Food Allergy and Intolerance

For most of us, food can be a great pleasure. For some unfortunate people, however, particular foods can trigger unpleasant, distressing or even dangerous symptoms.

In some cases, these symptoms are triggered by allergies to certain food proteins.

In many other cases, however, people experience food intolerance reactions, caused by a "pharmacological" or drug-like reaction to one or more food chemicals.

Some people suffer gastrointestinal symptoms caused by incomplete digestion and absorption of food substances such as milk sugar (lactose) or fruit sugar (fructose), known as malabsorption. Yet others will suffer indigestion or bloating caused by a miscellaneous range of foods, for various other reasons.

What is a food allergy?

Food allergy occurs when the body's immune system reacts to a protein in a certain food, causing the release of antibodies and histamine. The release of histamine causes symptoms. The most common foods to which people are allergic include egg, cow's milk, peanuts, tree nuts (cashews, almonds, hazelnuts, walnuts), sesame seeds, soy, wheat, fish and shellfish.

Allergy symptoms can begin within minutes to 1 hour of eating the problem food. Symptoms can include eczema, hives, facial swelling, itching or swelling of the lips, tongue or mouth, vomiting, diarrhoea, itching or tightness in the throat, and difficulty breathing. Symptoms can vary from mild to severe. Even tiny amounts of a problem food can cause serious reactions in very sensitive people. Occasionally, a very severe, rapidly progressing and life-threatening allergic reaction, known as anaphylaxis, can occur. This requires immediate first aid treatment, for example with an Epipen adrenalin injection.

Both blood and skin prick tests may be used to help identify food allergies. A blood sample may be sent to a laboratory and tested with specific foods to determine whether antibodies to that food are present. This form of testing is referred to as RAST testing and is less reliable than skin prick tests. A skin prick test involves having a drop of an allergen solution on the forearm. The skin is then pricked gently to allow a tiny amount to enter the skin. If a person is allergic a weal, or small bump, will form at the site in 10-15 minutes.

True food allergy is most common in children, but only affects about 1% of adults. Most children will grow out of food allergies by school age, although seafood and nut allergies tend to be life-long.

There's no cure for food allergy, and treatment involves total avoidance of the problem food.

For more information and advice on dealing with food allergy and severe reactions (anaphylaxis) please contact the Allergy Unit at the Royal Prince Alfred Hospital on (02) 9565 1464 to obtain a copy of the book "Dealing with Food Allergy".

What is pharmacological food intolerance?

Pharmacological food intolerance is different to food allergy and is far more common, affecting perhaps 5 to 10% of the population. It can occur at any age.

Pharmacological food intolerance involves reactions to a wide range of chemicals either found naturally in foods, such as salicylates (an aspirin-like substance), amines and monosodium glutamate, or food additives such as preservatives, antioxidants, flavour enhancers and food colours. Sometimes whole foods such as milk and wheat can cause intolerance reactions. Refer to Table 1 for more details about these food chemicals.

The way in which these food chemicals cause problems is not well understood, but they may act as irritants on nerve endings, in a way similar to the side-effects of drugs in sensitive people. Unlike food allergy, reactions are not caused by an immune response to food proteins, although histamine can be released as part of the reaction, and symptoms can be similar to those caused by food allergy. Symptoms can, however, also include neurological and behavioural problems, not normally caused by allergies.

Table 1. Food chemicals that commonly cause intolerance

Food chemical	Examples of foods containing these chemicals
Salicylates	Many vegetables and fruits (in varying doses), herbs, spices, tea, honey, peppermint, nuts, wine, beer
Amines	Cheese, chocolate, aged meats, tinned fish, banana, grapes, pineapple, avocado, tomato, wine, beer
MSG and other flavour enhancers	Chinese food, commercial savoury foods such as sauces, soups and snack foods, soy sauce, tomato, mushrooms, grapes, some cheeses, vegemite and promite, wine
Sulphites	Preservative in fruit juices, cordials and soft drinks, wine, dried fruit and vegetables, sausages
Benzoates	Preservative in fruit juices, cordials and soft drinks, dips
Nitrates	Preservative added to processed meats eg. ham and bacon etc.
Propionates	Preservative in breads and other bakery items
Sorbates	Preservative in fruit juices, cordials and soft drinks, some dried fruit, some dairy products such as processed cheese slices, cottage cheese, yoghurts, “light” margarines, dips
Synthetic antioxidants	Fats, oils, fried snack foods
Artificial colours and annatto (a natural colour)	Confectionery, cordials, soft drinks, custard powder, cakes and biscuits, margarines, dairy products, Asian noodles, oven-bake chips

Table 2. Possible symptoms of food intolerance

Nervous System	Respiratory System	Digestive system	Skin
Migraines Headaches Lethargy, Fatigue Poor concentration & memory Irritability Aggressiveness Moodiness Depression Hyperactivity Muscle aches & pains Restless legs	Asthma Wheezing Nasal blockage Chronic cough Sinus problems Post-nasal drip Nasal polyps Ear Infections	Mouth ulcers Sore throat Nausea Abdominal pain Diarrhoea Constipation Wind & bloating	Eczema Hives (urticaria) Angioedema (swelling)

Note: Food intolerance is not the only possible cause of these symptoms and medical advice is recommended to eliminate other causes. If there is no other medical cause for these symptoms, food intolerance is a possibility that is worth exploring.

Occasionally, food intolerance will exacerbate (worsen symptoms) of other medical conditions, even though the food intolerance is not the main cause of those symptoms.

How is food intolerance identified?

It can be difficult for individuals to identify if, and which, food chemicals may be causing their symptoms, for several reasons:

- Reactions may not happen straight away, but rather can build up over time. Some reactions can occur very rapidly, but others may develop over hours or even days.
- Reactions are dose-dependant, meaning that a low intake may not cause a problem, but a higher dose intake will trigger a reaction. Reactions can therefore seem inconsistent.
- The same food chemical can be present in a wide variety of foods that seem unrelated, but each of them can contribute to the total daily dose.
- Food sensitive people can have problems with more than one food chemical.
- The level of sensitivity of a person to a particular food chemical may also vary at different times, depending on factors such as stress, hormone cycles, exposure to environmental chemicals, use of medications etc.

There are **no reliable** skin or blood tests that will diagnose food intolerance, although some medical and natural therapy clinics offer a variety of these sorts of tests. Often such tests are inaccurate, and may result in a very long list of problem foods to be avoided. Such lists make it difficult to manage a healthy, balanced and enjoyable diet, and may be far more restricted than is really necessary.

The only proven way to investigate food intolerance is to follow a special test diet, known as an Elimination diet. The Elimination diet is a bland, low chemical diet designed to reduce the levels of accumulated food chemicals in the body. It is followed for a minimum of three weeks (often longer), and then each food substance or chemical is reintroduced ("challenged") one at a time. This is best achieved under the supervision of an Accredited Practicing Dietitian (APD) with experience in this area.

If symptoms improve on the Elimination diet and then recur following a particular challenge, it is likely that the substance in that challenge was responsible for the reaction. In some cases a challenge may need to be repeated 2 or 3 times, if there is a possibility that a reaction was caused coincidentally by something in the environment.

Not everyone will experience improvement on an elimination diet. If no improvement occurs, either the symptoms are not caused by food intolerance, or the problem chemicals were not fully excluded on the diet. Sometimes there is only a partial improvement, especially when there are other non-food triggers involved as well.

How is food intolerance managed in the long-term?

Once the problem food substance or substances have been identified, the basic diet is expanded to include all other foods that lack the problem substances.

If desired, a gradual reintroduction of foods that contain the problem chemicals can be attempted in a slow and steady fashion, gradually increasing the dose in a systematic way. This will help identify the tolerance level of each person to the offending chemical. Some people will tolerate quite high doses before reactions are triggered, but others can be extremely sensitive.

Over time (months or years), a person's tolerance to the offending substance(s) can increase, and they may be able to cope with larger doses of particular foods. For others however, problem foods must be limited for life to control symptoms.

It is important to seek expert guidance from an Accredited Practising Dietitian (APD) in the management of food intolerance to avoid unnecessary restriction of the diet, particularly in children. The fully restricted elimination diet is designed as a very low chemical test diet for short-term use. It is not desirable to follow it for the long term, unless absolutely necessary to control symptoms. In this case, special attention needs to be paid to ensure an adequate nutrient intake.

Mel Reid
Revised May 2007

Acknowledgements: Royal Prince Alfred Hospital