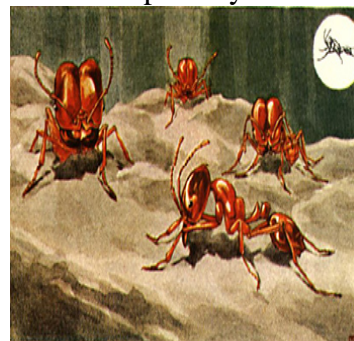


Bee & Insect Sting Allergy

Flying insects such as honeybees, bumblebees, wasps, yellow jackets and hornets and fire ants belong to Hymenoptera family. Fire ants used to be more common in the southern United States, especially along the Gulf States, but now they are becoming more common in the South West and California as well. The other insects occur throughout the country. Honeybees are found near Orchards. Yellow jackets are found on the ground where they build their nests, typically around garbage. Hornets and wasps are found in bushes, trees, windowsills, and roofs. When their habitat is disturbed, they sting. They inject their venom into the victims by stings. This is different from mosquitoes, fleas etc. which bite their victims. About 2 million Americans are allergic to stinging insects. More than 500,000 people enter hospital emergency rooms every year to receive care for insect stings and about 40 people die every year because of allergic reactions to the stings. Stinging insects are more active during the summer and early fall. Stinging insects are especially attracted to sweet fragrances [perfumes, colognes and hairsprays], picnic food, open soda and beer containers and garbage areas. Avoiding these attractants will lessen chances of being stung. Swatting at them make these insects more aggressive and should be avoided.

Fire ants build mounds. They are difficult to eradicate. They often do comeback after seemingly successful eradication. Periodic surveillance and professional eradication measures are warranted at regular intervals. The fire ants grab the victim's skin by their jaws and sting repeatedly with their stinger situated near the rear end. There could be multiple stings by multiple ants simultaneously. The sting sites develop sterile white blisters after 24 hours. This is a characteristic finding and is often diagnostic.



The insect sting reactions are of two kinds: Immediate and delayed. The immediate reactions in turn are of four categories: A local reaction, large local reaction, systemic reaction and toxic reaction. **Immediate local reactions** are normal and consist of brief pain, redness, and swelling at the sting site. **Large local reactions** are more extensive, often involving contiguous swelling and redness of most of the body part stung. **Systemic reactions** are generalized and involve signs or symptoms at a site remote from the sting. For example, a sting on the forehead resulting in angioedema of the eyelids would be classified as a local or large local reaction, whereas a sting on the foot that produced angioedema of the eyelids would be considered a systemic reaction. The symptoms include hives, swelling, generalized itching and flushing of the skin, cough, wheezing, difficulty breathing, low blood pressure, fainting, nausea, vomiting, stomach pain and diarrhea. Parsons who have experienced a systemic allergic reaction to an insect sting have a 60% chance of a similar or worse reaction if stung again. Patients who have

developed systemic reactions and who take medications such as beta-blockers or ACE inhibitors for the treatment of high blood pressure, migraine, glaucoma, tremors and heart conditions are at a higher risk for developing anaphylaxis. It also makes the treatment of anaphylaxis more difficult. Discuss with your physician if you are taking any of these medications. **Toxic reactions** occur after a person receives multiple stings within a short period of time. The signs and symptoms are identical to those of systemic reactions. Fatal toxic reactions from Africanized honeybees may be accompanied by bleeding from multiple sites, adult respiratory distress syndrome, muscle necrosis, kidney failure etc.



Delayed reactions usually present as progressive swelling and erythema at the sting site but may rarely present as more generalized reactions affecting the heart, kidneys, brain and spinal cord. Honeybee stings are occasionally followed by influenza-like syndrome involving fever, myalgia, and shaking chills 8 to 24 hours after the sting. Delayed reactions are rarely life-threatening.

Following honeybee stings, the sting is best removed from the skin by a scraping action rather than a pulling motion, which actually squeezes more venom into the skin. Wasps, yellow jackets and hornets rarely if ever leave behind stings. For local or large local reactions, taking oral antihistamine such as Benadryl following manufacturer's recommendations, Tylenol and local application of cold ice packs is all that may be required. Use of steroids such as prednisone may be required for large local reactions sometimes.

For systemic reactions, intramuscular epinephrine (EpiPen) at appropriate doses must be injected immediately and 911 should be called right away. The epinephrine if used early during systemic reactions, counters most of the allergic symptoms. On the other hand most of the fatalities that are associated with anaphylaxis are as a result of using epinephrine late in the course of the treatment or not using it at all. The beneficial effects of epinephrine last only for 20 minutes after the injection and the symptoms of anaphylaxis could return thereafter. Moreover anaphylaxis could have a protracted course lasting for several hours. Therefore it is very important for you to seek emergency medical attention following the use of epinephrine. It may be prudent for you to be observed in the hospital for several hours after the reaction to ensure it does not return. Two doses of epinephrine should always be available handy. If the first dose is not effective, a second dose may be necessary after 15 minutes. The EpiPen can be administered through clothes in an emergent situation. EpiPens, once they expire are not effective 70% of the time. Therefore the expiration dates should be checked periodically and expired medications should be replaced by fresh ones. EpiPens should not be left in cars, especially during summer. Other family members or companions should also be proficient in the administration of EpiPen following recommendations as above.

Insect sting allergy is diagnosed by taking a careful history. If the history suggests occurrence of systemic reaction following insect sting, then it is our practice to do allergy blood tests for insect venom. If the blood tests are negative, then we proceed to do skin tests to ensure they are truly negative. Tests are not necessary for individuals with history of local and large local reactions. Venom desensitization injections are recommended for those individuals who

experienced systemic reactions and who have positive allergy blood tests or skin tests for one of the insect venoms. Venom desensitization injections are effective in 80% of patients who are allergic to honeybee venom and in 98% of patients who are allergic to wasp, yellow jacket or hornet venoms.

These injections by themselves can cause systemic allergic reactions. The incidence of systemic reactions is about 12% following venom immunotherapy. Two thirds of these reactions occur within the first 30 minutes after allergen immunotherapy. One third of these reactions can happen up to two hours following the injections. Therefore, you should wait in the doctor's office for at least 20-30 minutes after venom immunotherapy. If you experience any systemic symptoms we should be notified immediately. If there is any difficulty reaching our office [after the patient leaves office], you should call 911 immediately and go to a hospital emergency room by ambulance. You should not exercise immediately after receiving immunotherapy; exercise within 4 hours after the venom injection increases the chances of allergic reactions. Venom immunotherapy is typically recommended for 5 years but could be life-long if the history warrants it.

Knowing how to avoid stings from bees, wasps, hornets, and yellow jackets leads to a more enjoyable summer for everyone. The following precautions are suggested:

1. Avoid walking barefoot in the grass (honeybees and bumblebees forage on white clover, a weed that grows in lawns throughout the U.S.).
2. Insect repellents DO NOT work against stinging insects.
3. Never swat or flail at a flying insect. If need be, gently brush it aside or patiently wait for it to leave.
4. DO NOT drink from open beverage cans. Stinging insects will crawl inside a can attracted by the sweet beverage.
5. When eating outdoors, try to keep food covered at all times. Stinging insects are fond of the same foods you are.
6. Garbage cans stored outside should be covered with tight- fitting lids.
7. Avoid wearing sweet-smelling perfumes, hairsprays, colognes, and deodorants.
8. Avoid wearing bright colored clothing with flowery patterns. Bees may mistake you for a flower.
9. If you have had an allergic reaction to an insect sting, it is important that you see an allergist. You have a 60% chance of having a similar or worse reaction if stung again.

There is a treatment, venom immunotherapy, which is 97% effective in preventing future allergic reactions to insect stings.



If you have experienced systemic reactions following insect stings, please come and get evaluated by us for further management. This could be a life-saving decision that you are making!