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## Allergies to bites and stings

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### Summary

- Insect stings are a common cause of life threatening, severe allergic reactions in Australia.
  - Insect bites are less likely to cause a severe allergic reaction, but can cause milder reactions on the skin.
  - You should visit your doctor or a medical specialist (allergist) to diagnose your allergy and advise you on what to do if you are bitten or stung.
  - If you are at risk of a severe allergic reaction, you must carry a device to inject adrenaline and a mobile phone to call for help.
  - In an emergency, always call triple zero (000).
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Bites and stings usually cause irritation of the skin, which is not an allergic response, but some people can also have allergic symptoms that range from mild to severe and life threatening.

Insect stings from bees, wasps and the Australian jack jumper ant are a common cause of severe allergic reactions (anaphylaxis) in Australia. Severe reactions to insect bites from mosquitoes, midges, March flies and ticks are less common, although bites can cause milder allergic reactions. Severe allergic reactions to snake bites are rare.

### Causes of allergies to bites and stings

Venom from stinging insects such as bees, wasps and ants is one of the most common causes of severe allergic reactions (anaphylaxis). If you are allergic to one type of stinging insect, you will not necessarily be allergic to another type. Biting insects such as midges and mosquitoes are more likely to cause local allergic reactions, but can sometimes cause severe allergic reactions.

#### Bees and wasps

The honey bee is the most common cause of allergic reactions to insects in Australia. Native Australian bees can also cause allergic reactions. Bees can sting only once, because they inject a venom sac into the skin and then die.

Unlike bees, paper wasps and European wasps can sting several times. Although paper wasps cause most of the serious stings, the European wasp is becoming more of a problem in Australia.

#### Stinging ants

Stings from the Australian jack jumper ant (*Myrmecia pilosula*) are a major cause of severe allergic reactions in Australia. The stings of jack jumper ants are very painful and can cause generalised allergic reactions or severe allergic reactions. The commonly occurring bull ant can also cause anaphylaxis.

The jack jumper ant (also known as jack jumper or jumping jack) is found in many parts of Australia, including Victoria. They are approximately 10–15 mm long and are smaller than large bull ants (15–25 mm long).

Stings from the green ant of Queensland and the South American fire ant can also sometimes cause allergic reactions.

#### Ticks

The saliva of the tick known as the Australian paralysis tick (*Ixodes holocyclus*) causes an allergic response in some people. Ticks are present along the east coast of Australia, and extend into Gippsland in Victoria. Ticks live on vegetation and attach to and bite into the skin of people and animals.

Reactions to the attachment of ticks include:

- minor redness and itching, which is not due to an allergy
- redness and large areas of swelling at the site caused by a mild allergic reaction
- severe allergic reaction

If you disturb or try to remove the tick, it can inject its saliva and this can cause people who are allergic to have a life-threatening severe allergic reaction. Allergies to ticks can also make people allergic to red meat and gelatine made from animals.

### **Symptoms of allergies to bites and stings**

The immune system reacts to specific allergy trigger molecules (allergens) in all allergies. Your immune system produces antibodies that detect the allergen and cause inflammatory reactions and the release of a chemical called histamine.

Allergic reactions to insect stings and bites range from mild local reactions at the site of the sting or bite to severe allergic reactions that are life threatening. Symptoms are more likely to improve in children than adults. Adults are at the greatest risk of a severe allergic reaction.

Stings and bites often hurt and can cause minor redness and itching at the site, but these symptoms are not caused by an allergic reaction.

### **Keeping a record of your symptoms**

Diagnosing an allergy can be difficult. If you think you may have an allergy after being bitten or stung, make a record (diary) of your symptoms to help you and your doctor understand the cause of your symptoms.

Include information about whether your symptoms occur:

- inside your home, outside or both
- for a short time or longer
- at night, during the day or when you wake up
- at a particular time of the year
- near animals
- after you have been stung or bitten by an insect

### **Local skin allergic reactions**

Some people will have an allergic reaction that causes a rash or a large swelling around the site of the sting or bite. If you have a local skin allergic reaction to an insect bite or sting, you have less than a one-in-10 chance of future stings causing a severe allergic reaction.

### **Generalised allergic reactions**

A generalised allergic reaction affects parts of the body beyond the site of the sting or bite, but it is not life threatening.

Symptoms of a generalised allergic reaction include red swelling skin, or rash or hives (urticaria) in areas of the body other than at the site of the sting or bite.

Although these symptoms are not life threatening, if you have experienced a generalised allergic reaction, you should visit your doctor, who may refer you to a medical specialist (allergist or clinical immunologist).

### **Severe allergic reaction – anaphylaxis**

Severe allergic reaction (anaphylaxis) after an insect bite or sting is life threatening and causes approximately three deaths per year in Australia.

Symptoms of a severe allergic reaction include:

- difficult or noisy breathing
- swelling of the tongue
- swelling or tightness of the throat
- difficulty talking or hoarse voice
- wheezing or coughing
- persistent dizziness or collapse
- paleness and floppiness in young children

Milder allergic symptoms that can occur before a severe allergic reaction include:

- swelling of your lips, face and eyes
- hives or welts
- tingling mouth
- abdominal pain and vomiting

If you have experienced any of these symptoms after an insect sting or bite, you are at greater risk of having another severe reaction if you are stung or bitten by the same type of insect. You should ask your doctor to refer you to an allergist or clinical immunologist.

### **Diagnosis of allergies to bites and stings**

If you have allergic symptoms after you have been bitten or stung, you should visit your family doctor who will ask some questions about your reactions. Your diary of your symptoms will help you to answer accurately. To diagnose your allergy, your doctor may refer you to an allergist or clinical immunologist.

The allergist can test for allergies using several methods, depending on the type of potential allergy. To test for an allergy to a bite or sting, the allergist may use a skin prick test or a blood test for allergies.

Tick bites can cause some people to become allergic to red meat (mammalian meat allergy) and gelatine. Testing for these allergies is more complicated and you should talk to your doctor or allergist.

### **Unproven methods to test for allergies**

A number of methods claim to test for allergies, but have not been scientifically proven. They are often costly and could lead to dangerous avoidance of certain foods. The organisation representing allergists (Australasian Society of Clinical Immunology and Allergy) recommends that you do not use certain methods to have potential allergies tested, including:

- cytotoxic food testing
- electrodermal testing
- hair analysis
- iridology
- kinesiology
- pulse testing
- reflexology
- Vega testing

Always speak with your doctor if you are thinking of using a complementary medicine or therapy to test for allergies.

### **Treatment for allergies to bites and stings**

The best strategy for treatment is to reduce the risk of insect bites and stings. Approaches to reducing the risk of stings and bites include:

- covering up with long-sleeved shirts and long trousers

- tucking your shirt into your trousers and your trousers into socks
- wearing light-coloured clothing
- wearing shoes when outdoors
- using a strong insect repellent
- avoiding being outdoors near dawn or dusk
- checking if ticks are widespread in your location
- avoiding bees and wasps
- having professionals remove wasp, bee and ant nests near your home

### **Emergency treatment for severe allergic reactions**

In Australia, approximately three people die each year from a severe allergic reaction (anaphylaxis) caused by a stinging insect allergy. Older people and those with breathing problems are at greatest risk and should be seen by a medical specialist (allergist). If you have had a severe allergic reaction to a stinging insect, you are more likely to have one again if stung.

If you are at risk of a severe allergic reaction (anaphylaxis), carry an adrenaline autoinjector such as EpiPen®, and a means of calling for medical assistance such as a mobile telephone.

Emergency responses for severe allergic reaction are:

- administer adrenaline with an autoinjector (EpiPen®)
- always dial triple zero (000) to call an ambulance in a medical emergency.

If you are at risk of a severe allergic reaction you should:

- have a severe allergic reaction action plan
- carry an adrenaline autoinjector (EpiPen®) to treat a severe allergic reaction
- wear medical identification jewellery – this increases the likelihood that adrenaline will be administered in an emergency
- avoid medication (where possible) that may increase the severity of allergic reaction or complicate its treatment – such as beta blockers
- seek urgent medical assistance if stung or bitten

### **First aid for minor allergic reactions**

Bees often leave a barbed sting and flicking the sting out of the wound within 30 seconds will help to reduce the amount of venom entering your body. Use the edge of a fingernail, credit card or car key to flick the sac. Do not pull or squeeze the venom sac, as this may increase the amount of venom injected.

Wasps do not leave a sting behind, but can sting several times.

For minor allergic reactions, first aid approaches include:

- applying a cold pack to the area
- applying soothing creams
- taking oral antihistamines to help reduce itching

For large and painful areas of swelling, you may need to visit your doctor to get cortisone tablets to reduce the swelling.

### **Removing ticks**

For all tick bites, you should first kill the tick with a spray so the tick cannot inject saliva into your body. Once the tick is dead, you should remove it as soon and as safely as possible. This will help to reduce the risk of developing infections or tick paralysis. If you are not allergic to ticks, correct and rapid removal will reduce the risk of developing an allergy.

The Australasian Society of Clinical Immunology and Allergy warns against the common advice of using tweezers to pull a live tick out of the skin.

If you are allergic to ticks, you are at risk of a severe allergic reaction (anaphylaxis) if bitten. If you find a tick, you should:

- kill the tick by freezing it with a product such as a spray – this will stop the tick injecting its saliva into your body
- have the tick removed in an emergency department of a hospital, especially if you are highly allergic

Some people who are not as highly allergic can be trained by a healthcare professional to safely remove ticks.

Products to freeze and kill ticks include ether-containing sprays such as Aerostart®. Freezing and killing ticks before removal is also recommended for people who are not allergic to tick bites.

### **Immunotherapy for allergies to stings and bites**

In some cases, your allergist may suggest an immunotherapy known as desensitisation, which involves a series of injections of the allergy trigger over a long time. This can help to improve tolerance of the allergy trigger and reduce symptoms in some circumstances. Immunotherapy is not available for tick allergies.

### **Where to get help**

- Your doctor
- In an emergency, always call triple zero (000)
- Emergency department of your nearest hospital
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- St John Ambulance Australia (Victoria) Tel. 1300 360 455
- Allergy and Anaphylaxis Australia Tel. 1300 728 000

**This page has been produced in consultation with and approved by:**

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