

Your quick guide to: Reactions to Pea Protein

What is pea (*Pisum sativum*)?

The most well-known pea is the common garden pea that we eat freshly podded, frozen or tinned. Other types of peas are eaten with their pod such as sugar snap peas and snow peas/mangetout. We also eat young leaves (pea shoots) from the pea plant and commonly use marrowfat peas and dried peas in cooking. The pea plant produces popular vegetables and is also a type of legume. More recently, pea protein and pea fibre have become common additives in food as they can be a protein source, fat replacement or help to bind water.

The pea plant has the scientific name *Pisum sativum*. This factsheet refers only to foods from the *Pisum sativum* plant and does not consider other foods with 'pea' in the name such as chickpea (*Cicer arietinum*), pigeon pea* (*Cajanus cajan*) or cowpea/black-eye peas (*Vigna unguiculata*). These are different types of legumes. For information about allergy to other legumes, please see the [legumes factsheet](#).

*Be aware that in rare cases, brown pea from the pea plant (*Pisum sativum*) can also be called pigeon pea. Please see further information about this below.

How common is pea allergy?

We don't currently have reliable information about how common pea allergy is. However, we do know that pea allergy is becoming more common and can cause serious allergic reactions. These can, in some cases, be life-threatening. The rise in pea allergy might be linked to the rise of foods containing pea-based ingredients such as pea protein and pea fibre.

Peas belong to the legume family, which includes peanuts, soy, chickpeas, lentils, beans and lupin. A person who is allergic to one food can become allergic to a similar food. This is called cross-reactivity.

Although having an allergy to one legume increases the risk of allergy to another legume, it is very uncommon to be allergic to all legumes. People with an allergy to one or more legumes are usually able to tolerate other types of legumes. If you have an allergy to a legume, including pea, it is important to seek advice from your

healthcare provider about exactly which foods you need to avoid and which foods you are safe to eat. Please refer to our factsheets on legumes, peanut, and soya for further information about allergy to these foods.

People with pollen food syndrome can experience reactions to raw, uncooked or lightly cooked peas. This is not the same as a pea allergy. For further information, please see our factsheet on [pollen food syndrome \(oral allergy syndrome\)](#).

Symptoms of pea allergy

Allergy occurs when the body recognises the food as harmful and mounts an immune response against it. An allergic reaction to pea can be mild, moderate or severe. The serious and potentially life-threatening form of an allergic reaction is called anaphylaxis and is a medical emergency. Reactions that involve the airway, breathing and circulation are classed as anaphylaxis. If anaphylaxis occurs, adrenaline (EpiPen/Jext) should be given without delay, if available, and an ambulance called urgently with anaphylaxis as the reason. Individuals with pea allergy may experience one or more of the following symptoms:

Mild to moderate symptoms:

- Itchy or tingling mouth, tongue and/or throat
- Swelling of the lips, around the eyes or face
- A raised itchy rash (often called nettle rash, hives or urticaria)
- Vomiting, nausea, abdominal pain and/or diarrhoea
- Runny nose and sneezing.

Severe symptoms:

- Swelling of the tongue and/or throat
- Difficulty in swallowing or speaking
- Change in voice (hoarse voice)
- Chest tightness
- Difficult or noisy breathing
- Wheeze (whistling noise) or persistent cough
- Dizziness, collapse, loss of consciousness (due to a drop in blood pressure)

Key facts:

Pea allergy is **becoming more common** and can cause serious allergic reactions.

Peas belong to the **legume family**, which includes peanuts, soy, chickpeas, lentils, beans and lupin.

The proteins in pea responsible for causing allergic reactions **increase** as the pea **ripens, matures and is dried**.

Allergy UK Helpline

Mon-Fri, 9am-5pm:

Call: 01322 619 898

Email: info@allergyuk.org

Visit us at:

allergyuk.org

Your quick guide to: Reactions to Pea Protein

- Pale, floppy, sudden sleepiness in babies.

Please see our factsheet on [anaphylaxis and severe allergic reactions](#) for more information and guidance on recognising severe symptoms and what to do if these occur.

Severity of reactions

Some people believe that food allergic reactions become more severe each time they happen, but this is not the case. Reactions are unpredictable and there is no reliable way of knowing how an individual may react. There are several reasons why an allergic reaction may be more severe, including how much of the food allergen has been eaten and other factors such as uncontrolled asthma, exercise, hormones, and infection. These factors may be hidden, for example, signs of an infection might not have appeared yet.

Some people are more likely to have a serious allergic reaction (anaphylaxis), especially if they've had one before. A qualified health professional should provide guidance on whether carrying an adrenaline auto-injector such as EpiPen or Jext is recommended.

Testing and diagnosis

It is important to seek advice from a healthcare professional if a pea allergy is suspected. In the first instance, this will usually be the GP. An allergy-focused clinical history helps healthcare professional determine whether allergy is likely and testing is needed. Allergy tests are not usually recommended unless there is convincing evidence of an immediate-type (IgE-mediated) allergy.

A specialist allergy service can conduct skin prick testing and/or specific IgE blood testing to pea. These tests help to diagnose food allergy and rule out other possible causes of symptoms. Allergy tests cannot predict how mild or severe an allergic reaction will be, or when an allergic reaction is likely to happen.

Alternative types of allergy testing other than those recommended by a healthcare professional are not advised as these are often unreliable and could lead to removing food from the diet unnecessarily.

There are no reliable tests for other types of food sensitivities (often referred to as food intolerance). If you are unsure, speak with your healthcare provider or call Allergy UK's Helpline for further information.

If you have had been concerned about a pea allergy and have been avoiding peas, it is important not to reintroduce peas back into the diet without medical advice.

Where can pea be found?

Pea in whole food forms include garden peas, petit pois, marrowfat peas, sugar snap peas, mangetout/snow peas and pea shoots. Peas can be sold fresh, frozen or tinned. Pea shoots are often used as garnish on restaurant/cafe meals, in mixed salads or in sandwiches.

Dishes which commonly contain peas as ingredients:

- Fried rice
- Paella
- Risotto
- Fish pie
- Cottage pie
- Soups (e.g. split pea/ vegetable)
- Indian: Aloo Matar/ Matar Paneer/ biryani
- Vegetable burgers
- Bombay mix.

Many processed foods contain ingredients based on pea such as pea flour, pea protein, pea starch and pea fibre (they may be labelled simply as vegetable protein or vegetable fibre). These ingredients derived from pea can be found in a wide range of foods, including the examples below:

Vegetarian or plant-based meat substitutes

- Processed meat products (e.g. sausages, hot dogs, scotch eggs, sliced chicken)
- Vegan protein powders, sports drinks and meal replacement products
- Milk-free and dairy-free alternatives (pea protein is found in oat-based drinks and other milk alternatives as well as pea-based drinks)
- Gluten-free foods and other 'free from' foods

- Potato products (e.g. pre-made roast potatoes)
- Foods marketed as 'high protein'
- Plant-based frozen desserts e.g. ice cream substitutes or ice lollies, sorbets
- Other processed foods where pea ingredients are used as a filler or thickener.

Management and avoidance

There is no cure for pea allergy, therefore the condition is managed by strictly avoiding all forms of pea that a person is allergic to as well as all pea-based ingredients. Some people find that they can tolerate fresh and frozen peas and only react to mature and dried pea ingredients. However, many people with pea allergy are at risk of reacting to all forms of peas and must strictly avoid all of them.

It is important that when a diagnosis of pea allergy is given that the health professional confirms whether all forms of pea need to be avoided or whether some forms may be tolerated.

The proteins in pea responsible for causing allergic reactions increase as the pea ripens, matures and is dried. These proteins may also become more likely to cause reactions when the peas are processed into powders. Mature peas (marrow-fat peas and mushy peas), dried peas, yellow/green split peas and ingredients from dried peas (including pea flour, pea starch, pea fibre, pea protein) may therefore be more likely to cause allergic reactions than fresh peas and frozen peas (including petit pois, sugar snap peas, mangetout/snow peas and pea shoots).

Pea flour is made from ground peas, usually yellow split peas. Dried split peas contain five times as much protein as fresh garden peas. Ingredients like pea starch and pea fibre have had some protein removed, but they can still contain significant amounts of protein and need to be strictly avoided. Pea protein/pea protein isolate is a highly concentrated form of pea and extra care must be taken to avoid it, even in small amounts.

Dried peas and yellow split peas can easily be confused with lentils and mung beans, which are different legumes to pea. Asian-influenced dishes with dried pea may be

Your quick guide to: Reactions to Pea Protein

called daal or dahl. Extra care must be taken with foods made from lentils/beans or called daal/dahl to determine if they contain pea or not. If unsure, the food must not be eaten.

There are 14 regulated food allergens in the UK and EU (note that this does not apply for other areas of the world) that must be highlighted on food ingredients lists of prepacked foods.

Food businesses that sell loose foods (any food that is not prepacked) must also provide information about these 14 allergens. Pea is not included in the list of the regulated allergens. Therefore, people with pea allergy must be extra careful to avoid the food. The full list of ingredients on prepacked foods must be read carefully as the word pea can be easily missed and does not need to be emphasised on the label. Pea may also be hidden within the word 'vegetable', for example 'vegetable protein' or 'vegetable fibre'.

It is important to read the full ingredient list every time, even for foods usually eaten without problems. This is because the food industry can change the ingredients. It has become more common to add pea to recipes and the food and food packaging may look exactly the same after the recipe change. For further information about food labelling, see our factsheet on food labelling.

To avoid pea, it is also essential to ask for a full list of ingredients for loose foods. When eating out or ordering takeaway food, it is important that you ask the staff to take strict precautions to ensure that the food served is completely free from pea, including pea-based ingredients (e.g.

pea protein in processed products, this can include 'free from' products) and pea shoots used as garnish. If the food business is uncertain about their ability to do this, then it is not safe to eat the food served. If you have communication difficulties or are going abroad, you might find having an Allergy UK translation card helpful.

People with pea allergy are at high risk of reactions to foods that are not expected to contain pea, such as oat-based drinks, ice lollies with a recipe change to contain pea protein instead of milk, plant-based meat substitutes or protein powders and pea shoots added as garnish to meals or sandwiches when eating out.

When reading ingredients, look out for the following ingredients to avoid:

- Garden peas or petit pois (e.g. fresh in pod, podded, frozen or tinned)
- Sugar snap pea, mangetout/snow pea, purple-podded pea
- Pea shoots and salad mixes containing pea shoots
- Marrowfat peas, mushy peas
- Carlin/Carling pea, also known as brown pea, black pea, grey pea, maple pea, pigeon pea*, black badgers, parched peas
- Split pea, dried pea, yellow split pea, green split pea
- Pea protein, pea protein isolates or pea protein concentrate
- Pea fibre
- Pea flour or gram flour – note: gram flour is typically associated with chickpeas, but many gram flours also contain pea flour
- Pea starch

- Vegetable protein or vegetable fibre.

*Please note: The term pigeon pea is most commonly used to describe a legume from the botanical family *Cajanus cajan* but can sometimes be used to describe Carlin pea/brown pea from the pea family. Extra care must be taken to determine what kind of pigeon pea is being described, and if it is uncertain – the food should be avoided.

Final note

Pea allergy is becoming more common, but it can be difficult to avoid because pea is not included in the 14 regulated allergens and does not need to be emphasised on the food labels of prepacked foods. This is something that the Food Standards Agency (FSA) is collecting information about and reviewing. The FSA recommend that food businesses are able to provide full ingredient information for loose foods, when asked (loose food are any foods that are not prepacked). This is considered 'best practice', but is not a legal requirement.

Proper diagnosis, awareness of how to avoid pea and careful checks of all food ingredients are crucial for staying safe with a pea allergy. If a pea allergy is suspected, see a health professional for further advice.

Allergy UK Helpline

Mon–Fri, 9am–5pm:

Call: 01322 619 898

Email: info@allergyuk.org

Visit us at:

allergyuk.org

Clinical contributions:

Allergy UK Clinical Team

Annette Weaver, Clinical Dietetic Advisor.

References

- Abu Risha M, Rick EM, Plum M, Jappe U. Legume Allergens Pea, Chickpea, Lentil, Lupine and Beyond. *Curr Allergy Asthma Rep.* 2024;24(9):527–548. doi:10.1007/s11882-024-01165-7
- Hildebrand HV, Arias A, Simons E, et al. Adult and Pediatric Food Allergy to Chickpea, Pea, Lentil, and Lupine: A Scoping Review. *J Allergy Clin Immunol Pract.* 2021;9(1):290–301.e2. doi:10.1016/j.jaip.2020.10.046
- Mastrorilli C, Chiera F, Arasi S, et al. IgE-Mediated Legume Allergy: A Pediatric Perspective. *J Pers Med.* 2024;14(9):898. Published 2024 Aug 25. doi:10.3390/jpm14090898
- Reese I, Schäfer C, Ballmer-Weber B, et al. Vegan diets from an allergy point of view – Position paper of the DGAKI working group on food allergy [published correction appears in *Allergol Select.* 2024 Jun 13;8:228. doi:10.5414/ALX02400ECorr.]. *Allergol Select.* 2023;7:57–83. Published 2023 Mar 31. doi:10.5414/ALX02400E
- Taylor SL, Marsh JT, Koppelman SJ, Kabourek JL, Johnson PE, Baumert JL. A perspective on pea allergy and pea allergens. *Trends in Food Science & Technology.* 2021; 116, p186–198. <https://doi.org/10.1016/j.tifs.2021.07.017>