

Jack Jumper Ant allergy

Allergic reactions to stinging ants are an important cause of anaphylaxis in Australia and the southern United States of America. Allergic reactions to the Jack Jumper ant (also known as the Jumper Ant, Hopper Ant) are a uniquely Australian problem, although other species such as the Green Ant of Queensland, and introduced South American Fire Ant also cause occasional allergic reactions.



What is a Jack Jumper Ant?

Most Australian native stinging ants are from the genus *Myrmecia*. This group is broadly subdivided into Jack Jumper ants and Bull Dog ants. Bull Dog ants are large, around 15-25 mm long, whereas Jack Jumper ants are generally 10 to 15mm long and often display jerky, jumping movements. Jack Jumper Ants are also known as Hopper Ants or Skipper Ants in South Australia. The Jack Jumper ant most frequently associated with allergic reactions is commonly known as the Jack Jumper ant, Jack Jumper or Jumping Jack. Jack Jumper ants have a black body and orange/brown jaws/pincers and limbs.

Jack Jumper ants sting rather than bite

Like bees and wasps, Jack Jumper ants do not bite. Rather, they grasp the victim in their jaws, then bend and sting them. Their sting is in the tail. They are aggressive, typically walk with a hopping motion, and can sometimes jump from surrounding vegetation.

Jack Jumper ants have a widespread distribution

Jack Jumper ants are found in Tasmania, Victoria, ACT, New South Wales (Snowy Mountains, Blue Mountains and coastal regions), South Australia (Adelaide Hills), and in some parts of Western Australia and Queensland. It is likely that there are other habitats which are yet to be identified. Observations have shown interactions between ant colonies and human habitats.

Nests are often difficult to find

Jack Jumper ants live in underground nests. Although established nests can form massive mounds, they are often difficult to find, and may be present under rock, with the entrance surrounded by a pile of fine gravel.

Typically, a couple of sentry ants are present at the entrance. The ants are aggressive, and often hunt alone. They will stray away from the nest, and at times find their way into people's houses and kitchens. It is very difficult to avoid being stung by Jack Jumper ants in endemic areas, when nests are located close to human inhabitants.

Allergic reactions may occur to ant stings

There are different types of allergic reactions to stinging insects. The stings of Jack Jumper ants, like those of bees and wasps, are very painful. Local swelling is very common. Large local swellings can also occur, lasting a few days at a time. The most serious reactions are known as generalised allergic reactions, of which the most severe is called anaphylaxis.

Anaphylaxis is the most severe type of allergic reaction

Anaphylaxis occurs after exposure to an allergen (such as foods, insects or medicines), to which a person is already extremely sensitive. It results in potentially life threatening symptoms, including:

- difficulty/noisy breathing
- swelling of tongue
- swelling/tightness in throat
- difficulty talking and/or hoarse voice
- wheeze or persistent cough
- chest tightness
- abdominal pain, nausea, and vomiting
- confusion, loss of consciousness and/or collapse
- pale and floppy (in young children)

In some cases, anaphylaxis is preceded by less dangerous allergic symptoms, such as:

- swelling of face, lips and eyes
- congestion and watering of the nose and eyes
- hives or welts on the skin
- headaches, anxiety, flushing

Anaphylaxis to Jack Jumper ant stings is not rare

In areas where Jack Jumper ants are common, population surveys have shown that between 2 and 3 per cent of people have had generalised allergic reactions, and in around half of these people the reactions can be life threatening. Deaths from Jack Jumper ant stings and anaphylaxis have occurred in Australia, with several recorded cases in recent years. Since allergy as a cause of death can be difficult to detect at post mortem, it is conceivable that deaths due to sting allergy are under reported.

Jack Jumper ant allergy does not disappear quickly

Follow up studies have shown that around 70 per cent of people with Jack Jumper ant allergy, will have another allergic reaction if they are stung again. This sensitivity to repeat stings appears to persist for many years.

Diagnosing Jack Jumper ant allergy

There is currently no skin allergy test commercially available outside of ant allergy research programmes. A blood allergy test is available from SouthPath Laboratories, Flinders Medical Centre, Bedford Park, South

Australia 5042. Tests can be arranged with your doctor and local pathology laboratory. There may be a small out of pocket cost for this test, which detects around three quarters of cases of Jack Jumper ant allergy.

Management options

Patients with allergic reactions to Jack Jumper ants should:

- Avoid Jack Jumper ants
- Have an emergency action plan and medication
- Know when and how to use an adrenaline autoinjector

Avoiding Jack Jumper ants

Jack Jumper ants are difficult to avoid in endemic areas, as they often stray long distances from the nests. Destroying nearby nests has been proposed to reduce the risk of accidental stings, but may not prevent stings from nests located further away. Wearing heavy clothing such as boots and gloves when in the bush or when gardening seems sensible, but the ants can still sting through heavy clothing. Whether moving from endemic areas to another area may help is uncertain.

Emergency Action Plan

Patients at risk of life threatening severe allergic reactions (anaphylaxis) should have an ASCIA action plan for anaphylaxis, and know when and how to:

- seek urgent medical assistance if stung
- use an adrenaline autoinjector (EpiPen or Anapen). Adrenaline acts as a natural antidote to some of the chemicals released during severe allergic reactions. This is the only medicine able to counteract the dangerous effects of anaphylaxis. Medications taken orally, such as antihistamines or steroids, have no effect on the immediate and dangerous effects of anaphylaxis. Adrenaline should be considered as First Aid for the treatment of anaphylaxis

It is important to note that in some cases, more than one dose of adrenaline may be necessary. Even if the adrenaline autoinjector has been highly effective at relieving symptoms, continue to seek emergency medical care without delay. Subjects who have had anaphylaxis should be held at medical care under continuous observation for at least four (4) hours after resolution of all abnormal symptoms and signs (with the exception of the local reaction at the site of the sting).

Using an adrenaline autoinjector

There are two brands of adrenaline autoinjectors available in Australia and New Zealand. Your doctor will advise which is most suitable for your needs, and the dose required:

- EpiPen adrenaline autoinjectors (EpiPen or EpiPen Jr)
- Anapen adrenaline autoinjectors (Anapen or Anapen Jr)

Each adrenaline autoinjector has only one dose of adrenaline. It is designed to be used as a first aid device by people without formal medical or nursing training. Instructions for adrenaline autoinjectors are shown on the ASCIA Action Plans for Anaphylaxis which are available on the ASCIA website www.allergy.org.au/content/view/10/3/

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Other measures

- Those allergic to Jack Jumper ants should carry a means of summoning assistance if stung, such as a mobile telephone.
- They should not travel alone in remote areas, and consider carrying an emergency satellite beacon and additional emergency medication if travelling in areas without easy access to medical assistance.
- Some doctors advise their patients to take non-drowsy antihistamine when walking in remote areas where Jumper Ants are common. It is important to note that, although antihistamines might possibly help relieve very mild symptoms, there is no evidence currently that they will prevent a serious allergic reaction.
- Adrenaline is the ONLY medication proven to help with serious allergic reactions.
- The cost of taking antihistamines daily for a long period also needs to be balanced against the option of spending this money instead for purchasing an additional adrenaline autoinjector.
- There is some evidence that certain medications used in the management of blood pressure and heart problems may worsen anaphylaxis or interfere with the action of adrenaline administered in an emergency. This poorly defined risk, however, needs to be balanced against the benefits that these medications provide. Patients taking any form of blood pressure or heart medication should discuss the relative risk and benefits of their use with their medical specialist (Allergist / Clinical Immunologist) and perhaps a heart specialist/cardiologist.
- Wearing a Medical identification bracelet may assist by providing additional information to attending doctors or ambulance officers.
- All patients with stinging insect anaphylaxis should be referred to a medical specialist (Allergist /Clinical Immunologist) for assessment and advice.

Prospects for immunotherapy

Commercial venom extracts are available in Australia for the diagnosis and treatment of patients allergic to Honey Bees, Paper Wasps and European Wasps. However at this time, there is no commercial venom extract available for skin testing to confirm Jack Jumper ant allergy or to use for immunotherapy (desensitisation) to switch off the allergy.

In the last couple of years a study performed by Australian doctors in Tasmania demonstrated that Jumper Ant venom extracts were very effective at switching off Jumper Ant allergy, and preventing allergic reactions when patients were re-stung. Members of ASCIA are attempting to make this treatment more widely available by lobbying for government and commercial support for further research.

Check for updates

If you, or a family member, are allergic to Jack Jumper Ants, you should check the ASCIA website from time to time. ASCIA members are actively involved in researching this uniquely Australian problem, and important updates on treatment options and research programmes will be posted here when available.

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The Australasian Society of Clinical Immunology and Allergy (ASCIA) is the peak professional body of clinical immunology and allergy specialists in Australia and New Zealand.

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