

Insect Bites and Stings

Toolbox Talk

Each year, many workers are stung by insects while on the job. 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 the worker 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. This severe allergic reaction to insect stings is called anaphylaxis. It can involve many body organs and may develop rapidly. 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 a worker experiences any of these symptoms after an insect sting, obtain emergency medical treatment immediately. After the symptoms are treated in the emergency room, the workers may need to obtain a referral to an allergist/immunologist to learn about treatment options.

Identifying Stinging Insects

Most sting reactions are caused by five types of insects: yellow jackets, honeybees, paper wasps, hornets and fire ants. Therefore, to avoid these insects it is important to learn what they look like and where they live. Bites from mosquitoes, ticks, biting-flies, and some spiders can cause reactions, but are generally milder.

- Yellow jackets are black with yellow markings and are found in various climates. Their nests, which are made of a papier-mâché 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 and the bee dies as a result. Don't try to pull out the stinger because this may release more venom. Honeybees are nonaggressive 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 that 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 certain 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.

Signs and symptoms of an insect bite result from the injection of venom or other substances into the skin. The venom triggers an allergic (immune) reaction. The severity of the reaction depends on the victim's sensitivity to the insect venom or substance.

Most reactions are mild causing little more than an annoying itching or stinging sensation and mild swelling that disappear within a day or so. A delayed reaction may

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cause fever, painful joints, hives and swollen glands. A worker can experience both immediate and delayed reactions from the same bite or sting.

Emergency Care for Victims with Mild Reactions

- Move to a safe area to avoid more insect stings.
- Scrape or brush off the stinger with a straight edged object such as a credit card or the back of a knife. Don't try to pull out the stinger with tweezers or with the fingers; doing so may release more venom.
- Wash the area carefully with soap and water two to three times a day until the skin is healed.
- Swab the site with disinfectant.
- To reduce pain and swelling, apply ice or a cold pack.
- Apply 0.5 percent or 1 percent hydrocortisone cream, calamine lotion, or a baking soda paste to the bite or sting several times a day until the symptoms subside.
- Take an anti-histamine containing diphenhydramine or chlorpheniramine maleate.

Emergency Care for Victims with Severe Reactions

Severe reactions may progress rapidly. Dial 911 or call for emergency medical assistance if the worker experiences any of the following signs or symptoms:

- difficulty breathing, swelling of the lips or throat;
- faintness;
- confusion;
- rapid heartbeat;
- hives; or
- nausea, stomach cramps, and vomiting.

A sting anywhere in the mouth warrants immediate medical attention. That's because stings in the mucous membranes of the mouth can quickly cause severe swelling that may block the airway.

While Waiting for Emergency Transportation

- have the person lie down;

- watch for and treat signs of shock;
- if the person is unconscious and breathing, lay the person on his or her side to allow drainage from the mouth;
- if there's no pulse, begin cardiopulmonary resuscitation (CPR); and
- check to see if the person is carrying an allergy kit containing injectable epinephrine and follow instructions on the kit.

Less severe allergic reactions include mild nausea and stomach cramps, diarrhea, or swelling larger than 2 inches in diameter at the site. Recommend the worker see their physician promptly if they experience any of these signs and symptoms.

Remember that injectable epinephrine is rescue medication only and the worker must still have someone take them to an emergency room immediately if they are stung. Additional medical treatment may be necessary. Workers 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.

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 the workplace destroyed. Since this activity can be dangerous, a trained exterminator should be hired.

If a worker encounters any flying stinging insects, instruct them to remain calm and quiet, and move slowly away from them. Many stinging insects are foraging for food, so don't 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. Also, avoid loose-fitting garments that can trap insects between material and skin.

