

AN INTRODUCTION TO FOOD HYPERSENSITIVITY

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LEARNING POINTS

- 1 Food hypersensitivity is a term used to refer to food allergies and non-allergic reactions to food (generally known as food intolerances).
- 2 Food hypersensitivity affects between 2-4 per cent of 1-3 year olds.
- 3 The perceived prevalence of food hypersensitivity is three to four times higher than its actual occurrence.
- 4 Food allergies are classified as IgE-mediated and non-IgE mediated.
- 5 In general IgE mediated food allergies tend to cause a rapid onset of symptoms that can be severe and even life threatening.
- 6 Non-IgE mediated allergic reactions and non-allergic reactions tend to cause a slower onset of symptoms.
- 7 Most children will grow out of their food allergies over time.
- 8 The causes and symptoms of food hypersensitivity vary widely and differ from person to person.
- 9 Diagnosis of food hypersensitivity should be made by a GP, allergist and/or dietitian.
- 10 Diagnosis may involve a skin prick test, blood test or trial of an exclusion diet.
- 11 Management of food hypersensitivity is by excluding the culprit food(s) from the child's diet.
- 12 New food labelling regulations should make it easier to identify foods that may cause an allergy or intolerance.
- 13 Long-term adherence to exclusion diets should not be initiated before the diagnosis has been confirmed.
- 14 Professional advice should be sought if an elimination diet is advised in order to ensure that it contains adequate nutrients for growth and development.

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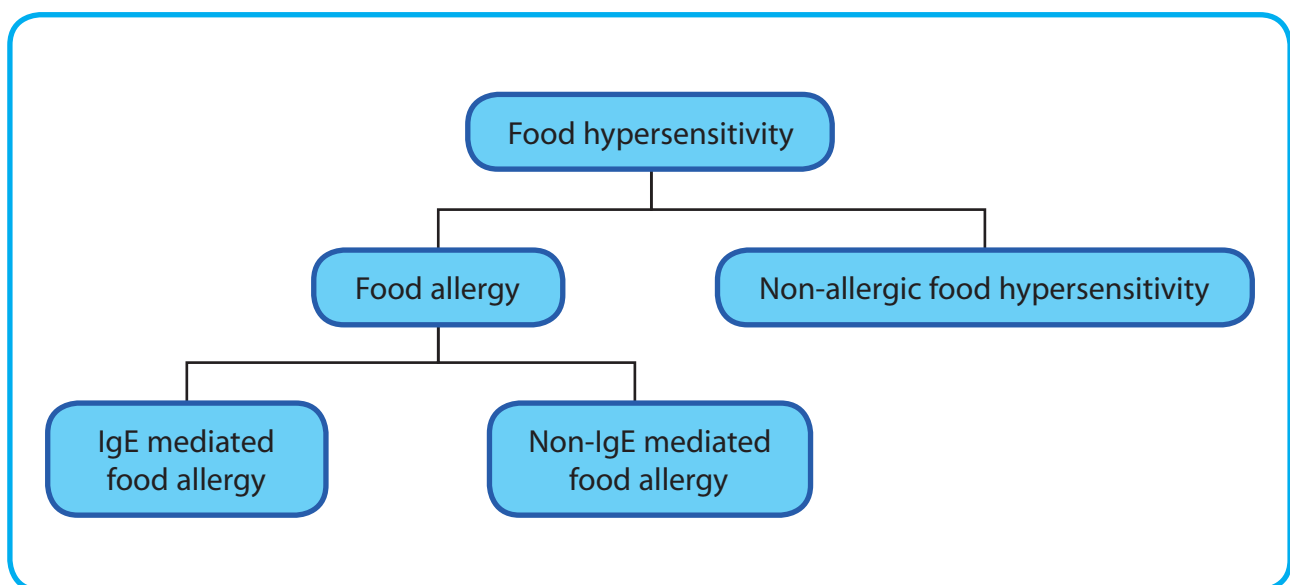
TODDLERS AND FOOD HYPERSENSITIVITY

Most toddlers can eat a broad and varied diet without difficulty [see Factsheets 1.1 and 1.2](#). However some children develop unpleasant symptoms when they eat a certain food or foods. This can be very distressing for both toddler and carer.

These unpleasant reactions to food are grouped under the heading 'Food Hypersensitivity'. This term covers a range of different types of symptoms and causes, which occurs because a toddler is either:

- **allergic** to a food (he or she has an immune reaction to it).
or
- unable to tolerate a food for a number of reasons that do not involve the immune system (for example a **non-allergic** reaction can occur when a toddler is unable to digest lactose in milk).

CLASSIFICATION OF FOOD HYPERSENSITIVITY



PERCEPTION OUTWEIGHS OCCURRENCE

When a toddler experiences an unpleasant reaction after eating certain foods, many parents assume that a food is to blame. Food hypersensitivity is not that common affecting fewer than 4 per cent of adults and between 2-4 per cent of children aged 1-3 years^{2,4}. Nevertheless, the perceived prevalence of food hypersensitivity is around three to four times higher than it actually is.

In many cases, parents can be reassured that their toddler's problem is not necessarily caused by a reaction to food. Even when food allergy is diagnosed, most children grow out of it later in life.



ABOUT FOOD ALLERGY

Allergic reactions can vary in severity - from a mild bout of diarrhoea a few hours after eating a food to sudden difficulty breathing and anaphylactic shock.

Immunologists use technical terms to classify allergies:

IgE mediated allergic reactions involve an antibody, called IgE, which circulates in the blood – this can be detected using a skin-prick test or a blood test. In IgE mediated allergies, symptoms such as hives, rashes and facial swelling tend to come on very quickly. The most serious reaction, known as anaphylaxis, can lead to respiratory or cardiac failure, and a severe drop in blood pressure.

Non-IgE mediated allergic reactions tend to develop more slowly (hours after eating particular foods). Typical symptoms and signs include eczema, diarrhoea, vomiting and constipation.



Infant with eczema.
Picture reproduced with the permission of Professor C Motala, School of Child and Adolescent Health, Red Cross Hospital, Cape Town, South Africa.

ABOUT NON-ALLERGIC FOOD HYPERSENSITIVITY OR FOOD INTOLERANCE

A toddler does not have to be prone to allergy to suffer an unpleasant reaction to food, which may be caused by factors that do not involve the immune system.

Such reactions may be due to, or directly triggered by, pharmacological agents (e.g. histamine in foods), substances naturally occurring in food (e.g. salicylates), enzyme deficiencies (e.g. lactose intolerance).

Histamine and salicylates in food can cause reactions similar to food allergy, such as hives and skin rashes, and even facial swelling in some children⁵.

Lactose intolerance causes diarrhoea, wind and stomach cramps. Non-allergic reactions to food can be acute and severe (although rarely life-threatening) but are more usually chronic and intermittent⁶.

CAUSES AND SYMPTOMS OF FOOD ALLERGY

Many foods have been associated with food hypersensitivity and cause a wide range of symptoms and signs⁷. Children should therefore be treated as individuals. Nevertheless, some generalisations can be made depending on the type of hypersensitivity.



Child with swelling of lips and face.
Picture reproduced with the permission of Professor C Motala, School of Child and Adolescent Health, Red Cross Hospital, Cape Town, South Africa.

Foods involved in IgE mediated allergies commonly include:

- milk
- egg
- peanuts
- tree nuts such as almond, hazelnut, walnut, cashew nut, pecan nut, Brazil nut, pistachio nut, macadamia nut and Queensland nut
- wheat
- soya
- fish
- sesame seeds and oils
- shellfish (prawn, shrimp, crab, lobster and crayfish)

Common symptoms of IgE mediated allergies include:

- acute diarrhoea
- asthma
- breathing difficulties
- exacerbation of eczema
- hives (blotchy red rash), or urticaria
- itching
- pallor
- rashes
- redness
- swelling of lips, tongue, face
- vomiting
- wheeze

Nuts: The Department of Health recommends that toddlers with allergies (including eczema and asthma) which are thought to be due to food or other allergens, OR who also have immediate members of family (parents or siblings) with a food allergy or allergy (including eczema, asthma and hayfever) may be at higher risk of developing peanut allergy. Such children should be reviewed by their GP, health visitor or a medical allergy specialist before starting to eat peanuts or foods containing peanuts⁸. Ground walnuts, almonds, cashews and other tree nuts are acceptable and are a good source of protein and nutrients especially for vegetarian toddlers.

Foods involved in non-IgE mediated allergy include:

More often:

- milk
- soya
- wheat

Less often:

- egg
- fish
- peanuts
- sesame
- shellfish
- tree nuts

Common symptoms of non-IgE-mediated allergies include:

- abdominal pain or colic, bloating and wind
- constipation
- diarrhoea
- eczema
- gastro-oesophageal reflux
- vomiting (few hours after meal)
- wheeze



CAUSES AND SYMPTOMS OF NON-ALLERGIC FOOD HYPERSENSITIVITY

Non-allergic food hypersensitivity is usually characterised by a delayed reaction, occurring hours or even days after eating certain foods. It can be caused by:

1. Pharmacological reactions

Large amounts of the flavour enhancer monosodium glutamate (MSG) can cause flushing, headache and abdominal symptoms.

Substances known as biogenic amines can produce symptoms such as headache, nausea and giddiness.

Foods that can be rich sources of biogenic amines include:

- cheese, especially if mature
- chocolate
- fermented foods such as blue cheese, sauerkraut, fermented soya products
- fish, especially if stale or pickled
- microbially contaminated foods
- some fruits especially citrus fruits, bananas, avocado pears
- yeast extracts

The role of additives such as artificial colours and preservatives in non-allergic food hypersensitivity is unclear and needs further investigation⁹.

2. Substances naturally occurring in foods

Non-immunological reactions may also be provoked by naturally present food constituents⁶. High levels of benzoic acid in some citrus fruits may cause a harmless flare reaction around the mouth, especially in children.

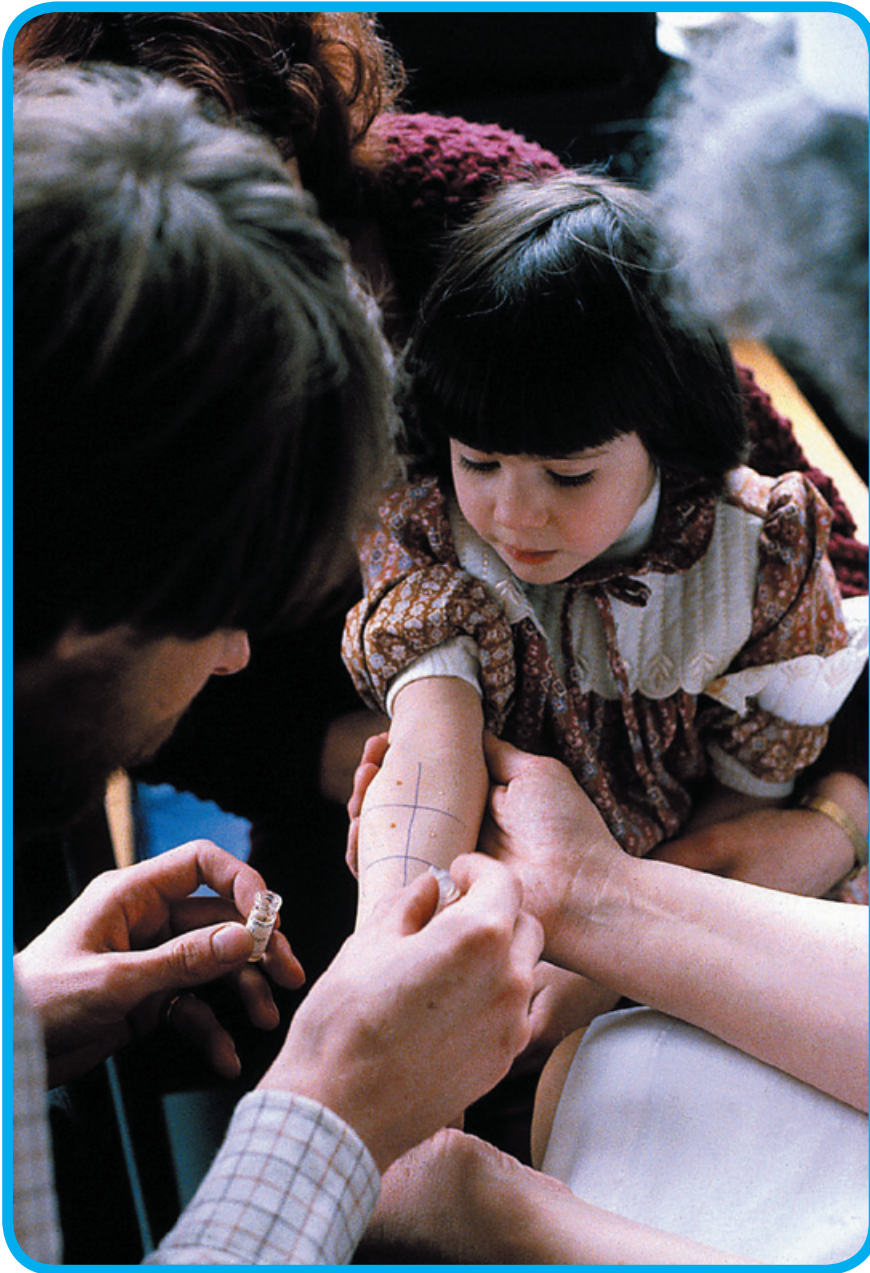


This is often misinterpreted as allergy and the child is unnecessarily stopped from consuming all citrus fruits.

3. Enzyme deficiencies

Enzyme deficiencies are rare among toddlers. However lactose intolerance, caused by a temporary deficiency of the enzyme lactase, is occasionally seen after a bout of viral gastroenteritis. This can cause loose stools and wind after eating dairy products, but usually resolves within weeks.

DIAGNOSIS OF FOOD HYPERSENSITIVITY



Skin prick test.



Skin patch test.

The diagnosis of food hypersensitivity should be made by a medical professional such as a doctor and/or dietitian.

While an experienced health visitor may suggest the avoidance of a certain food for a trial period while waiting to see the GP or dietitian, in most cases it is advisable not to eliminate any foods from a child's diet until a diagnosis is made.

The GP may refer the child to a paediatrician, allergy clinic or dietitian. Other medical conditions that could be causing the toddler's symptoms must be ruled out and the diagnosis should be confirmed with a medical history, examination, blood tests, skin tests or keeping

a food and symptom diary (followed by a special test diet) to identify the foods causing symptoms. In some cases a food elimination diet is the most reliable diagnostic process (for instance when all tests are negative, but the history strongly suggests that foods play a role in the toddler's symptoms).

Blood tests and skin prick tests are not 100 per cent diagnostic and are helpful only for the diagnosis of IgE mediated food allergy. The best method of diagnosing IgE mediated allergy and the only method for non-IgE mediated allergy and non-allergic food hypersensitivity (food intolerances) is an elimination diet followed by re-introduction of the food or a food challenge¹⁰.

DIETARY MANAGEMENT OF FOOD HYPERSENSITIVITY

In toddlers who have already been diagnosed with food allergy, it is essential to avoid the culprit food(s). The extent to which the food needs to be avoided will vary from child to child.

Some children with food allergies need to avoid the food completely – even trace amounts. Others may be able to tolerate small amounts of the food they are allergic to.



Some children with severe food allergies may be advised to use an EpiPen/Anapen. This is an injection-pen containing adrenaline, which protects them from severe breathing difficulties and collapse, the end-stages of anaphylaxis.

See www.allergynetwork.org for more information on using an EpiPen/Anapen at home or in the school/nursery.

Most people with non-allergic food hypersensitivity will be able to include small amounts of the food in their diet with no adverse effects. The doctor or dietitian should be able to advise appropriately.

ALWAYS READ THE LABEL

According to European legislation all pre-packed food for sale in the EU containing the following foods and products thereof should be clearly labelled¹¹:

- celery
- cereals containing gluten (i.e. wheat, rye, barley, oats, spelt, kamut or their hybridised strains)
- crustaceans
- eggs
- fish
- peanuts
- milk (including lactose)
- mustard
- nuts
- sesame seeds
- soybeans
- sulphur dioxide and sulphites (SO₂) at concentrations of more than 10 mg/kg or 10 mg/litre

Foods sold loose, or as part of a multipack and in catering packages, are exempt from this legislation.

Some manufacturers provide allergen information on the packaging such as: 'This product contains milk, egg, wheat etc.' This information is not legally required and can therefore not always be relied on – it is advisable to always read the ingredient list!



The dietary management and avoidance of each food is discussed in detail in [Factsheet 4.3](#).

References

1. Johansson SG, Bieber T, Dahl R, Friedmann PS, Lanier BQ, Lockey RF et al. Revised nomenclature for allergy for global use: Report of the Nomenclature Review Committee of the World Allergy Organization, October 2003. *J Allergy Clin Immunol* 2004; 113: 832-6.
2. Zuberbier T, Edenharter G, Worm M, Ehlers I, Reimann S, Hantke T, et al. Prevalence of adverse reactions to food in Germany - a population study. *Allergy*. 2004; 59(3):338-45.
3. Venter C, Pereira B, Grundy J, Clayton CB, Roberts G, Higgins B, et al. Incidence of parentally reported and clinically diagnosed food hypersensitivity in the first year of life. *J Allergy Clin Immunol*. 2006; 117(5):1118-24.
4. Venter C, Pereira BN, Grundy J, Clayton CB, Higgins B, Dean T. Food hypersensitivity (FHS) and sensitisation to food allergens over the first three years of life. *J Allergy Clin Immunol* 2007; 119(1 Suppl): S112.
5. Vickerstaff Joneja J M, Carmona-Silva C. Outcome of a histamine-restricted diet based on chart audit. *Journal of Nutritional and Environmental Medicine* 2001; 11: 249-62.
6. Thomas B. Manual of dietetic practice. 3rd ed. / revised and edited by Briony Thomas in conjunction with the British Dietetic Association. ed. Oxford: Blackwell Scientific; 2001. (4th ed. anticipated 2007).
7. Sampson HA. Update on food allergy. *J Allergy Clin Immunol* 2004; 113(5): 805-19.
8. Food Standards Agency (2009) <http://www.food.gov.uk/safereating/allergyintol/peanutspregnancy>
9. Wuthrich B. Adverse reactions to food additives. *Ann Allergy* 1993; 71: 379-84.
10. Bock SA. Diagnostic evaluation. *Pediatrics* 2003; 111: 1638-44.
11. European Union. Directive 2003/89/EC of the European Parliament (Annex IIIA) Article 6(3a), (10) and (11). *Official Journal of the European Union* 2003; (L 308): 15-8.

Further Reading

1. British Nutrition Foundation Task Force. Adverse reactions to food. Buttriss J, editor. Oxford: Blackwell Science Ltd 2002.
2. Vickerstaff Joneja J. *Dietary Management of Food Allergies and Intolerances*. 2nd ed. Vancouver: J.A. Hall, 1998.
3. Wright T. *Food Allergies – enjoying life with a severe food allergy*. 2nd ed. London: Class Publishing Ltd, 2006.

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ARE YOU WORRIED THAT YOUR TODDLER MAY SUFFER FROM A FOOD ALLERGY OR INTOLERANCE?



GUIDANCE & TIPS FOR PARENTS

Food allergy and Food Intolerance may both cause unpleasant symptoms. They differ in the ways in which a 'culprit' food can cause them.

What is food allergy?

Food allergy is when the body reacts to certain foods - by an abnormal immunological reaction to the food. Some reactions such as hives (urticaria) or swelling of the lips or tongue, happen very quickly. Other reactions, such as eczema, vomiting or constipation, may be delayed. Reactions range from mild to severe and there may be some overlap between these two groups of symptoms. In some rare cases, allergic reactions to food can be life threatening.

What are the symptoms and signs of food allergy?

Symptoms and signs caused by food allergies can appear within two hours of eating a food. They include:

- asthma
- breathing difficulties
- eczema flare
- hives
- itching
- pallor
- rashes
- redness
- swelling of lips, tongue, face
- sudden diarrhoea
- vomiting
- wheeze

Some symptoms may appear much later, such as:

- abdominal pain or colic
- bloating
- constipation
- diarrhoea
- eczema
- reflux
- vomiting (few hours after meal)
- wheeze
- wind

What is food intolerance?

Food intolerance usually causes a more delayed reaction, occurring hours or even days after eating certain foods. The immune system is not involved in this type of reaction and therefore food intolerance is not life threatening. Typical symptoms include abdominal pain (tummy ache), diarrhoea and vomiting.

What are the symptoms and signs of food intolerance?

- bloating
- constipation
- diarrhoea
- vomiting
- wind

Foods or food ingredients can also cause migraine and occasionally behavioural problems. In some children, fruit and vegetables, especially citrus fruits and tomato may cause a harmless, rash around the mouth due to their acidity.

More information is available at

- www.allergyaction.org
- www.allergynetwork.org
- www.allergyuk.org
- www.anaphylaxis.org.uk
- www.kidsaware.co.uk
- www.yellowcross.co.uk

Which foods could my child be allergic/intolerant to?

There is a wide range of foods, but the most common ones are: celery, cereals containing gluten – wheat, rye, barley and oats – cows' milk, eggs, fish, mustard, peanuts and tree nuts, sesame seeds, shellfish, soya and sulphur dioxide.

How common are food allergies and intolerances?

2-4 per cent of 1-3 year olds suffer from food allergies or intolerances.

How a diagnosis is made?

Your health visitor will refer your toddler to the GP. (In some cases experienced health visitors may suggest the avoidance of a certain food for a trial period). Your GP may refer your child to a paediatrician or allergy clinic. Your child may need to undergo a skin prick test or blood test. When performing skin prick tests, a drop of the suspected food allergen is placed on the skin and pricked.

The results are available within ten minutes and the test is not painful. Because these tests are not 100 per cent diagnostic, you may be asked to keep a food and symptom diary followed by a special test diet to identify the foods causing symptoms.

How to manage your toddler's food allergy or intolerance

The only way to manage a food allergy or intolerance is to avoid the food which is causing the problem. Some toddlers with food allergies will need to avoid the food completely. Others may be able to tolerate small amounts of the food they are allergic to. Most children with food intolerance can eat small amounts of the food with no harmful effects. It is important to know which foods to avoid, how to check food labels and to what level each food should be avoided. A dietitian will give the best help. How meticulous you need to be will be different for each child. With the correct management symptoms should resolve. If they do not, then return to the allergy clinic for reassessment and advice.



An educational forum on infant and toddler nutrition and development

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