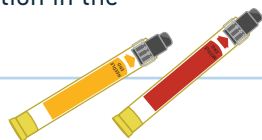
Patients deemed eligible for adrenaline autoinjector should be offered avoidance advice and prescribed one adrenaline autoinjector while awaiting review by allergists.

06

Adrenaline injection technique should be demonstrated by a healthcare professional or instruction video, and a return demonstration by the patient is required.

07

The patient should also be counselled that the decision on the continued need of adrenaline autoinjector prescription in the long-term should be reviewed by an allergist.



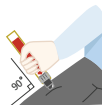
How to Use the Adrenaline Autoinjector



Grasp the injector in your dominant hand with your thumb closest to the yellow cap.



Pull off the yellow cap with your other hand.



Place the black injector tip against your outer thigh, holding the injector at a right angle (approx. 90°) to the thigh (injection through clothing is okay).



Push the black tip firmly into your outer thigh until you hear a 'click', then keep it pushed in. Hold the injector firmly in place against the thigh for 10 seconds then remove.



Attend the Accident and Emergency immediately after using an adrenaline autoinjector.



Second dose

If symptoms do not improve, another dose of adrenaline can be given about 5 minutes or more after the first dose.

Alert emergency contacts.

Dial 999 and seek immediate medical help.



Massage the injection area for 10 seconds.

Please take the used autoinjectors to the hospital.

Please consult your physician for personalized medical advice and detailed emergency treatment plan for anaphylaxis.



繁體



简体



English

Common Myths and Misconceptions

Myth

01

Food allergies aren't serious, taking a small amount should be fine?

- Genuine food allergies can cause significant symptoms like **hives and swelling**, or even severe allergic reaction (anaphylaxis) that is life-threatening.
- Strict avoidance of the known food allergen should be adhered to.
- Always read **food labels** carefully. If in doubt, ask the restaurant whether the concerned dish has an allergen.

Myth

02

Peanuts cause the most severe allergic reactions?

- Many different foods can cause **severe allergic reactions**.



Myth

03

Positive blood or skin test results must indicate food allergy?



- Positive tests do not always mean you are allergic to that food.
- Consuming the suspected food **may not** necessarily cause allergic reactions.
- Please consult your physician or allergist for the test results with reference to your medical history.

Myth

04

I am diagnosed with food dependent exercise-induced anaphylaxis (FDEIA). As long as I avoid cofactors, I should be able to eat it?



- Avoiding cofactors are indeed important in preventing worsening of allergic reactions, however, severe reactions may occur even when avoiding them.

Myth

05

Egg allergy is a contraindication for influenza vaccine?

- Egg-allergic patients (including those with severe egg allergy) may safely receive influenza vaccine or other vaccines.



Frequently Asked Questions

Question

01

Are Food Sensitivity Tests (IgG tests) helpful for diagnosing food allergy?

- IgG tests are NOT recommended for diagnosing food allergy or food intolerance.
- Please consult your physician prior to any allergy tests.

Question

02

I have been diagnosed with eczema. Should I undergo any allergy tests?

- Food allergies are common in infants or children with eczema. Food allergy may trigger eczema, but it is not the cause of eczema.
- In adults, flare up of eczema is multifactorial, and rarely caused solely by food allergy.
- Skin or blood tests for food allergy do not predict foods that worsen eczema.
- Eczema patients usually have elevated IgE levels that are prone to false positive test results.
- Avoiding foods based solely on positive skin or blood test results may lead to malnutrition.
- Allergy tests should only be undertaken if recommended by allergist.

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