

HSS Safety Message



Summer Safety Message Protecting Yourself – Bee Stings

Introduction

There are more insects than any other living creature. They are crucially important to the pollination of plants, specifically flowers, fruits and vegetables.

Bees and wasps vary in size and have induced fear into humans for centuries. Phobias of insects have long been a source for people to avoid the outdoors. This is a perfect example where education and proper preparedness can help individuals get back to enjoying the outdoors.



Bee Stings

Hair sprays, sun lotions, other perfumed toiletries, and suede or leather odors attract bees and should be avoided. Bright colors and bright metal objects, such as jewelry, belt buckles, etc., also attract bees.

Swatting or running appears to aggravate stinging insects. Shield your face with your arms and move slowly out of a danger zone, or lie down on the ground if under attack. DO NOT poke at bee or wasp nests.

First Aid for Bee Stings

The following applies also to stings from bumblebees, hornets, and wasps. Of these, the honeybee has a barbed stinger that could be left in the skin. The venom sac of the honeybee stinger may be attached and continue to inject venom for some time after the bee has left. The stinger only penetrates into the skin for a very small distance. It should be removed promptly. To avoid squeezing, which would inject more venom; it should be removed by scraping the skin surface with a knife blade, plastic card or fingernail.

1. Single stings from any of these insects rarely require medical attention. There may be an immediate sharp pain followed by some redness or swelling. The application of cool water will reduce the intensity and duration of the swelling.
2. Moderate to severe medical emergencies may result from single or multiple bites. Tolerance to bee stings may vary by individual. If a reaction occurs, the victim should be transported for medical care.
3. Some individuals have become sensitized to these stings and react with a widespread rash, asthmatic breathing, tissue swelling, a fall in blood pressure, and sometimes unconsciousness. This is known as anaphylactic shock. They should carry an appropriate prescription medication and inform their supervisors, co-workers, and companions of its location and use.

History of Killer Bees

In the 1950's in South America, an entomologist introduced the African honey bee to Brazil, cross-breeding it with the European honey bee. The thought was that it would be a more efficient honey producer. As a result, we have the Africanized honey bee.

These bees are much more aggressive, they attack in large swarms, and will chase a human for greater than 1 mile. The first escape from hives was in 1957 in San Paulo Brazil, they have moved northward traveling 200 to 300 miles per year.

Since 1993, they have been documented in Texas, Arizona, Southern California, and as far east as North Carolina. In 2001 reports have indicated that they may have traveled as far north as Arkansas.

With the reality of global warming, killer bees will slowly progress northward. Their venom is less in quantity than your regular honey bee, and there is no difference in the chemical substance when compared to honey bees. As of 2002 there have been approximately 382 fatal attacks worldwide by killer bees.

Bee Myths

Myth: After your first bee sting reaction, future bee stings double and triple in severity.

Fact: In many research studies, repeated stings over time actually have a lesser reaction not an increased one.

Myth: Elderly individuals are more susceptible to a severe reaction than middle-aged.

Fact: The older one gets, the body's histamine production is less. Subsequently, the allergic reaction is less. This is not to say that an anaphylactic reaction cannot occur, although it is rare.

Myth: Bees can see and sting in the dark.

Fact: This is partially true, bees can sting in the dark as a stimulus response reaction. However, they cannot see in the dark. If being chased by a swarm of bees during the day, you can decrease their intensity by running to a dark garage or a darkened area of a forest.

Myth: A severe anaphylactic reaction will usually occur in the first 5 to 10 minutes after being stung.

Fact: Most anaphylactic reactions do occur in the first 15 to 30 minutes. 60% occur in the first hour, and the remaining occur in the next 3 to 4 hours. If there is not a severe reaction in 5 hours, the chances are very good that one will not occur.

Pathophysiology of Bee Stings

Once stung, our body quickly overreacts with histamine production. Histamine is found in higher concentrations in skin, lungs, and stomach mucosa. The release of histamine is usually triggered by skin disruption, i.e. bee sting. Histamine is a potent arterial dilator. Individuals therefore can become hypotensive (lowering of blood pressure) and may pass out. In the lungs histamine causes bronchial constriction, leading to difficulty breathing, wheezing, and in severe cases respiratory collapse. As one ages, histamine production is less. It is rare for the elderly to have a severe anaphylactic reaction from a bee sting.

Bee Sting Symptoms

Symptoms vary from local reactions of pain, redness at the sting site, and formation of a wheal (raised bump usually pale in color). Localized itching is common and redness in the first 24 hours can become as large as 12 to 18 inches in diameter. These reactions are initially scary, promoting people to seek medical attention.

According to the Merck manual, the average person can tolerate 10 stings per pound of body weight. The average adult can withstand approximately 1000 stings where around 500 stings can kill a child. Anaphylaxis and death can occur from one sting if the individual is highly allergic.

Many individuals have been given false information on allergic reactions. As per Auerbach in his Wilderness Medicine text: "There is no correlation between systemic reactions and number of stings in the past or number of stings per incident and severity of an allergic reaction." "In a study of 138 adults with a history of anaphylactic reactions, 99 had no anaphylactic reaction to later stings, 17 had more severe reactions, and 22 had mild reactions."

Children less than 10 years old and the elderly older than 70 have less severe reactions than young adults.

Bee Sting Treatment

Stinger Removal - If a bee or wasp stinger is left in the skin, don't try to pull it out--you may make the sting worse by squeezing more venom out of the stinger into the skin. Instead, gently scrape the skin with a dull straight edge, like the edge of a credit card or the non-cutting side of a dinner knife, to remove the stinger.

Do not attempt to remove stingers or other insect parts by squeezing them out or by using tweezers.

Outdoor Treatment and Prevention - The ABC's, **Airway, Breathing, and Circulation**, must be adhered to in that order.

Here are the steps to take when stung in the outdoors by a bee or wasp:

1. Pull stinger out.
2. Cool compresses or ice.
3. Diphenhydramine (Benadryl, an H1 histamine blocker) should be given to decrease minimal allergic reactions.
4. If a severe allergic reaction occurs, you must transport to a medical facility immediately and resort to basic life support.
5. In addition to Benadryl, it has been shown that cimetidine (Tagamet) an H2 histamine blocker can also help decrease the allergic response.
6. Once the stinger has been removed, you may apply a paste made with water and baking soda. This will relieve the pain caused by the venom. Ice can also be applied to the site to relieve discomfort.