



Lyme Disease

How do you get Lyme disease?

Lyme disease is caused by the bite of the western blacklegged tick carrying a spirochete called *borrelia burgdorferi*.

The adult female tick is reddish brown with black legs and is about one-eighth inch long. The male tick is slightly smaller and a darker brownish black color. Both male and female ticks are tear-drop shaped. Ticks in their nymph stage cause frequent bites to humans. In the nymph stage, they are only the size of a poppy seed.

How common is Lyme disease?

The western blacklegged tick has been reported in 50 of California's 58 counties. It is most commonly found in the humid coastal areas and on the western slopes of the Sierra Nevada mountain range. However, the number of ticks infected with the organism is very low in California. In Connecticut, 30% to 60% of the ticks carry Lyme Disease. (In fact, the disease is named after Lyme, Connecticut.) In contrast, the percentage in California is only 1% to 2%. Humboldt, Sonoma and Mendocino counties traditionally have the highest number of Lyme Disease cases. But even in those counties, only 6% of the ticks are carriers of Lyme Disease. The damp, mild climate and shaded brush-filled fields of these counties provide an excellent home for the ticks carrying Lyme disease.

Connecticut leads the nation in numbers of people infected with Lyme Disease at 95 cases per 100,000 people. The national average is 6.58 cases per 100,000 people. In comparison, there are only 0.2 cases per 100,000 people in California. Each year, fewer than 100 Californians are infected with Lyme Disease.

Adult ticks are most commonly found from December to June when the humidity is high. The primary danger season is late spring and early summer. Ticks do not fly, jump or drop from trees. They live on vegetation beside paths about knee level. When a host brushes by, the tick hitches a ride. Instinctively, the ticks crawl upwards until they find a patch of skin. They prefer warm, moist skin areas where they can hide in patches of hair.

Ticks have to be attached for quite a long period as it takes time for the tick to transmit the Lyme Disease organism into the bloodstream of the host. If the tick is attached for less than 48 hours, the chances of transmission are low. Some say that the tick must be attached for 72 hours to infect the host.

What are the symptoms?

Lyme disease has three stages.

Stage one: Symptoms can occur at any time from three to 30 days after the bite of an infected tick. The first sign is a distinctive spreading rash known as erythema chronicum migrans (ECM). ECM is a red blotchy circular rash that may be several inches in diameter. The center of the rash is usually unaffected, giving a ring or bulls-eye appearance. The rash is not necessarily at the site of the tick bite but may be anywhere on the body. One or more rashes may be present. Flu-like symptoms may appear before, during or after (usually after) the ECM rash.

Stage two: Weeks to months after the initial symptoms, severe long-term complications may develop. These symptoms include heart disorders, meningitis, encephalitis, facial palsy, and other conditions that involve the nervous system. Traveling pains in the joints, muscles and bones, frequently without redness or swelling, may occur at this stage.

Stage three: Months to years later, patients may develop arthritis that appears and disappears for several years. Large joints, especially the knees, are most often affected.

How is Lyme disease treated?

If you find a tick attached to your skin, or if you were in an area where ticks are known to live and you are experiencing any symptoms, see your physician. Treatment with antibiotics during the early stages of Lyme disease can cure the infection and prevent complications.

How can Lyme disease be prevented?

Because of the severity of Lyme disease symptoms and the unreliability of testing procedures, prevention is the key.

- ◆ Try to avoid narrow trails, brush and areas with high grass when in tick-infested areas.
- ◆ Wear long pants tucked into hiking socks or boots so it will be harder for the tick to find bare skin.
- ◆ Wear a light colored shirt tucked into the waistband of the pants. Light colored clothes make it easier to see ticks as they travel.
- ◆ Use insect repellents, labeled as effective against ticks, on pant cuffs, socks and shoes. Do NOT saturate clothing. Do not use on bare skin unless the label says it is safe.
- ◆ Repellents with a 30% or greater concentration of DEET will be effective against ticks. **Caution: use DEET very sparingly and carefully on young children, if at all. Children are more sensitive to the effects of this chemical.**
- ◆ Permethrin-containing insecticides are effective against ticks but are not to be used on bare skin. Tent flaps can be sprayed with permethrin as a deterrent. Caution: People with asthma, hayfever and allergies may be sensitive to permethrin products.
- ◆ Frequently check yourself, children and pets for ticks. It best to have a partner to check you for ticks so hard-to-see areas are not overlooked.
- ◆ At the end of the hike or the end of the day, do a very thorough tick inspection, remembering that ticks like warm, moist hairy areas.

If You Are Bitten

- ◆ Prompt removal of the tick may prevent Lyme disease.
- ◆ If possible, have someone else remove the tick for you.
- ◆ Use tweezers. Grab the tick by the mouthparts as close to the skin as possible. Gently and steadily, slowly pull the tick straight out. Do not jerk or twist the tick out.

- ◆ If possible, do not use your fingers. If you must touch the tick, use a tissue. If the tick is crushed, exposure to the “juice” may cause disease.
- ◆ If the tick’s mouthparts or head break off or remain in the wound, contact or see your physician.
- ◆ You may wish to save the tick to show to your physician. But remember that the number of infected ticks in California is very low. Otherwise, flush the tick down the toilet.
- ◆ Wash your hands and bite area with plenty of warm water and soap. Apply an antiseptic.
- ◆ Use the same technique to remove ticks from animals.

There are specially made tick-tweezers and tick-removal pliers available at sporting goods stores. If you live or frequently hike in known tick-infested areas, you may want to investigate these products.

Old-fashioned methods of tick removal include smothering it with petroleum jelly, burning it with a match or cigarette, dousing it with gasoline, and unscrewing it like a corkscrew. None of those methods are effective and none of them are recommended, not even in an emergency. They are all dangerous as they usually result in the tick leaving its mouthparts embedded in the skin. They may also induce a tick to regurgitate (vomit) into the tick bite and into your blood stream. Remove the tick correctly or don’t attempt tick removal at home at all.

Some physicians want to see all cases of tick bite. Many feel that antibiotics should be started for all cases, even though the incidence of Lyme Disease is low in California. Call your physician for more advice about bites in your area.

For more information on Lyme disease in your area, call your local public health department or the California Department of Health Services, Division of Communicable Diseases, in Berkeley.

