

Poison Ivy Allergy

Allergic reactions to three native American plants—poison ivy, poison oak, and poison sumac, all members of the plant genus *Toxicodendron*—have been sources of misery for many centuries. Native Americans warned the early settlers about the ill effects of these plants, and Captain John Smith described them in his journal, thus making the first report of an allergic disease in America. According to experts at the American Academy of Dermatology, approximately 85 percent of the population will develop an allergic reaction to poison ivy, oak, or sumac if exposed to them.

What is an allergic reaction?

In general, an allergic reaction is a sensitivity or overreaction by the body to a substance that does not cause a problem in most people. The substances, known as allergens, include mold spore, dust, food, or pollen. The reaction may take many forms; for example, the sneezing and runny nose of hay fever (pollen allergy) or the itching and skin rash of hives. When these allergic reactions develop within minutes of exposure to an allergen, they are called immediate hypersensitivity reactions.

What are poison ivy and related allergies?

The allergic response to poison ivy, oak, and sumac is not immediate, but occurs 12 to 48 hours after exposure. This type of response is known as delayed hypersensitivity. In susceptible persons, contact with these plants leads to a skin rash known as allergic contact dermatitis. (Dermatitis means inflammation of the skin). Such a rash also may be caused by other plants as well as by things such as cosmetics, medicines applied to the skin, synthetic fabrics, latex, and metals such as nickel, which is often found in jewelry.

A person who is sensitive to poison ivy, oak, or sumac also may react to other plants in the same family (Anacardiaceae or cashew family). This family includes several trees—cashew, mango, ginkgo, Japanese lacquer, and Indian marking nut. The substance causing the dermatitis may be found in different forms and in different parts of the plants. For example, skin rashes have followed contact with wooden and lacquered articles produced in China and Japan and with the oil from the cashew nut shell.

Usually, no visible reaction will occur the first time a person comes in contact with poison ivy, oak, or sumac. In fact, one may not even realize that contact has taken place. If a reaction (rash) does appear, it may be 7 to 10 days after the first exposure. Many low-level exposures over a period of years are generally necessary for an individual to reach this level of sensitization, and many people never develop allergic contact dermatitis from poison ivy, oak, or sumac plants.

How does exposure occur?

Poison ivy, oak, and sumac are three of the most common causes of allergic contact dermatitis in North America. The resin of all three contains an active oily ingredient known as urushiol. While the urushiols of the three plants are not identical, they are sufficiently similar in chemical composition for a person allergic to one to react to all three.

Because urushiol is in the resin of the plant, rubbing or crushing the plant or a leaf provides sufficient contact for an allergic reaction. Very small amounts of the chemical can provoke a serious reaction in susceptible people.

Cases of poison ivy allergy occur most frequently during the spring, summer, and early fall when people spend more time outdoors. A reaction to poison ivy, however, can develop even during winter because urushiol is still present in dead or decaying *Toxicodendron* plants. The

chemical can be carried in smoke particles from burning plants, including branches of poison sumac trees accidentally gathered for firewood. The smoke may expose not only the skin of susceptible persons to the chemical but also their nasal passages, throat, and lungs.

Urushiol is transferred easily from one object to another, so clothing or tools that touch the plants, or pets that rub against them, can pick up the plant oil and pass it directly to a person. The chemical can remain active for at least one year and sometimes much longer. Therefore, exposed objects or pets should be thoroughly cleaned with water after contact with the plants.

Contrary to common belief, scratching or spontaneous oozing of the rash and blisters will not cause them to spread because urushiol is not present in the blister fluid. If the chemical has not been completely washed off the skin, touching the affected areas and then another part of the body can transfer the chemical and thus the rash. Similarly, the rash cannot be passed between persons, unless urushiol is still present on the skin of the affected individual.

What are the symptoms?

The itchy rash characteristic of an allergic reaction to poison ivy, oak, or sumac usually develops within 12 to 48 hours after a sensitized person comes in contact with the urushiol. The time may be as short as 4 hours or as long as 10 days, depending on one's sensitivity and the extent of the contact. The rash is usually self-limited—it is at its worst after about 5 days and then gradually improves within a week or two even without treatment.

At first, the skin that has touched the plant or the urushiol becomes red, and then bumps and blisters appear. This is usually accompanied by itching and sometimes by swelling. After reaching their peak in several days, the blisters break and the oozing sores begin to crust over and disappear. The rash rarely occurs on the scalp, palms of the hands, or soles of the feet because the outer skin there is very tough, and it is difficult for the plant oil to penetrate. Scratching the rash may introduce bacteria into the open sores, causing a secondary bacterial infection. Severe infections may produce symptoms such as abscesses, enlarged glands, and fever.

In general, other complications of poison ivy, oak, and sumac allergies are rare. Occasionally, extremely sensitive persons exposed to urushiol over large areas of the body may become quite ill. Infrequently, kidney problems may develop.

Are diagnostic tests available?

Often the person who develops allergic contact dermatitis from one of the Toxicodendron plants is aware of the exposure and may report it to a physician. The family physician, dermatologist, or allergist can use several diagnostic methods to determine the causative agent, if it is not already known.

The first step in diagnosing the cause of allergic contact dermatitis is to obtain a medical history. The doctor will ask questions about the patient's activities and environment before the rash appeared, chemicals used in work or hobby activities, medications or cosmetics applied, and other exposures that might serve as clues to the cause.

The history as well as the typical appearance and location of the rash are often sufficient to implicate one of the Toxicodendron plants as the cause of the dermatitis. When a doctor needs to confirm suspicions of an allergy, a patch test can be performed. Because the material used in the patch test itself may sensitize patients to urushiol, the test should be used only when necessary for diagnosis—not as a routine procedure. In any case, the test should not be done until all active sores have healed because testing can aggravate the condition further.

In the patch test, a minute amount of an oily extract from the poison ivy plant is applied to a small area on the person's back. This may be covered with a specially prepared patch for 2 days, after which the physician inspects the test area and notes the results. The test is considered positive if typical contact dermatitis is produced at the test site. It may be necessary to observe the area a second time, a day later, if the rash is not a clearly positive test result after 2 days. The degree of sensitivity often can be judged by the severity of the test rash in response to test material of known strength. Like other allergy skin tests, however, results of this test are sometimes positive even when the person has no past history of clinical symptoms to the test substance. The patient tested should expect the test site to itch for several days.

How is poison ivy dermatitis treated?

A common myth is that bathing will spread the blister fluid and thus the disease. To the contrary, the first and most essential part of the treatment is prompt use of soap and water to wash away the urushiol from the skin. In the woods, the water of a running stream can be an effective cleanser. If all the oil can be washed off the skin within 5 minutes of contact, there should be no reaction. If the oil remains on the skin for more than 5 minutes, washing will not prevent the rash, but it will help to prevent spreading of the oil. Any clothing that might have come in contact with the oil also should be washed, before bringing it indoors, if possible. In addition, other items, such as garden tools and hunting or fishing gear, should be washed if they have been in contact with the plants.

The skin rash from poison ivy allergy does not leave scars unless there is a secondary bacterial infection with deeper skin involvement. Thus, with the source of urushiol eliminated, a person with a mild rash requires little or no further treatment. The sores will heal without treatment, but wet cold compresses of water or diluted liquid aluminum acetate (Burow's solution) may relieve any inflammation while the rash is still oozing. Calamine lotion is a good drying agent and helps to relieve the itching and inflammation. Cool showers or soaking in a lukewarm bath with oatmeal or baking soda added will help dry blisters and provide comfort.

A person should see a physician if the rash is severe, is on the face or genitals, or covers more than 20 percent of the body. The physician may prescribe medicines to reduce itching and inflammation. These may include antihistamines to be taken by mouth and corticosteroid lotions and creams to be applied to the skin. The doctor may prescribe oral corticosteroids in severe cases but also in some moderate ones.

Over-the-counter and prescription preparations for this condition should not be used excessively. When applied to the skin, antihistamines, benzocaine derivatives (mild anesthetics that often are used to lessen the itching of poison ivy), and some additives in corticosteroid preparations have been known to cause superimposed forms of contact dermatitis in many people. Thus, if the rash worsens after treatment, the affected person should suspect that it is an allergic reaction to what has been applied.

How can dermatitis be prevented?

Avoidance of poison ivy, oak, and sumac remains the best method of preventing allergic contact dermatitis symptoms. "Leaves of three, let them be" is the old saying and a wise one, too. Learning to identify these three members of Toxicodendron genus is a must.

Poison ivy has slightly glossy green leaves that grow in groups of three. The leaf shape may vary, and the plant may grow as a vine, or a trailing or low shrub. The plant may produce yellow-green flowers and greenish white berries with the distinct markings that make them resemble a peeled orange. Recognizing the berries can help identify the plants in late fall, winter, and early spring when the leaves are not present. Poison ivy can be found throughout

the United States, although it is most common in the eastern and central portions.

Poison oak closely resembles poison ivy, although it is usually more shrub-like, and its leaves are shaped somewhat like oak leaves. The undersides of the leaves are always a much lighter green than the surface and are covered with hair. The plant may develop hanging clusters of greenish or creamy white berries, although many plants bear no fruit. Poison oak grows on the west coast of North America from Mexico to British Columbia.

Eastern poison oak superficially resembles poison oak, but it is probably a variant of poison ivy. It is found chiefly in the southeastern United States.

Poison sumac grows mainly in uninhabited areas, especially in swampy locations. Thus, hikers, hunters, and others who spend a lot of time in the outdoors should become familiar with its appearance. A small tree about 5 to 6 feet high, poison sumac has 7 to 13 leaflets arranged in pairs, with a single leaflet at the end of the midrib. The leaves are elongated and without teeth. Poison sumac can be distinguished from harmless sumacs by its drooping clusters of green berries. Harmless sumacs have red, upright berry clusters.

Admittedly, avoiding these plants can be difficult. Poison ivy and poison oak grow almost everywhere, in backyards as well as in woods and pastures, although neither poison oak nor poison ivy grow at elevations above 4,000 feet. Wearing long sleeves, long pants, and gloves will help protect against exposure in heavily wooded areas. Animals usually do not react to urushiol, but since the resin may be on their fur, susceptible persons should be careful when handling pets. Give the family pet a thorough bath if there is any chance the animal has been in contact with the plants.

Recently, the U.S. Food and Drug Administration approved the use of bentoquatam, which is available over the counter, to prevent poison ivy. It comes in a lotion that should be applied to the skin at least 15 minutes before exposure to poison ivy, oak, or sumac. It provides a barrier that protects against or reduces the severity of the rash caused by the plants. Susceptible persons should reapply it every 4 hours for continued protection while they are in settings where they might become exposed to poison ivy, oak, or sumac. Bentoquatam should not be used if people already have a rash from these plants. It is especially useful for those who find it difficult to avoid contact with poison ivy, oak, or sumac, such as park rangers and hikers. It is not recommended for children under age 6.

For more information:

American Academy of Allergy, Asthma and Immunology
611 E. Wells Street
Milwaukee, WI 53202
800/822-2762 414/272-6071
<http://www.aaaai.org>

American Academy of Dermatology
920 N. Meacham Road
P.O. Box 4014
Schaumburg, IL 60168-4014
847/330-0230
<http://www.aad.org>

Food and Drug Administration
5600 Fishers Lane
Rockville, MD 20857
800/532-4440
<http://www.fda.gov>