



Information Sheet

SOYA ALLERGY



What is soya allergy?

Soya allergy means adverse reactions to one or more of the proteins found in soya, and involves the antibody immunoglobulin E (IgE) of the immune system.

Allergic reactions may be caused by ingestion of soya-containing foods or by inhalation of soya dust. Soya also contains a trypsin inhibitor which may result in respiratory hypersensitivity reactions.

Soya allergy may also present in breast-fed infants as a result of the soya allergen passing to the infant through the breast milk.

How common is soya allergy?

Soya allergy is more common in children than in adults. Soya allergy occurs in 5% to 30% of individuals. Twenty to 47% of children allergic to cow's milk may also be allergic to soya protein/milk. In workers exposed to soya dust, approximately 6.5% to 36% will experience adverse reactions.

Soya allergens

There are at least five protein allergens that can cause allergy reactions in sensitised individuals. The hull (membrane) proteins are the main allergens found in soya dust and may cause asthma in soybean mill workers, harbour and animal feed workers, and in bakers. Recently, the soybean profiling has been described as a major allergen. This protein is found in other fruits and vegetables. Unlike most vegetable allergens, soya allergens are heat-stable. In other words, cooking and heat treatment will not destroy the allergenic potential of soya, although some proteins may be denatured.

Sources of soya allergens

Soya is so widely distributed in processed foods that avoidance of soya in the diet is very difficult. Soya may find its way into a food product when added as a "compound" ingredient. For example, if margarine is added to a food product it will be listed as such, but

soya present in the margarine itself will not be listed on the ingredients panel. Soya may also be used in the manufacture of pharmaceuticals. The USA is the largest producer of soya beans and approximately 55% of the crop has been genetically modified. There is no difference in the allergenicity of these varieties.

Soya is a good source of protein and has texturing and emulsifying properties. It is thus used in a wide variety of food products to increase the protein level, to substitute for meat protein, or to influence the manufacturing process. As a consequence, few bread products are free of soya flour, and many sausages and other processed meat products such as meatballs may have added soya.

Certain food additives are manufactured from the soya bean and may retain the allergenicity. These include soya lecithin and soya emulsifier.

Soya oil can be non-allergenic. However, this depends on the extraction process. Allergenic soya protein may be found in some soya oils. Soya oil has many uses: in salad dressings, margarine, baby foods, industrial components, linoleum, paint, plastics, soap, and glue for plywood.

Labels that may indicate the presence of soy protein

Gum Arabic	Soy protein
Bulking agent	Soy protein isolate or concentrate
Carob	Soy sauce
Emulsifier	Soybean
Guar gum	Soybean oil
Hydrolyzed vegetable protein (HVP)	Stabilizer
Lecithin*	Starch
Miso	Textured vegetable protein (TVP)
MSG (Monosodium glutamate)*	Thickener
Protein	Tofu
Protein extender	Vegetable broth
Soy flour	Vegetable gum
Soy nuts	Vegetable starch
Soy panthenol	

*Made from a variety of sources, including soya.

Foods that may contain soy protein

Baby foods	Cooking oils	Sauces (e.g. Worcestershire, sweet and sour, HP, Teriyaki)
Bakery goods*	Crackers	Seasoned salt
Black pudding	Desserts	Shortenings
Bread (esp. high-protein bread)*	Gravy (sauce) powders	Snack bars
Breakfast cereals (some)	Hamburger patties	Soups
Burger patties	Hot dogs	Soy pasta products
Butter substitutes	Hydrolyzed vegetable protein (may be wheat)	Soy sauce
Cakes	Ice cream	Soy sprouts (Chinese restaurants)
Candy	Infant formula (including cow's milk formula)	Soybeans
Canned meat or fish in sauces*	Liquid meal replacers	Soybean salad
Canned or packaged soups*	Margarine	Stews (commercial)
Canned tuna	Meat products (e.g. sausages, pastes, Vienna sausages [wieners])	Stock cubes (bouillon cubes)
Cheese (artificial) made from soybeans*	Muesli	Tofu
Chinese food	Pies (meat or other)*	Tofutti
Chocolates	Powdered meal replacers	TV dinners
(cream centres)	Salad dressings	
Cookies		

*May be present because of soya in the flour used.

Cross-reactivity

Individuals allergic to a particular food may react to other foods that share a similar protein structure. This is particularly true of foods in the same food family.

The soya bean is a member of the Legume family and although cross-reactivity between members of this family is possible according to laboratory studies, this does not appear to be of importance clinically. Nonetheless, some studies suggest caution, as a higher risk of allergy to peanut, green pea, lima bean, chickpea and string bean in individuals allergic to soya has been demonstrated. Bakers with soya allergy may also be allergic to wheat and rye flour, and to an enzyme used in baking, alpha-amylase, derived from *Aspergillus oryzae*.

What are the symptoms?

The most common symptoms are those involving the gastrointestinal system and skin, and include vomiting, diarrhoea, abdominal cramps, itching of the skin (pruritus), hives (urticaria), angioedema, and eczema. Severe general reactions such as anaphylaxis may also occur. Asthma, hayfever, shortness of breath and swelling of the throat have also been documented.

Reactions usually occur within 30 minutes after contact with soya, but delayed reactions occurring 12 to 24 hours later may also be seen.

How is soya allergy diagnosed?

The most important confirmation of an allergy to soya is a history of consistent reactions to a soya.

Soya is used in such a wide range of foodstuffs that in most instances the cause for one's symptoms may not be apparent. In this instance, appropriate laboratory tests such as Skin Prick Tests and CAP RAST blood tests may be required. These tests are very

accurate. It is unusual for individuals to be allergic to one food alone, and thus these tests may be used to ascertain which other foods may be contributing to one's allergy reactions.

Confirmation of the result of the laboratory tests is obtained by the Elimination-Challenge test. This is the most reliable method of diagnosis and entails the total removal of the offending substance from the diet for 2-3 weeks and then a gradual re-introduction of the food.

How is soya allergy treated?

Complete removal of soya from the diet is the treatment of choice. As soya is present in such a wide variety of foods, this is easier said than done. A dietitian will ensure a nutritionally adequate diet and will assist with soya-free recipes. Medication is ineffective except for alleviating asthma and a few other symptoms.

Individuals who are severely allergic to soya must wear a Medic Alert bracelet and carry an adrenaline injector. Friends and school authorities should be made aware of this allergy and what to do in an emergency. The teacher should be given a letter listing these details and contact telephone numbers.

Treatment Guidelines

1. Avoid any exposure to soya.
2. Compile a list of foods that may be contaminated with soya.
3. Examine all food labels.
4. Take care when eating out, particularly at Oriental restaurants.
5. Inform caregivers in crèches, teachers, friends and family members about this allergy and emergency measures.
6. Wear a Medic Alert Badge.
7. Carry and know how to use an injectable adrenaline syringe (EpiPen®, Anaguard®).

Can soya allergy be outgrown?

Unlike peanut and egg allergy, soya-allergic individuals may outgrow their allergy. If laboratory tests are negative following a year of a soya-free diet, a gradual re-introduction of soya can be attempted.

What about soya milk?

Soya milk is not hypoallergenic. It is used as an alternative in cow's milk allergic individuals as it contains a different range of proteins. Approximately 20% of individuals allergic to cow's milk will be allergic to soya milk as well.

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Is it allergy?

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