

Tips to Remember: Stinging insect allergy

Each year, many Americans are stung by insects. For most, these stings mean pain and discomfort generally lasting only a few hours. Symptoms may include redness, swelling and itching at the site of the sting.

However, some people are allergic to insect stings. This means that their immune systems overreact to the venom injected by a stinging insect. After the first sting, the allergic person's body produces an allergic substance called *Immunoglobulin E (IgE) antibody*, which reacts with the insect venom. If he or she is stung again by an insect of the same or similar species, the insect venom interacts with the IgE antibody produced in response to the earlier sting. This triggers the release of histamine and other chemicals that cause allergic symptoms.

Symptoms of severe reactions

For a small number of people with severe venom allergy, stings may be life-threatening. Severe allergic reactions to insect stings can involve many body organs and may develop rapidly. This reaction is called *anaphylaxis*. Symptoms of anaphylaxis may include itching and hives over large areas of the body, swelling in the throat or tongue, difficulty breathing, dizziness, stomach cramps, nausea or diarrhea. In severe cases, a rapid fall in blood pressure may result in shock and loss of consciousness. Anaphylaxis is a medical emergency, and may be fatal. If you or anyone else experiences any of these symptoms after an insect sting, obtain emergency medical treatment immediately. After your symptoms are treated in the emergency room, you should also obtain referral to an allergist/immunologist to learn about treatment options.

Identifying stinging insects

To avoid stinging insects, it is important to learn what they look like and where they live. Most sting reactions are caused by five types of insects: *yellow jackets*, *honeybees*, *paper wasps*, *hornets* and *fire ants*.

Yellow jackets are black with yellow markings, and are found in various climates. Their nests, which are made of a paper-maché material, are usually located underground, but can sometimes be found in the walls of frame buildings, cracks in masonry or woodpiles.

Honeybees have a rounded, “fuzzy” body with dark brown coloring and yellow markings. Upon stinging, the honeybee usually leaves its barbed stinger in its victim; the bee dies as a result. Honeybees are non-aggressive and will only sting when provoked. However, *Africanized honeybees*, or so-called “killer bees” found in the

southwestern United States and South and Central America, are more aggressive and may sting in swarms. Domesticated honeybees live in man-made hives, while wild honeybees live in colonies or “honeycombs” in hollow trees or cavities of buildings. Africanized honeybees may nest in holes in house frames, between fence posts, in old tires or holes in the ground, or other partially protected sites.

Paper wasps' slender, elongated bodies are black, brown, or red with yellow markings. Their nests are also made of a paper-like material that forms a circular comb of cells which opens downward. The nests are often located under eaves, behind shutters, or in shrubs or woodpiles.

Hornets are black or brown with white, orange or yellow markings and are usually larger than yellow jackets. Their nests are gray or brown, football-shaped, and made of a paper material similar to that of yellow jackets' nests. Hornets' nests are usually found high above ground on branches of trees, in shrubbery, on gables or in tree hollows.

Fire ants are reddish brown to black stinging insects related to bees and wasps. They build nests of dirt in the ground that may be quite tall (18 inches) in the right kinds of soil. Fire ants may attack with little warning: after firmly grasping the victim's skin with its jaws, the fire ant arches its back as it inserts its rear stinger into the skin. It then pivots at the head and may inflict multiple stings in a circular pattern. Fire ant venom often causes an immediate burning sensation.

Preventing stings

Stay out of the “territory” of the stinging insects' nests. These insects are most likely to sting if their homes are disturbed, so it is important to have hives and nests around your home destroyed. Since this activity can be dangerous, a trained exterminator should be hired.

If you encounter any flying stinging insects, remain calm and quiet, and move slowly away from them. Many stinging insects are foraging for food, so don't look or smell like a flower—avoid brightly colored clothing and perfume when outdoors. Because the smell of food attracts insects, be careful when cooking, eating, or drinking sweet drinks like soda or juice outdoors. Keep food covered until eaten. Wear closed-toe shoes outdoors and avoid going barefoot. Also, avoid loose-fitting garments that can trap insects between material and skin.

Treating stings

If you are stung by a honeybee that has left its stinger (and attached venom sac) in your skin, remove the stinger within 30 seconds to avoid receiving more venom. A quick scrape of a fingernail removes the stinger and sac. Avoid squeezing the sac—this

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forces more venom through the stinger and into the skin. Hornets, wasps, and yellow jackets do not usually leave their stingers. Try to remain calm, and brush these insects from the skin promptly with deliberate movements to prevent additional stings. Then, quietly and immediately leave the area.

If you are stung by fire ants, carefully brush them off to prevent repeated stings, and leave the area. Fire ant stings usually result in the development of a blister about 24 hours after the sting. The material in this will become cloudy and appear to be pustular. IT IS NOT! Fire ant venom kills bacteria, this is just dead tissue and should be left alone. It will dry and heal within the next 7 – 10 days. If the blister is opened it must be monitored for secondary bacterial infection. Diabetics and others with circulatory disorders, including varicose veins and phlebitis, can be particularly at risk for complications, and should see a physician to monitor their condition after being stung. Up to 50% of patients develop large local reactions at the site of fire ant stings—swelling may last for several days and may be accompanied by itching, redness and pain.

Taking the following steps can help in treating local reactions to insect stings:

- Elevate the affected arm or leg and apply ice or a cold compress to reduce swelling and pain.
- Gently clean blisters with soap and water to prevent secondary infections; do not break blisters.
- Use topical steroid ointments or oral antihistamines to relieve itching.
- See your doctor if swelling progresses or if the sting site seems infected.

If you are severely insect-allergic and have had prior reactions, try to avoid being outdoors in case you require prompt emergency treatment. Carry an auto-injectable epinephrine (adrenalin) device, a short-term treatment for severe allergic reactions. Learn how to self-administer the epinephrine according to your allergist's instructions, and replace the device before the labeled expiration date.

Remember that injectable epinephrine is rescue medication only, and you must still have someone take you to an emergency room immediately if you are stung. Additional medical treatment may be necessary. Those with severe allergies may want to consider wearing a special bracelet or necklace that identifies the wearer as having severe allergies and supplies other important medical information.

Consulting your allergist

Anyone who has had a serious adverse reaction to an insect sting should be evaluated by an allergist/immunologist, who will take a thorough history, perform an examination

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and recommend testing to determine whether you have an allergy, and which type of stinging insect caused the reaction. Skin or blood (RAST) testing for insect allergy is used to detect the presence of significant amounts of IgE antibody.

Your allergist/immunologist will help you determine the best form of treatment. People who have severe allergies to insect venom should consider receiving insect venom immunotherapy, a highly effective vaccination program that actually prevents future allergic sting reactions in 97% of treated patients. During immunotherapy, the allergist/immunologist administers gradually stronger doses of venom extract initially every week, but as maintenance doses are reached the interval may sometimes be expanded to one month or more.

If you have questions about venom immunotherapy or other treatments for stinging insect allergy, be sure to ask your allergist/immunologist. Patients who receive appropriate treatment such as immunotherapy and who practice careful avoidance measures can participate in regular outdoor activities.

When to see an allergy/asthma specialist

The AAAAI's *How the Allergist/Immunologist Can Help: Consultation and Referral Guidelines Citing the Evidence* provide information to assist patients and health care professionals in determining when a patient may need consultation or ongoing specialty care by the allergist/immunologist. Patients should see an allergist/immunologist if they:

- Have reactions possibly due to insect stings for accurate identification of specific allergen and consideration for immunotherapy (allergy shots).
- Have systemic reactions possibly due to biting insects, for accurate identification of specific allergen.

Your allergist/immunologist can provide you with more information on stinging insect allergy. *Tips to Remember* are created by the Public Education Committee of the American Academy of Allergy, Asthma and Immunology.

The content of this article is for informational purposes only. It is not intended to replace evaluation by a physician. If you have questions or medical concerns, please contact your allergist/immunologist.

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