

Allergic Reactions to Bites and Stings

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Most insect bites and stings result in a localised itch and swelling that settles within a few days. Severe allergic reactions (anaphylaxis) to insects are relatively uncommon, and are usually due to bees, wasps or the Australian Jack Jumper ant. Fortunately, effective treatments are available to treat allergic reactions to bites and stings.

Stinging insects are a common cause of anaphylaxis

Allergies to venoms from stinging insects are one of the most common causes of severe allergic reactions (anaphylaxis) in Australia. Symptoms include an all over rash, swelling of tongue or throat, trouble breathing, gut cramps, diarrhoea, vomiting or even a drop in blood pressure (shock). Although the insects are all *hymenoptera* (which means membranous winged insects), their venoms are very different. Allergy to one type of stinging insect does not usually increase the risk of reaction to another.

- The Honey Bee is the most common cause of allergic reactions in Australia.
- Paper Wasps and European Wasps can sting multiple times. The European Wasp is becoming an increasing problem in Australia, is particularly aggressive and likes to get inside drink cans at barbeques, although the more familiar Paper Wasp is responsible for the majority of serious stings.
- The Australian Jack Jumper Ant (*Myrmecia pilosula*) is a medium sized black bull ant prevalent down the eastern side of Australia and Tasmania. It can be recognised by its characteristic hopping motion when it walks. It is a very aggressive ant and its sting can cause severe local pain. Severe allergic reactions are much more common than is seen with more common bull ants.
- Native Australian Bees and the Green Ant of Queensland can also cause allergic reactions.

Bites are a less common cause of anaphylaxis than insect stings

- Mosquitoes and March Flies can cause itchy bites. However, severe allergic reactions are very rare, even when the swellings are very large and uncomfortable.
- Caterpillars can cause severe irritation from touching their spines, which are attached to venom sacs underneath the skin.
- Ticks (which are arachnids) also bite, and some life threatening allergic reactions have been reported. Information on tick allergy is available on the ASCIA website www.allergy.org.au/content/view/124/151/
- Anaphylaxis following snake bites have also been reported, although these are very rare.
- Common Bull Ants can occasionally cause anaphylaxis.

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- The major cause of anaphylaxis from ant stings is the Australian Jack Jumper ant. Information on Jack Jumper Ant allergy is available on the ASCIA website www.allergy.org.au/content/view/147/165/

Natural History of Allergic Reactions

Bites

Local reactions to biting insects (such as mosquitoes and midges) tend to become less severe with time.

Stings

Reactions to stinging insects (particularly when severe) tend to persist, although children are more likely to improve than adults.

Isolated local reactions

Individuals who have had a rash or large local swelling alone have a less than 1 in 10 chance of developing serious allergic reactions with further stings. Immunotherapy is not indicated.

Generalised reactions without life threatening features

Symptoms of generalised hives (urticaria) without difficulty breathing or a drop in blood pressure are uncomfortable but not dangerous. This type of allergic reactions is more common in children than adults and has less than a 1 in 10 chance of progressing to anaphylaxis. Immunotherapy is not indicated.

Anaphylaxis

Those at greatest risk of further serious reactions are people who have suffered an episode of shock or severe difficulty breathing following a sting. Adults are at greater risk than children. Anyone with a history of a generalised reaction to an insect sting should be referred to a medical specialist (Allergist/Clinical Immunologist).

Prevention is better than cure

- Bites from midges and mosquitoes are best avoided by covering up as much as possible. Avoid being outdoors in the early morning or at dusk, and use an insect repellent, preferably containing DEET.
- Nightly checks for ticks may help. They should not be removed from allergic subjects until emergency medical facilities are available. This is because allergic reactions often occur when the tick is removed (refer to www.allergy.org.au/content/view/124/151/)
- Honey Bees normally only sting in self defence. The best protection is light coloured clothing, covering much of the body (particularly the feet) and avoiding scents.
- Wasps tend to nest in logs, walls or underground. They are generally more aggressive than bees and attracted to food and drink, so don't drink blindly from drink cans when outdoors.
- Don't pretend to be a flower - avoid wearing perfumes, bright colours and flowery prints, which attract bees. It is preferable to wear dark, white or muted coloured clothing, such as tan or green.
- Stings often occur on bare feet so people with allergies to bites or stings should always wear shoes when outdoors.

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- When gardening, it is preferable for people with allergies to bites or stings to wear long sleeves, long trousers and gloves.
- Avoid provoking bees and wasps.
- Have nearby nests removed by professionals.
- Drive with the windows up and the air conditioner on.
- Schools should have nearby nests removed at the beginning of the school year, where possible and practical.

First Aid is adequate for the treatment of minor reactions

Bees usually leave their barbed sting in the skin and die. Flicking the sting out as soon as possible will reduce the amount of venom injected. Use the edge of your fingernail or credit card, being careful not to squeeze the venom sac, (this will only increase the amount of venom injected). By contrast, wasps and bull ants rarely leave their sting in the skin. Cold packs and soothing creams often help. Sometimes medicines like antihistamines are needed. Very large and uncomfortable local reactions may sometimes need cortisone tablets to settle the swelling.

Severe allergic reactions can be fatal

Anaphylaxis from stinging insect allergy results in an average of three deaths per year in Australia. Older individuals and those with severe difficulty breathing are at greatest risk and should be seen by a medical specialist (Allergist / Clinical Immunologist).

Diagnosing the cause of your allergy

Your doctor will normally ask a series of questions that may help to narrow down the list of likely cause of your reaction. This approach will also help to exclude conditions that can sometimes be confused with anaphylaxis. Skin test or blood allergen specific IgE (RAST) allergy testing can help confirm or exclude potential triggers.

Effective treatment for severe allergic reactions is available

Patients with life threatening anaphylaxis are usually advised to:

1. Wear a medical identifying bracelet, which will increase the likelihood that adrenaline will be administered in an emergency.
2. Avoid medication that may increase the severity of anaphylaxis or complicate its treatment. Beta blockers (and perhaps ACE inhibitors) fall into this group.
3. Seek urgent medical assistance if stung.
4. Have an ASCIA Action Plan for Anaphylaxis and adrenaline autoinjector (EpiPen or Anapen) readily available to treat anaphylaxis.

Immunotherapy can reduce the severity of allergy

Immunotherapy (desensitisation) can help to switch off the allergic reaction over time. This is effective for the treatment of bee and wasp stings. Unfortunately, there is currently no vaccine at this time for treating Jumper Ant allergy, tick allergy or reactions triggered by some other species of ants and wasps.

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It is important to realise that immunotherapy is not helpful in patients with large local swellings alone and may not be necessary in patients with isolated rashes. For these reasons, patients should be evaluated by a medical specialist (Allergist /Clinical Immunologist) before initiation of immunotherapy is considered. The duration of treatment is generally for at least 3-5 years.

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The Australasian Society of Clinical Immunology and Allergy (ASCIA) is the peak professional body of Clinical Immunologists and Allergists in Australia and New Zealand.

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Content last updated January 2010