

Lupin Allergy: The Facts

The lupin is well-known as a popular garden flower with its tall, colourful spikes. The seeds from certain lupin species are also cultivated as food. These are normally crushed to make lupin flour, which can be used in baked goods such as pastries, pies, pancakes and in pasta.

Allergy to lupin has been recognised for some time in mainland Europe. In the UK, cases of lupin allergy are less frequent because lupin is less commonly used in foods. If its use were to increase, we believe the number of cases would probably rise.

This factsheet aims to answer some of the questions that you and your family might have about lupin allergy. Our aim is to provide information that will help those affected to understand their allergy and minimise risks. The text also contains information for people with peanut allergy who are seeking to understand the link between peanut and lupin. Both foods are in the same botanical group (known as legumes) and research suggests that some people with peanut allergy are also allergic to lupin.

If you know or think you are allergic to lupin, the most important message is to visit your GP and ask for a referral to an allergy specialist.

Throughout the text you will see brief medical references given in brackets. More complete references are published towards the end.

Symptoms triggered by lupin

The symptoms of a food allergy, including lupin allergy, may come on rapidly. Mild symptoms may include nettle rash (otherwise known as hives or urticaria) anywhere on the body, or a tingling or itchy feeling in the mouth.

More serious symptoms are uncommon but remain a possibility for some people. These may include:

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

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 something terrible happening. This may lead to collapse and unconsciousness.

Getting a diagnosis of lupin allergy

Because symptoms can be severe, it is important to see your GP as soon as possible if you suspect you have lupin allergy. Some GPs have a clear understanding of allergy, but allergy is a specialist subject so it is more likely that your doctor will need to refer you to an allergy clinic.

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

Once you get a referral, the consultant will discuss your symptoms with you in detail as well as your medical history. The consultant may also perform skin prick tests and blood tests as part of the diagnosis. Doctors admit that because lupin allergy is relatively new to them, there is insufficient scientific knowledge at this stage about how accurate these tests are in telling whether or not someone is allergic to lupin. Nevertheless the tests may offer some useful evidence.

Doctors cannot easily determine whether a food allergy is mild or severe. Severity cannot be gauged from the size of the skin prick reaction or from the grade of a positive blood test. However, your history may contain important clues. For example, the severity of any past reaction and the amount of food that caused it are important factors. If you have reacted to a very small amount of a food containing lupin flour, this suggests your allergy is probably severe.

Also, the presence of asthma – especially when poorly-controlled – is known to be a major risk factor for the occurrence of more severe allergic reactions. It is therefore important that if you are allergic to lupin and have asthma, you follow the treatment plan to control your asthma symptoms provided by your physician.

Treating symptoms

If lupin allergy is strongly suspected, and especially when allergy tests have confirmed it, you are likely to be prescribed adrenaline (also known as epinephrine). The adrenaline injectors prescribed in the UK at present are Emerade®, EpiPen® and Jext®. These injectors are easy to use and designed for self-administration. 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.

If you are prescribed an adrenaline injector, you will need to know how and when to use it. Ask your GP or allergist for advice. 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. Follow these links to find details of each one.

- Emerade: www.emerade-bausch.co.uk
- EpiPen: www.epipen.co.uk
- Jext: www.jext.co.uk

The link between lupin and peanut allergy

A number of studies have demonstrated a link between lupin allergy and peanut allergy. Both foods are legumes. A French study found that the principal allergen (a protein) that was present in lupin flour was closely similar to one of the allergens found in peanuts (Moneret-Vautrin et al., 1999).

However, different studies from other countries have given varying estimates of how many people with peanut allergy react to lupin.

For example a UK study based in Southampton (Shaw et al., 2008) investigated 47 children with a convincing history of peanut allergy. Sixteen of the children also had a positive skin prick test to lupin. But a skin prick test is not proof of allergy; it only indicates that the immune system has been sensitised. When those who were skin prick positive had an oral challenge (in which they volunteered to eat increasing quantities of lupin in strict medical conditions) only a quarter of those were actually allergic.

In a similar study the French research team mentioned above found that when they performed skin prick tests to lupin on 24 peanut allergic patients, 11 of them were positive. Seven of these patients were given blinded oral challenge tests with lupin and six of them reacted.

Although medical knowledge is incomplete on this subject, it is clear that some people with peanut allergy react to lupin if they come into contact with it. If you are allergic to peanuts, and if you are concerned, you may wish to discuss with your GP whether you should be referred to be tested for lupin allergy. Alternatively, as you should be reading food labels scrupulously as a matter of course, you may wish to play safe and avoid any product containing lupin.

Lupin allergy has also been reported to occur for the first time in people who are not allergic to peanut or other legumes. In 2014, doctors at an NHS allergy clinic reported lupin allergy occurring for the first time in three adults. None had any previous history of peanut, legume or any other food allergy (Bansal et al., 2014).

For further information about lupin allergy, medical professionals may wish to refer to an Italian research paper, Mennini et al, 2016.

Where is lupin found?

Lupin is sometimes labelled as lupine, lupin flour, lupin seed or lupin bean. By law, the presence of lupin in pre-packed foods must always be declared and highlighted in the ingredient list (for example, in bold). If you are allergic to lupin, it's vital to read ingredient labels every time you buy a product.

Although we believe lupin to be present in only a minority of products manufactured in the UK, it can be found in European bakery and pasta products, some of which are imported to the UK. Its presence should always be labelled.

These bakery products include:

- Pastry cases
- Pies
- Waffles
- Pancakes
- Crepe
- Products containing crumb
- Pizzas
- Deep-coated vegetables such as onion rings.
- Some vegan products – where lupin is a substitute for milk
- Some gluten free products

Be cautious of bread sold at French markets in the UK. Health food stores have been known to sell a larger proportion of products containing lupin than conventional stores.

One particular case was highlighted in the Lancet medical journal in 2005. A 25-year-old woman was taken to hospital because of severe anaphylaxis following a restaurant meal of chicken, French-fried potatoes, and onion rings. The onion rings were found to have been made in the UK using a batter mix made in Holland and containing unlabelled lupin flour (Radcliffe et al., 2005).

There are other potential uses for lupin flour. For example, a German company includes lupin flour in some of its burgers and sausages. The message for all those with food allergy is to read ingredient lists scrupulously every time you shop. As state above, lupin must always be declared and highlighted on the label when it appears in pre-packed food.

The food allergen labelling laws that cover pre-packed food now also apply to the catering sector. When eating out or buying takeaway food, food businesses will be 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. Systems should also be in place to ensure that, if requested, the information given orally is supported in a recorded form (in writing for example) to ensure consistency and accuracy.

In some other European countries, food businesses are required to provide the information only in writing.

If you have lupin allergy, it is important to question catering staff very directly when you eat out, asking whether lupin 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. Some staff may be sceptical about lupin allergy because of their lack of knowledge, but you will need to find out whether lupin is present in any of the dishes on sale.

Because lupin flour is used more widely in mainland Europe, people who are allergic to lupin should be especially careful when staying in other European countries or eating food brought back from there.

Lupin can also be found in some cosmetics. We are not aware that this has ever caused a problem for anyone with lupin allergy, but believe it is best to play safe and avoid such products. As ingredients in some care products are printed in Latin, you will need to look for the word lupinus.

Are lupin flowers a problem?

If you are allergic to lupin as a food, it's possible you would suffer a skin reaction, such as a rash, if you were to handle the **seeds** of the garden flower. Furthermore one member of the Anaphylaxis Campaign reported suffering a severe skin reaction when handling the **plant**. We would advise people with lupin allergy to play safe and not to touch the seeds or the plant itself.

Key messages

A diagnosis of any food allergy can be daunting but by thinking ahead and employing coping strategies, people affected can get on with their lives.

The main messages for people with any food allergy are:

- Always consult your GP
- Always be vigilant when food is around
- Check food labels
- 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.

References

Bansal, A. S., Sanghvi, M.M., Bansal, R. a & Hayman, G.R. (2014). Variably severe systemic allergic reactions after consuming foods with unlabelled lupin flour: a case series. *Journal of Medical Case Reports [Electronic Resource]*. [Online]. 8 (1). p.pp. 1–4. Available from: Available from Springer NHS in http://link.worldcat.org/?rft.institution_id=129746&spage=55&pkgName=customer.131416.5&issn=1752-1947&linkclass=to_article&jKey=13256&issue=1&date=2014&auiast=Bansal+AS&atitle=Variably+severe+

systemic+allergic+reactions+aftc.

- Mennini M, Dahdah L, Mazzina O, Fiocchi A, 2016. Lupin and Other Potentially Cross-Reactive Allergens in Peanut Allergy. *Curr Allergy Asthma Rep*, 2016 Nov;16(12):84.
- Moneret-Vautrin, D.A., Guerin, L., Kanny, G., Flabbee, J., Fremont, S. & Morisset, M. (1999). Cross-allergenicity of peanut and lupine: the risk of lupine allergy in patients allergic to peanuts. *Journal of Allergy and Clinical Immunology*. [Online]. 104 (4). p.pp. 883–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10518837>.
- Radcliffe, M., Scadding, G., Brown, H.M. (2005). Lupin flour anaphylaxis. *Lancet (London, England)*. [Online]. 365 (9467). p.p. 1360. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/15823389>. [Accessed: 19 July 2016].
- Shaw, J., Roberts, G., Grimshaw, K., White, S. & Hourihane, J. (2008). Lupin allergy in peanut-allergic children and teenagers. *Allergy: European Journal of Allergy and Clinical Immunology*. 63 (3). p.pp. 370–373.

Reviewers

The content of this Factsheet has been Peer Reviewed by Dr Tanya Wright, Specialist Allergy Dietitian, the Hillingdon Hospitals NHS Foundation Trust; and Dr Michael Radcliffe, Consultant in the Allergy Service at University College, London Hospitals. Neither has any conflicts of interest with regard to her review of this fact sheet.

Disclaimer – The information provided in this Factsheet is given in good faith. Every effort has been 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 Anaphylaxis Campaign: *Supporting people with severe allergies*

Anaphylaxis Campaign is the only UK wide charity to exclusively meet the needs of the growing numbers of people at risk from severe allergic reactions (anaphylaxis) by providing information and support relating to foods and other triggers such as latex, drugs and insect stings. Our focus is on medical facts, food labelling, risk reduction and allergen management. The Campaign offers tailored services for individual, clinical professional and corporate members.

Visit our website www.anaphylaxis.org.uk and follow us on Twitter & Facebook [@AnaphylaxisComs](https://www.facebook.com/AnaphylaxisComs) or Instagram [@anaphylaxis_campaign](https://www.instagram.com/anaphylaxis_campaign).