

## **Soya Allergy: The Facts**

Soya is a food derived from the soya bean, which is a legume.

This Factsheet aims to answer some of the questions which you and your family might have about living with a soya allergy. Our aim is to provide information that will help you to avoid soya, minimise risks and know how to treat an allergic reaction should it occur.

There are two types of soya allergy. The first occurs when the body's immune system produces antibodies known as immunoglobulin E (or IgE) in response to the presence of soya. When this happens, chemicals including histamine are released from stores within specialised cells in the blood and tissues. These can cause swelling in the skin, lips, mouth, throat or lower airway causing difficulty in swallowing and/or breathing. The symptoms usually occur within seconds or minutes of exposure to the food. Doctors refer to this as "IgE mediated" allergy.

The second type of soya allergy does not involve IgE antibodies, and symptoms are delayed. We will refer to this in this Factsheet as non-IgE mediated soya allergy.

This Factsheet focuses mainly on IgE mediated allergy but also covers some areas related to non-IgE mediated soya allergy.

Allergy to soya is uncommon in the UK compared with milk, egg, peanut and fish allergy. Some reports suggest that children with soya allergy have a good chance of outgrowing it, but how often this occurs is not clear.

If you know or suspect you are allergic to soya, the most important message is to visit your GP and request referral to an allergy clinic for allergy testing – even if your symptoms have so far been mild. Future symptoms could be more severe. It is also important to know which of the two types of soya allergy is causing you problems.

As you read through this Factsheet you will see brief medical references given in brackets. More complete references are published towards the end of this Factsheet.

### **IgE mediated soya allergy – immediate reactions**

As stated above, if you have IgE mediated soya allergy, your body produces a type of antibody known as IgE. These antibodies mistakenly recognise a protein within soya as being harmful. In response, they release chemicals, including histamine, to attack them. This release of chemicals leads to the symptoms that are commonly experienced during an allergic reaction. IgE mediated reactions tend to occur very soon after eating soya, usually within seconds or minutes.

### **Common symptoms of IgE mediated soya allergy**

The symptoms of this kind of food allergy can come on rapidly. These may include nettle rash (otherwise known as hives or urticaria) anywhere on the body, or a tingling or itchy feeling in the mouth. Most people with soya allergy, including children, experience only mild symptoms, but on very rare occasions serious symptoms occur.

### **More serious symptoms of a food allergy may include:**

- Swelling in the face, throat and/or mouth
- Difficulty breathing
- Severe asthma
- Abdominal pain, nausea and vomiting

The term for this more serious form of allergy is anaphylaxis. In extreme cases there could be a dramatic fall in blood pressure (anaphylactic shock). The person may become weak and floppy and may have a sense of impending doom. This may lead to collapse and unconsciousness. On rare occasions, death from a food allergy can occur.

In one study that looked at 55 Japanese children who were allergic to soya, reactions most often involved the skin (Ebisawa et al, 2013). Other children experienced symptoms in the mouth, respiratory symptoms, and diarrhoea. There was one case of anaphylaxis.

See the links near the foot of the page for a more details about anaphylaxis and its treatment.

### **Non-IgE mediated soya allergy**

In contrast with IgE mediated soya allergy, IgE antibodies are not involved in non-IgE mediated soya allergies. This type of reaction is delayed by more than two hours and, in some cases, up to 48 hours.

### **Symptoms of non-IgE mediated soya allergy**

Non-IgE mediated soya allergies tend to involve the digestive system, giving rise to symptoms such as stomach pains, diarrhoea (which might be bloody), vomiting, reflux and colic. Atopic dermatitis (a type of eczema) is another possible symptom which often co-exists with the bowel problems. In rare cases, FPIES (Food Protein Induced Enterocolitis Syndrome) can occur. This is more common in babies and young infants. Typically, symptoms of FPIES include diarrhoea and severe and repeated vomiting. Symptoms occur 2-3 hours after exposure to the allergen (in this case soya). FPIES can result in drastic fluid loss from the circulation leading to collapse with shock. This is a medical emergency and urgent hospital admission is required.

### **Getting a diagnosis:**

It is important to see your GP as soon as possible if you suspect you have symptoms triggered by soya.

Your doctor will probably need to refer you to an allergy clinic. Anyone who has suffered anaphylaxis should certainly be referred.

Your GP can locate an allergy clinic in your area by visiting the website of the British Society for Allergy and Clinical Immunology (<http://www.bsaci.org>)

Once you get a referral, the consultant will discuss your symptoms with you in detail as well as your medical history. Even for an experienced consultant, soya allergy is sometimes difficult to diagnose. It is important to have appropriate tests (such as skin prick tests) and to have the results reviewed and interpreted by a specialist. In cases where some uncertainty about a diagnosis remains, the consultant may recommend a 'food challenge'. This is where the patient eats a small amount of soya, increasing the amount gradually, to test whether or not a reaction occurs. This must only be done by an experienced consultant in a medical setting.

Even when there is a positive diagnosis of IgE mediated soya allergy, allergy consultants have no way of telling you how severe your next allergic reaction is going to be. It is not true that each allergic reaction is more severe than the last one. The next reaction might be just the same, it might be mild, or it could be a lot more severe.

Your history may contain important clues about the severity of your allergy. For example, the seriousness of any past reaction and the amount of soya that caused it are important factors. If you have reacted to a very small amount of a food containing soya, your allergy may be severe.

The risk of an allergic reaction to soya is likely to be higher if you have asthma that is poorly controlled. See your GP for advice on how to keep your asthma in check.

### **Treating symptoms of IgE mediated soya allergy:**

Mild symptoms can be treated with antihistamines. But if your doctor or allergy specialist believes your symptoms are likely to be severe, you may be prescribed an adrenaline auto-injector (AAI) for self-use in an emergency. You must ensure that you receive good training in its use. If you are prescribed an injector, it should be available at all times – with no exceptions. Medical attention should still be sought after use as symptoms may return after a short period and more than one injection of adrenaline may be required to control the reaction.

Ask your GP or allergist for advice on how to use your injector. You can also find help on the website relevant to the injector you carry.

### **Emergency treatment of anaphylaxis – what injectors are available?**

Pre-loaded adrenaline injection devices – Emerade®, EpiPen® or Jext® – are available on prescription for those thought to be at risk of a severe reaction.

Emerade® is the most recent single use adrenaline auto-injector to become available. It has a needle guard to protect against needle stick injury. Visit [www.emerade-bausch.co.uk](http://www.emerade-bausch.co.uk)

EpiPen® has a spring-loaded concealed needle. The built-in needle protection keeps the needle covered during and after use. Visit [www.epipen.co.uk](http://www.epipen.co.uk).

Jext® has a locking needle shield which engages after use, designed to protect against needle injury. Visit [www.jext.co.uk](http://www.jext.co.uk).

### Treating symptoms of non IgE mediated soya allergy

The main treatment of non IgE mediated soya allergy is avoidance of soya. If eczema is a symptom, conventional treatments for this may be prescribed. Where there is a condition known as eosinophilic oesophagitis, with reflux symptoms and pain, treatment may include a topical steroid preparation.

### Avoiding soya

Soya (also known as soy) is a common ingredient in many processed foods. Soya beans are often called edamame when fresh or frozen.

The first line of defence is to avoid foods that contain soya. It is vital to read food labels carefully every time you shop. Remember that ingredients are sometimes changed. It is helpful that all pre-packaged food sold within the UK must declare and highlight the presence in the ingredient list, of major allergens including soya, even if they appear in small quantities.

The food allergen labelling laws that cover pre-packed food also apply to the catering sector. When eating out or buying takeaway food, food businesses are required to provide information on allergenic ingredients. This information can be provided in writing and/or orally. If information is provided orally, the food business will need to ensure that there is some sort of written signage that is clearly visible, to indicate that allergen information is available from a member of staff.

You should question staff very directly, asking whether soya is an ingredient of the food you have chosen or whether there is a risk of cross-contamination. Don't be afraid to ask the waiter to check with the chef.

Soya can be used in a wide range of foods. Examples include:

- **Tofu** – Another name for soya bean curd. Tofu is a concentrated form of soya and is often used as a protein source for vegetarians or others cutting down on meat. Soya bean curd is traditionally used in some stir fries and soups in the Far East

- **Soya oil** - Soya flour is used extensively in the bakery industry and is present in many types of bread. As fresh bread from bakeries does not carry ingredient lists, we believe it is best to go for pre-packaged bread and check the ingredients. Other foods to watch out for include cakes and biscuits
- **Infant foods** – some may contain soya flour
- **Vegetable protein** - Hydrolysed vegetable protein (HVP) and textured vegetable protein (TVP)
- **Lecithin** – Lecithin (E322) is an emulsifier normally derived from unrefined soya oil and occasionally from rapeseed oil. Although the risk of reaction to soya lecithin may be small, we advise that you seek advice from your doctor or allergy specialist about whether you should avoid it.
- **Soya sauce** – Also known as soy sauce. This is widely used in Far Eastern recipes and is also commonly used to add a savoury flavour to soups, gravies, stews and sauces
- **Medicines** – Always ask your pharmacist if soya is an ingredient of medicines

## Soya oil:

Soya oil, which may be found in foods including salad dressings, margarine and spreads, has been subject to research and a full risk assessment (Rigby et al, 2011). The European Food Safety Authority (EFSA) believes “it is not very likely” that fully refined soya oils would trigger a severe allergic reaction in people who are allergic to soya. The Anaphylaxis Campaign understands it is more likely that unrefined soya oil will trigger allergic reactions.

Therefore:

- **Unrefined** soya oil must be declared and highlighted (for example, in bold type) within the ingredients when it appears in pre-packed food. It may be declared simply as soya oil.
- **Fully refined** soya oil does not have to be highlighted in the way major allergens must be, but it still needs to be declared as soya oil in line with the regulations stating that the origins of all vegetable oils must be indicated.

## Should you avoid other legumes?

If you react to one member of the legume family (such as soya), it is possible you could react to another member of this group – such as peas, beans or lentils. This process is known as “cross-reactivity” – where the proteins in one food share certain characteristics with those in another food. Cross-reactivity among different legumes is not common, but this is something that should be discussed with your doctor. A few people with soya allergy also react to peanuts, and vice versa.

### Can babies be fed soya drink?

Soya drink is sometimes suggested as an alternative to cow's milk formula where breastfeeding is not possible; however, it is not recommended for babies who are below six months old. After six months, soya drink may be considered but it is important to seek the advice of a health professional. A better alternative may be an extensively hydrolysed formula or, in the more severe cases, an amino acid formula. It is important to get medical advice on this.

### Soy-based materials in the stuffing of pillows

There are a small number of records (documented by Armentia et al., 2013) of people experiencing reactions that researchers believe were due to soya-based materials used in the stuffing of pillows. All of these people had a history of food-related hayfever and asthma. It is worth checking the contents label of your pillows for soya.

### The key messages

- Always be vigilant when food is around
- Check food labels
- Seek advice from a dietician or nutritionist on suitable soya alternatives to ensure that you are getting sufficient nutrients, particularly if you follow a vegan diet
- Be proactive when eating out
- Carry prescribed medication everywhere
- If you carry an adrenaline auto-injector, learn how and when to use it
- Ensure that asthma is well managed

### Links

Click here for information on [anaphylaxis](#) and its treatment, [adrenaline](#).

### References

Armentia, A., Pineda F., Martin B., San Miguel A., Gil F.J.M., Puente Y., de Lecea C., Palacios R. 2013. Anaphylaxis caused by hidden soybean allergens in pillows. *Journal of Allergy and Clinical Immunology (Jan)*, pp.228 – 230

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*Rigby NM, Sancho AI, Salt LJ, Foxall R, Taylor S, Raczynski A, Cochrane SA, Crevel RW, Mills EN (2011). Quantification and partial characterization of the residual protein in fully and partially refined commercial soybean oils. J Agric Food Chem 2011 Mar 9;59(5):1752-9. doi: 10.1021/jf103560h. Epub 2011 Jan 20.*

### Reviewers

The content of this Factsheet has been Peer Reviewed by Prof John Warner, Professor of Paediatrics, Imperial College, London.

### Disclosures

Prof Warner's present activities include providing scientific advice on trials funded by Airsonett and Danone.

### Disclaimer

The information provided in this Factsheet is given in good faith. Every effort is taken to ensure accuracy. All patients are different, and specific cases need specific advice. There is no substitute for good medical advice provided by a medical professional.

### About the Anaphylaxis Campaign

The Anaphylaxis Campaign is the only UK wide charity solely focused on supporting people at risk of severe allergic reactions. We provide information and support to people living with severe allergies through our free national helpline and local support groups, and campaign and fundraise to achieve our ultimate aim, to create a safer environment for all people at risk of severe allergies.

Visit our website [www.anaphylaxis.org.uk](http://www.anaphylaxis.org.uk) and follow us to keep up to date with our latest news. We're on Facebook @anaphylaxiscoms, LinkedIn, Instagram @anaphylaxis\_campaign, Twitter @Anaphylaxiscoms and YouTube.