

Avoiding and Treating Work-Related Insect Bites and Stings

This WorkCare Fact Sheet describes work-related bite and sting risks, symptoms, treatment and preventive measures.

Bites and stings are a relatively common occurrence for people who work outdoors and in enclosed environments where bees and wasps, fire ants, insects and arachnids (spiders, scorpions, ticks and mites) feel at home.

Employers and workers are encouraged to understand exposure risks, how to recognize and respond to stings and bites, and what they can do to prevent them.

Under 29 CFR Part 1904 – Recording and Reporting Occupational Injuries and Illnesses, the Occupational Safety and Health Administration (OSHA) considers bites and stings to be recordable when an employee who is bitten or stung while working receives medical treatment beyond first aid. First aid is defined in [1904.7 \(b\)\(5\)\(ii\)](#).

Exposure Risk

Thousands of people in the U.S. are stung or bitten each year.

Exposed arms and hands tend to be more susceptible to stings and bites among workers than legs and feet, which are usually protected by clothing and enclosed shoes. In a study of occupationally related bites and stings, the head, one of the most exposed body parts, accounted for one-tenth of cases involving insects and arachnids; a third of those cases affected the eyes.

An estimated 90 to 100 people die each year in the U.S. as a result of allergic reactions to bites and stings. Overall, bite- and sting-related injuries and fatalities may be misdiagnosed as heart attack or sunstroke, or attributed to other causes, according to the [National Institute for Occupational Safety and Health](#) (NIOSH).

Symptoms & Treatment

Venom from stings and bites often causes minor swelling, redness pain and itching. Reactions can vary from mild to severe. In rare cases, a bite or sting is potentially lethal for people who are highly allergic to the venom.



Emergency Response

Bite and sting victims should be observed for allergic reaction. Symptoms such as coughing, trouble breathing, chest pain, profuse sweating, confusion, nausea, vomiting and hives require immediate emergency medical attention. If it's safe to do so, a bite or sting victim may be carefully moved to a protected or shaded area.

When assisting someone who has been bitten or stung, it's important to be aware of surroundings. For example, stinging bees release a chemical that attracts more bees; swarming fire ants become agitated and more aggressive. If a spider or scorpion bite is suspected, an effective medical response can be expedited if a specimen can be collected or visually identified.

If the victim carries an epinephrine auto-injector (e.g., EpiPen, Auvi-Q) to treat an allergic attack, it may be necessary to assist with injecting the medication. This is usually done by pressing the auto-injector against the person's thigh and holding it in place for several seconds.

Other steps in the event of an emergency:

- Loosen tight clothing and cover with a blanket.
- Do not give the person anything to drink.
- Turn the person on one side to prevent choking.
- Begin CPR if the person is unresponsive.

First Aid

Most bites and stings will heal on their own with appropriate first aid and self-care. For an inflamed insect bite or sting, apply a wrapped ice pack for no more than 15 to 20 minutes an hour for the first six hours. When not using ice, keep a cool, wet cloth on the bite or sting for up to six hours. After the first six hours, if swelling is not present, warmth may be applied to the site for comfort.

The following may be used to help relieve pain and itching: antihistamine, local anesthetic spray, hydrocortisone cream (1%) or calamine lotion.

Under all circumstances, if considering the use of any type of over-the-counter remedy, carefully follow instructions and be certain it will not cause drowsiness or otherwise affect the ability to work safely. If unsure about medication effects, ask a prescribing clinician or pharmacist.

To help prevent a skin infection after a bite or sting, wash the area with soap and water and wipe it with rubbing alcohol or first-aid antiseptic.



epinephrine injector



Do not break any blisters. If a bite becomes irritated, apply a non-prescription antibiotic ointment and cover it with a bandage. Signs of an infection that requires medical evaluation include increased pain, swelling, redness, warmth around the bite or sting, red streaks leading from the area, draining pus and fever.

For puncture-type wounds, tetanus vaccination is recommended if the person has never been immunized against tetanus or has not received a booster within the past five years. (A tetanus booster is routinely recommended every 10 years. For more information, refer to [WorkCare's Fact Sheet on tetanus](#).)

Bees, Wasps and Hornets

Pollen-collecting bees die after a single sting when they leave the stinger imbedded in the skin. In the wasp family, which includes yellow jackets, only females have stingers, and they can sting people repeatedly. Hornets are a subset of wasps that are aggressive and can repeatedly sting.

Multiple stings are likely to require a medical evaluation. For a single sting:

- Immediately remove the stinger by flicking it off or wiping gauze over it; do not squeeze or use tweezers.
- Wash the site with soap and water.
- Apply ice to reduce swelling.
- Non-drowsy, non-prescription antihistamines and analgesics may be used temporarily in accordance with instructions to help relieve itchiness, pain and swelling.
- Calamine lotion may help relieve symptoms, but topical antihistamines have no proven clinical value.

Fire Ants

There reportedly are five times more fire ants per acre in the U.S. than in their native South America. They are found mainly in the southeastern U.S., with limited geographic distribution in New Mexico, Arizona and California.

Fire ants are typically no more than a quarter-inch long and brown to black in color. They build mound-shaped nests and are capable of delivering a one-two-punch by biting and stinging. Venom from a fire ant causes a burning sensation. Red bumps may form and become pustules within two days.

Recommended response:

- Briskly sweep off ants to prevent them from attaching to skin with their jaws. Check for ants under clothing.
- An over-the-counter antihistamine may help reduce pain and swelling.



bee



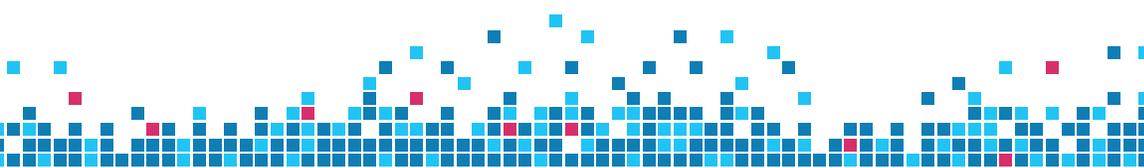
wasp



hornet



fire ant



- Keep bite sites clean; pustules are a sign of infection that may need to be evaluated and treated.

Scorpions

Scorpions are found in southern and southwestern states and outside of the U.S. in North Africa, Turkey and some parts of India. They usually hide during the day and are active at night.

Their sting causes an intense, localized aching pain and burning sensation. Other symptoms that usually subside within 48 hours include restlessness, convulsions, roving eyes, staggering gait, slurred speech, drooling and a thick-tongue sensation, abdominal pain and trouble breathing. Absorption of significant amounts of toxin results in vomiting and profuse sweating. Untreated, patients may experience an acute hypertensive crisis or even death.

Following a scorpion sting:

- Stay relaxed and calm.
- Seek immediate medical care. Be prepared to identify the scorpion's appearance.
- Apply ice to the sting site; do not submerge in ice water.
- Simple analgesics may be used to help relieve pain. However, medical consultation is recommended because of potential symptom severity.
- Do not take any sedatives.

Spiders

Spiders are usually not aggressive; most bites occur because a spider is trapped or unintentionally touched. Venomous spiders found in the United States include the black widow (plump, black and shiny with an hourglass-shaped red mark on the abdomen) and the brown recluse (dark, violin-shaped patch just behind the head).

If the biting spider is identified as venomous, a medical professional may administer anti-venom or other treatment. Without seeing a spider, a bite may be identified by telltale signs such as a round, red welt, swelling and skin damage. Healing may take longer than other types of insect bites and leave scar tissue.

Self-care for most spider bites:

- Clean the bite area with soap and water. Do not attempt to remove venom.
- Apply an ice pack.
- Elevate bitten extremities to reduce inflammation and swelling.
- Take an over-the-counter remedy to reduce pain; avoid medications that cause drowsiness.



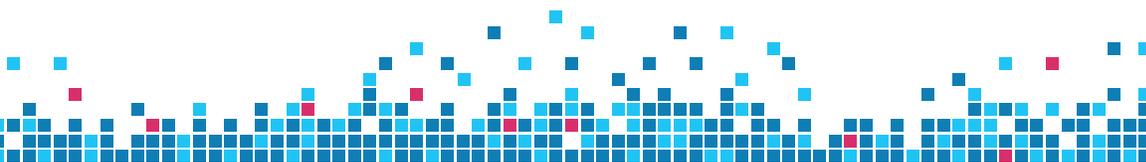
scorpion



black widow



brown recluse



Ticks

Ticks are generally found in wooded, brushy or grassy areas. They burrow into skin using a barbed appendage to withdraw blood.

A tine-tipped tweezer is the preferred removal tool. To remove a tick, pull upward with steady, even pressure. Twisting or jerking can cause parts to break off and remain in the skin. After removal, clean the bite with rubbing alcohol, an iodine scrub, or soap and water.

A clinic visit may be advisable if the tick is in a difficult to reach spot or the bite becomes infected. To learn more about ticks and related Lyme disease exposure risk, refer to [WorkCare's Fact Sheet on Tick Bites, Disease Control and Prevention](#).

Mites

Mite is a term commonly used to refer to a sizable group of insect-like organisms. While mites rarely transmit disease to humans in the U.S., their bites can irritate the skin and cause intense itching. Types of mites that afflict humans include clover, dust, itch, chiggers and scabies.

Scabies mites are of particular concern because they burrow under the skin and lay eggs. The most common symptoms of scabies are intense itching and a pimple-like skin rash. The scabies mite usually is spread by direct, prolonged, skin-to-skin contact with an affected person. Institutions such as nursing homes, extended-care facilities and prisons are susceptible to scabies outbreaks.

Treatment for scabies typically includes the use of medication (known as a scabicide) and thorough disinfectant cleaning of clothing, bedding and towels.

Prevention

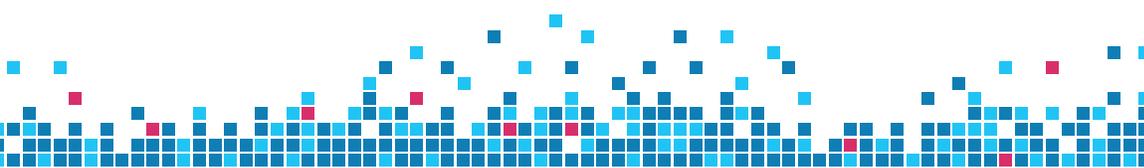
In general, the prevention of infestations, bites and stings begins with awareness. Once a risk is identified, appropriate control measures can be implemented. Here are 10 suggestions:

1. Learn to identify flying and crawling creatures.
2. Take extra precautions when working outdoors and in places typically inhabited by bugs and bees.
3. Workers with a history of severe allergic reaction should consult a medical professional about carrying an epinephrine auto-injector and wearing an allergy identification band.

tick



mites



4. Always apply insect repellent according to directions and wash it off with soap and water after work. Check the label. For example, certain repellents are effective against certain pests, such as chiggers.
5. Wear light-colored, smooth-finish long-sleeved shirts, long pants and enclosed footwear. Some outdoor stores sell clothing and gear pre-treated with repellent.
6. Keep your body clean and odor-free; avoid wearing perfumed lotions and deodorant, aftershave or scented hair products.
7. Manage your environment by checking the area before starting work, closing windows, using screens and nets, and removing any food or other attractive items. Insects and ants may be hidden in dark corners, or under wood piles, fallen logs or animal carcasses. Areas with abundant flowers attract bugs and bees.
8. Do not disturb hives, mounds or nests. Be aware of swarming bees and insects, stay calm and leave the area if they become agitated.
9. Consult a pest control specialist. Sprays, vacuum sweepers, improved ventilation and moisture reduction are among approaches that may be effective preventive interventions.
10. If planning a trip outside the U.S., check with a WorkCare travel health professional for advice on potential exposure risk, treatment recommendations and prevention.

Summary

In many instances, appropriate self-care is an option for bites and stings. Seek immediate medical care if the victim is known to be allergic or in response to symptoms such as severe pain, fever, nausea, trouble breathing, light-headedness, balance problems or confusion.

Resources

1. [Avoid Bug Bites](#): Centers for Disease Control and Prevention Travelers' Health
2. [Fire Ants: Protect Yourself!](#) OSHA Fact Sheet
3. [Insects and Scorpions](#): NIOSH and Centers for Disease Control and Prevention
4. [Protecting Yourself From Stinging Insects](#): NIOSH Fast Facts
5. [Venomous Spiders](#): NIOSH Workplace Health & Safety Topics

