



This Food Science Fact Sheet is one of a series compiled by Institute of Food Science and Technology, providing clear, concise and scientifically reliable information on key food science topics for consumers.

Food Allergy

What is a food allergy?

Food allergy is a reaction caused when the body's immune system reacts unusually to components in foods, usually specific proteins. Symptoms include tingling in the mouth, itchy skin rash, swelling of the face or mouth, shortness of breath, nausea, abdominal pain and diarrhoea. Some people may develop anaphylaxis which may lead to a severe or even life-threatening reaction, where symptoms may additionally include vomiting, breathing difficulties and a dramatic fall in blood pressure leading to unconsciousness.

Emergency treatment of anaphylaxis involves the use of adrenaline auto-injectors designed for self-administration, which those at risk should carry with them and be able to use. Diagnosis involves taking a detailed history and may also involve skin prick or blood tests and oral challenges to determine the cause of an allergic reaction.

What is a food intolerance?

An intolerance is a reaction for which the immune system is not, or not proven to be, responsible. The most common food intolerances are to milk and cereals containing gluten, but a wide range of foods may be a cause. Lactose intolerance is caused by a deficiency of the digestive enzyme lactase, so sufferers cannot breakdown the lactose present in milk.

'More than 170 different foods have been reported to cause food allergies.'

What are the major food allergens?

More than 170 different foods have been reported to cause allergies, including some fruit and vegetables, e.g. apple, kiwi fruit, banana, carrot, avocado. In Europe, only the following, which cause 90% of the allergic reactions, require labelling:



Cereals containing gluten: e.g. wheat, rye, barley, oats, spelt. Some trigger Coeliac disease, a condition where the lining of the small intestine becomes damaged through an auto-immune response to gluten. Gluten-free foods are controlled by law, and should contain no more than 20 parts per million (ppm) gluten

Crustaceans: e.g. shrimp, lobster, crab, prawn, scampi

Egg: allergens are primarily in the egg white although some can be present in the yolk. Generally, cooking reduces allergenic activity but not adequately for all those at risk

Fish: including fish gelatine (isinglass) used as a fining agent in the production of some beers and wines

Peanut: the allergy affects about 1 in 50 children in the UK. Cold pressed peanut oil (not highly refined) can cause reactions but highly processed peanut oil may be safely consumed, in most cases

Soya: includes (soy) flour, derived from soya beans that can also be used to make textured vegetable protein (TVP) which is used as a meat replacer. The beans are fermented producing bean curd (tofu) and soy sauce. Soya milk contains allergenic proteins but the processing of soya oil and lecithin (E322), used as an emulsifier or stabiliser, reduces allergenicity significantly

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Milk: e.g. milk from cows, buffalo, sheep and goats; milk can be present in yoghurt, cheese, butter, whey and in powdered form. This allergy mostly affects infants, though recently some fatal reactions have occurred with young adults in the UK

Tree nuts: almonds, Brazil nuts, cashews, hazelnuts, macadamia, pecan, pistachio nuts and walnuts

Celery: e.g. celery sticks and celeriac which is the root of the plant and contains significant quantities of the allergen. Also contained in celery salt, spice and seeds

Mustard: including leaves, seeds and oil

Sesame seeds: e.g. in tahini paste which is often used to make hummus

Sulphur dioxide and sulphites: (E220 - E228) - if a prepacked food contains more than 10mg/kg (or 10mg/l), expressed as SO₂, they should be labelled with the full name e.g. 'Preservative: Sulphur dioxide'

Lupin: flour used to make bread, pastry and pasta; beans (seeds) used in savoury snacks in parts of Europe, Middle East and South America

Molluscs: e.g. mussel, scallop, oyster, clam, snail, octopus

Different countries recognise different major allergens. For example:

- USA - egg, milk, fish, tree nuts, shellfish, peanuts, wheat, soya (sesame is under consideration)
- Japan - egg, milk, wheat, buckwheat, peanuts, shrimp, crab
- Korea include peach, pork, tomato, shrimp, crab
- Taiwan include mango

Allergen labelling

Mandatory

European food labelling regulations require that any of the allergens mentioned above, which are intentionally incorporated, are declared on all pre-packaged food by being emphasised (e.g. in bold text) in the ingredients list. Regulations also apply to catering so when people are eating out or buying takeaway food, they have access to allergen information, which may be obtained from staff.

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Voluntary

Precautionary statements such as 'may contain ...' or 'prepared in a factory that handles ...' relate to the possible and unintentional presence of allergens, e.g. from cross contamination during ingredient handling, food preparation and manufacture, storage, shared equipment, airborne dust etc., and are not included in the European legislation. Manufacturers are responsible for minimising the risks to susceptible consumers which is managed by segregation, cleaning procedures and the training of personnel etc.

Advice for allergy sufferers

- Check food labels carefully every time when purchasing food, since recipes can change
- When eating out and having meals delivered, inform caterers/restaurant staff of dietary requirements
- When travelling abroad, carry a translation card to help communication about an allergy
- Carry prescribed medicine and be ready to use it
- In cases where allergen avoidance may limit dietary nutrition, it is important to seek expert advice about alternative sources of key nutrients

References

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