



Avoiding and Managing Tick bites

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Lyme disease is a bacterial infection that may develop after a bite from a Lyme-infected blacklegged (deer) tick. The CDC estimates that more than 475,000 new cases of Lyme disease occur each year in the US but only a fraction of these cases are reported to public health officials.

Avoid Ticks and Tick Habitat



EL Maloney, composite of CDC maps

Many areas of the country are at high risk for Lyme disease. The best way to prevent Lyme disease is to avoid the blacklegged ticks (see photo below) that transmit the infection. This map depicts where blacklegged ticks are commonly found.

People who live/work/recreate in Lyme-endemic areas or tick habitat may be exposed to disease carrying ticks in a variety of settings – campsites, parks, golf courses, sports fields, and their own back yards. Pet ownership is associated with an increased risk of Lyme disease. Age-related risk is greatest in school-aged kids and lowest in young adults.

When possible, stay out of tick habitats, especially areas with long grass, lots of brush or leaf litter. Stay in the center of hiking and biking trails; don't sit on fallen logs. At home, clear away brush and fallen leaves, keep your grass short. Place lawn furniture and play structures in sunny areas of the yard. Bird feeders and wood piles attract tick-carrying mice so keep them far from the house. Don't feed deer or use plants that attract them.



Avoiding Tick Bites: Dress for Success

Ticks don't bite through clothing so minimize your exposed skin by wearing long sleeves and pants whenever possible. Tuck pants legs into socks to keep ticks from crawling under the hem onto your leg. Wearing light-colored clothing makes it easier to spot ticks. Tie back long hair; better yet, wear a permethrin-treated hat. If you spend a large amount of time in tick habitat, consider investing in permethrin embedded clothing.

Avoiding Tick Bites: Use Insecticides and Repellents

Insecticides and repellents reduce the risk of a tick bite. Insecticides kill ticks; repellents encourage them to leave before biting. Permethrin should be part of your protection program, along with one of the repellents discussed below. The duration of protection varies widely between products and different concentrations of the same product. For more information on specific products, check out the Environmental Protection Agency's website - <https://www.epa.gov/insect-repellents/find-insect-repellent-right-you>.

- **Permethrin** is an insecticide that's essential to prevention plans. Apply it to clothing, sleeping bags, tents and other gear, but not skin, before entering tick habitat. It remains effective for 2-6 weeks and through multiple washings. Manufactured permethrin-embedded clothing is reported to retain its effectiveness even longer. Permethrin products are sold at outdoor stores and online.
- **Picaridin** is as effective as DEET but with fewer hassles. Apply concentrations of 15-20% to unbroken skin. It is non-toxic and safe for children of all ages. Unlike DEET, picaridin won't harm fabrics and materials.
- **DEET** is the best-known, most widely available repellent, use concentrations of 30-50% on unbroken skin. The EPA considers DEET to be safe for children who are over 2 months old but Canada's health department recommends against using DEET on children. It can damage synthetic fabrics and materials such as leather or rubber.
- **Oil of Lemon Eucalyptus** is a natural repellent for use on unbroken skin. Unlike many other herbal repellents, it has demonstrated its effectiveness in trials.

Avoiding Tick Bites: Drying Clothes and Showering Off Ticks

After returning from tick habitat, immediately take off your clothing and place it in the dryer on high heat as this will kill any ticks that are on your clothes. You'll need 10 min for dry clothing; up to 60 min for clothes that are wet. While your clothes are drying, take a shower and towel off vigorously. It has been shown that this reduces your risk of acquiring Lyme disease.

Managing Tick Bites: Tick Checks are Vital

Check for ticks frequently while in tick habitat and for 1-2 days after potential exposure. Pets that go outdoors can bring ticks indoors; check them for ticks as soon as they come indoors.

The risk of contracting Lyme disease depends on how long the tick was attached and how likely it is to be infected. Few infected ticks transmit Lyme in less than 24 hours but by 60 hours, the transmission rate is 50% and it's almost 100% if ticks are allowed to feed until full. In many high-risk areas, half of the deer ticks are infected with Lyme.



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Managing Tick Bites: Removing an Embedded Tick

If you find an attached tick, remove it as soon as possible. There are many types of tick removers on the market but a pair of tweezers will work just fine. Don't use liquid soap, gasoline, Vaseline or a lit match to provoke the tick into letting go; these methods usually don't work and may make it harder to use your tweezers. Also, because Lyme bacteria live in a tick's midgut, in theory, doing things that irritate the tick could cause it to regurgitate, increasing the risk of transmission. This is also the reason why it's best to avoid squeezing the tick's body.



Follow this process:

1. Calm down
2. Grasp the tick as close to your skin as possible.
Ideally, this will be on the tick's head but if it can't be, that's ok.
3. Pull straight up with steady pressure until the tick is out.
4. Wash the bite area with soap and water
5. If possible, save the tick in a resealable container; your doctor may want to examine it.

Managing Tick Bites: Antibiotic Treatment of Deer Tick Bites

Certain antibiotics may reduce the risk of Lyme disease if taken within 48 hours of a bite. Contact your doctor immediately after a bite to discuss this strategy. Treatment decisions should not be based on blood tests done shortly after a bite because the results are unreliable. If you live in a high-risk area, following a "wait and see" approach is risky because 30% of the Lyme disease cases reported to CDC never demonstrated a Lyme rash. Antibiotic approaches are changing; ask your doctor to review this paper, "The Management of Ixodes scapularis Bites in the Upper Midwest", [Wisconsin Medical Journal 110no1, Feb 2011](#), PubMed ID: 21560562. It's available for free online and reads quickly. You should read it, too. That way you'll both be ready to discuss your options.

Avoiding bites is better than managing them, in other words –

***An ounce of permethrin,
is worth a pound of antibiotics.***