

## Insect sting allergy – the facts

Anyone who is stung by a bee or wasp is likely to suffer a painful swelling at the site of the sting. For most people, the sting is not dangerous.



Some people also experience an allergic reaction to the venom. For most of these people, the reaction is mild resulting in swelling at the site of the sting. But for a small minority, an allergic reaction to an insect sting can be **systemic** – that is, affecting parts of the body away from the site of the sting. Systemic reactions are sometimes severe and potentially life-threatening – this is known as **anaphylaxis**. If you are in that category, you may find the prospect of being stung very frightening, but be assured that there are steps you can take to reduce the risk to yourself. This involves getting medical advice, carrying prescribed medication at all times, and taking precautions to avoid being stung.

Anyone can become allergic to an insect sting – not only people who already have allergies such as hayfever or food allergies.

The first sting is not the one that causes the problem, but it may cause sensitisation – the stage at which the person **becomes** allergic. If sensitisation occurs, it is a later sting that will provoke the symptoms. Being stung by one type of insect will not make you allergic to the venom of another.

This fact sheet aims to answer some of the questions you may have if your allergy to insect stings is **systemic** and **severe**. Our intention is to help you to minimise risks.

The information below includes brief medical references, which are given in brackets. Full references to these documents are listed at the end of the factsheet.

### The symptoms

The symptoms of a severe systemic allergic reaction to an insect sting may include:

- A sudden feeling of weakness (caused by a drop in blood pressure)
- Dizziness
- A sense that something terrible is happening
- A rapid pulse
- Swelling of the airways and throat, making it difficult to breathe
- Severe asthma
- Itching and swelling away from the site of the sting
- Stomach cramps and/or a feeling of sickness

Not all these symptoms would necessarily be present in any one episode. Any of them is likely to be a medical emergency.

### When you should see your GP

Anyone who believes they have previously experienced symptoms away from the site of the sting – such as those listed above – should see their GP and ask for a referral to an NHS allergy clinic in order to get specialist advice. In making a decision on whether to make a referral, GPs should follow guidelines issued by the National Institute for Health and Clinical Excellence (CG134).

People who have large local reactions at the site of the sting, with swelling of more than 10 centimetres and typically increasing over 24 to 48 hours, will usually have similar reactions if stung again. Such people have a slightly increased risk of a future **systemic** reaction (Mauriello et al 1984). In our view, anyone who has suffered a large local reaction like this should see their GP but may not need to be referred to an allergy clinic.

If you are at all worried about your insect sting allergy, then a visit to your GP would be advisable.

### How is an allergic reaction treated?

A small allergic reaction at the site of the sting, however painful, will usually respond to an antihistamine and the use of a cold compress.

A severe systemic allergic reaction requires an urgent injection of adrenaline. If your doctor feels you are at risk of suffering a severe systemic allergic reaction, you will probably be prescribed your own pre-loaded adrenaline injection device.

These injectors are designed for self-use. If you are prescribed an injector, you should carry it with you at all times with no exceptions. 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.

After adrenaline is administered, emergency help must be summoned by dialling 999. If there is no improvement after five minutes and the ambulance has not arrived a second injection may be administered if this has been prescribed.

When a reaction occurs and if your symptoms include a feeling of weakness, dizziness or floppiness (caused by a fall in blood pressure) lie down with your legs raised. Under no circumstances should you move around or stand up quickly.

### 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.co.uk](http://www.emerade.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).

### Beta-blocker drugs

Beta-blocker drugs are used to treat conditions such as angina, migraine and high blood pressure. If you are on beta blocker drugs and also have insect venom allergy, discuss this with your doctor as these drugs are associated with an increased risk of a more severe allergic reaction (Lang DM, 2008).

### Avoiding insect stings

If you are allergic to insect stings, you should take steps to prevent putting yourself at risk. Here are some ideas:

- Avoid walking around in bare feet or sandals when outdoors.
- Avoid using strong perfumes during the summer. Many other products, such as hairsprays, hair tonics and other cosmetics, contain strong perfumes. These attract stinging insects.
- If possible, keep your arms and legs covered.
- If a bee or wasp comes near you, don't try and swat it but move away slowly and calmly. If it lands on you, try not to panic. Keep calm and be patient. The insect will usually fly away after a few seconds. Make sure you leave no crumbs or drink on your face, which will attract insects.
- If you find a nest of wasps or bees in your house or garden, telephone the local authority or a pest control expert to come and remove the nest. Do not try to do this yourself.
- If you are planning to eat outside, check to find an area where there are no wasps or bees before you start eating. It is better to bring your picnic inside than to risk being stung.
- Food attracts insects. When outside, avoid open rubbish bins, and keep food covered. Always look at what you are eating before you take a bite or a sip of a drink as wasps will slip into food and even into open drink cans. Boxed drinks with a straw may be safer but keep an eye on the straw.

## Types of insects

The insects that cause most systemic allergic reactions in the UK are wasps and honey bees. People are not usually allergic to both bees and wasps although allergy tests can be positive to both. In the UK, systemic reactions are also possible to bumble bees and to hornets. Elsewhere in the world, other species of ants, bees and wasps can cause allergic reactions.

Allergy tests will help to identify which type of stinging insect you have an allergic sensitisation to, but will not be able to predict the severity of any future reaction.

**Bees:** The bee leaves its stinger (with venom sac attached) in the victim. Because it takes a few minutes for all the venom to be injected, quick removal of the stinger is important. Avoid squeezing the venom sac as this will only inject more venom. The sac should be flicked upwards with one quick scrape of the fingernail or a credit card. This will reduce the risk of a serious reaction but will not remove it altogether.

Bee-keepers should take special care because they may be stung by bees protecting their colony. They must always wear protective clothing when collecting swarms or honey. In our view any bee-keeper who is known to be at risk of suffering a severe, system allergic reaction to bee venom should seek medical advice on how they may safely continue bee-keeping.

**Wasps:** Wasps are often aggressive, especially towards the end of the season (late summer and autumn). They will then turn to eating any decomposing foods. From autumn until the end of the year, sleepy wasps can still be found and are then perfectly still and not buzzing, and it is much easier to accidentally touch or step on one. Queen wasps hibernate over winter and may choose your bed, curtains, gloves or boots, or tuck themselves into a stack of plant pots in the greenhouse.

A wasp does not leave its sting in the victim – it can sting many times. The wasp's sting is the main weapon it has to subdue other insects that form the substantial part of its diet and for this reason it is always ready, willing and able to use its sting when necessary.

**Hornets:** Hornets in the UK are larger than the normal wasp and are a brown/orange in colour and often much noisier too, with a loud buzzing sound. Despite their rather threatening size they are not as aggressive as wasps, but when they do sting the volume of venom delivered into the victim usually makes the stings particularly painful.

## Immunotherapy treatment

Your GP or specialist may suggest you are a suitable candidate for immunotherapy (also known as desensitisation). This consists of a course of injections of insect venom starting at very low doses and rising over an agreed period of time to reach a safe level of venom – usually 100 micrograms, which is the sort of dose

you might encounter with multiple stings. The idea is that eventually you will no longer be allergic.

Immunotherapy is available at a number of specialist centres in the UK but your need for such treatment must be assessed at an allergy clinic. Immunotherapy is a course of treatment not to be taken lightly, since there is some risk of an allergic reaction occurring. The treatment will require a considerable amount of your time.

Immunotherapy has two phases – known as “initial” (or “up-dosing”) and “maintenance”. The initial phase lasts for about 12 weeks during which the very low starting dose is slowly increased to reach the required maintenance levels. Once this has been achieved you may be asked to return every month for injections. This may last for up to three years. Some centres may have different treatment schedules.

Anyone receiving immunotherapy has to remain in the allergy clinic for a period of time after the treatment in case they suffer an allergic reaction. The risk of a severe reaction is low and most patients successfully complete the course.

Early in 2012, the National Institute for Health and Clinical Excellence (NICE) issued its final Technical Appraisal on a drug called Pharmedgen for the desensitisation treatment of bee and wasp venom allergy (NICE technical appraisal TA246). The appraisal recommends Pharmedgen as an effective option for the treatment of bee and wasp venom allergy in people who have had a severe reaction to bee or wasp venom or a moderate systemic reaction that suggests there may be a future risk of a more severe one.

The appraisal recommends that treatment with Pharmedgen should be initiated and monitored in a specialist centre experienced in venom immunotherapy.

### The key points

- Most allergic reactions to insect stings are mild.
- In a small number of people they can be life-threatening.
- Everyone who has suffered a systemic allergic reaction to a sting – or a large local reaction – should see their GP and ask for a referral to an allergy specialist. A small localised swelling at the site of the sting is unlikely to be a cause for concern – but if you are at all worried, see your GP.
- If an adrenaline injector is prescribed, this should be carried everywhere at all times.
- Desensitisation may be offered in certain cases.

### References

Lang, D.M. (2008). Do  $\beta$ -blockers really enhance the risk of anaphylaxis during immunotherapy? *Current Allergy and asthma reports*. 8 (1). p. 37-44.

Mauriello, P.M., Barde, S.H., Georgitis, J.W., & Reisman, R.E. (1984) Natural history of large local reactions from stinging insects. *Journal of allergy and clinical immunology*. 74 (4), p. 494-498.

GREAT BRITAIN. NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE (2011) Assessment to confirm an anaphylactic episode and the decision to refer after emergency treatment for a suspected anaphylactic episode (CG134). Available from:

<http://www.nice.org.uk/nicemedia/live/13626/57474/57474.pdf> [Accessed 7<sup>th</sup> June 2012]

GREAT BRITAIN. NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE (2012) Pharmedgen for the treatment of bee and wasp venom allergy. NICE technical appraisal TA 246. Available from:

<https://www.nice.org.uk/guidance/ta246> [Accessed 7th June 2012]

Medical professionals seeking guidance on the management of insect sting allergy might refer to the following publication:

Krishna, M.T., Ewan, P.W., Diwakar, L., Durham, S.R., Frew, A.J., Leech, S.C. & Nasser, S.M. (2011) Diagnosis and management of hymenoptera venom allergy: British Society for Allergy and Clinical Immunology (BSACI) guidelines, *Clinical & Experimental Allergy*. 41. p. 1201–1220.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2222.2011.03788.x/pdf>

### Reviewers

The content of this fact sheet has been peer-reviewed by Dr Richard Pumphrey, Honorary Consultant Immunologist, Central Manchester University Hospitals; and Dr Shuaib Nasser, Allergy Specialist with the Cambridge University Hospitals NHS Foundation Trust.

### Disclosures

Dr Pumphrey is a medical advisor to MEDA; has received previous financial support from Lincoln Medical to attend a European allergy meeting; has received previous financial support from ALK Abelló to attend scientific meetings; and is a medical adviser to the Anaphylaxis Campaign. Dr Nasser is a medical adviser to the Anaphylaxis Campaign and drug allergy advisor to the British National Formulary.

**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 the Anaphylaxis Campaign: Supporting people at risk of severe allergies

The 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](http://www.anaphylaxis.org.uk)

