Ticks and Lyme Disease

How to prevent tick bites when hiking and camping

Ticks can spread disease, including Lyme disease. Protect yourself:

- Use insect repellent that contains 20 - 30% DEET.
- Wear clothing that has been treated with permethrin.
- Take a shower as soon as you can after coming indoors.
- Look for ticks on your body. Ticks can hide under the armpits, behind the knees, in the hair, and in the groin.
- Put your clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.

How to remove a tick

1. If a tick is attached to you, use fine-tipped tweezers to grasp the tick at the surface of your skin.
2. Pull the tick straight up and out. Don't twist or jerk the tick—this can cause the mouth parts to break off and stay in the skin. If this happens, remove the mouth parts with tweezers if you can. If not, leave them alone and let your skin heal.
3. Clean the bite and your hands with rubbing alcohol, an iodine scrub, or soap and water.
4. You may get a small bump or redness that goes away in 1-2 days, like a mosquito bite. This is not a sign that you have Lyme disease.

Note: Do not put hot matches, nail polish, or petroleum jelly on the tick to try to make it pull away from your skin.

If you remove a tick quickly (within 24 hours) you can greatly reduce your chances of getting Lyme disease.
Lyme disease is a Multi-Systemic Disease caused by the bacteria called *Borrelia burgdorferi* (Bb) which normally is a bacterial spirochete (spiral) shape.

**General Early Signs & Symptoms:**
Erythema Chronicum Migrans (EM) also called the Bull’s Eye Rash, at bite site. Rash only found in 50% of patients.
Other Types of Rashes anywhere on the body (rash at other than bite site signals disseminated disease).
Fever & Flu like Symptoms/Illness.

**Musculoskeletal:** joint pain or swelling or stiffness, muscle pain, shin splints, neck or back stiffness, migrating muscle pain or cramps, TMJ, neck creaks & cracks, tender soles.

**Reproductive:** testicular pain/pelvic pain, menstrual irregularity, unexplained milk production (lactation), sexual dysfunction or loss of libido.

**Cardiac/Pulmonary:** Chest pain or rib soreness, shortness of breath, heart palpitations, pulse skips, slow pulse, heart block, heart murmur, valve prolapse.

**Neurological:** muscle twitching, headache, tingling, numbness, burning or stabbing sensations, facial paralysis (that looks like Bell’s palsy), dizziness, poor balance, increased motion sickness, light-headedness, wooziness, difficulty walking, tremor, confusion, difficulty thinking/concentrating/reading, forgetfulness, poor short term memory, disorientation (getting lost, going to wrong place), difficulty with speech, double or blurry vision, eye pain, blindness, increased floaters, increased sensitivity to light or sound or smell, buzzing or ringing in ears, ear pain, decreased hearing or deafness, difficulty swallowing, seizure activity, white matter lesions, low blood pressure.

** Neuropsychiatric:** mood swings, irritability, depression, disturbed sleep (too much, too little, early awakening), personality changes, Obsessive Compulsive Disorder (OCD), violent outbursts, paranoia, panic/anxiety attacks, hallucinations.

**Gastrointestinal:** Nausea or vomiting, difficulty eating, change in bowel function.
Constipation, diarrhea, gastritis, abdominal cramping, irritable bladder or bladder dysfunction, cystitis.

**Other:** fever, sweats, or chills, weight change (loss or gain), fatigue, tiredness, hair loss, swollen glands, sore throat, difficulty swallowing, swelling around the eyes, & swelling in feet.

www.lymediseaseassociation.org
Lyme disease is caused by a spiral-shaped bacteria, *Borrelia burgdorferi* (Bb), or by newly discovered *Borrelia mayonii*. It is usually transmitted by the bite of an infected tick—*Ixodes scapularis* in the East, *Ixodes pacificus* in the West. The longer a tick is attached, the greater risk of disease transmission. Improper removal increases risk of infection. Go to www.LymeDiseaseAssociation.org for details.

1. Lyme is the most prevalent vector-borne disease in the USA. The ticks that cause Lyme are now found in 50% of US counties. It’s found in more than 80 countries worldwide.

2. According to the Centers for Disease Control & Prevention (CDC), only 10% of Lyme disease cases are reported each year. So in 2015, about 400,000 new cases of Lyme occurred in the USA. In 2009, CDC said the incidence of Lyme surpassed that of HIV.

3. One bite from *Ixodes scapularis* (western blacklegged/deer tick) can transmit one or more: Lyme, babesiosis, anaplasmosis, tularemia, ehrlichiosis, bartonellosis, *Borrelia miyamotoi*, tick paralysis, Powassan virus, clouding diagnostic/treatment picture.

4. Lyme disease is often called the "Great Imitator." It may be misdiagnosed as; multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS), lupus, chronic fatigue, fibromyalgia, autism, Alzheimer’s, Parkinson’s disease and other conditions.

5. A bite from a tick that’s infected with Lyme disease bacteria can lead to neurologic, cardiac, arthritic and psychiatric manifestations in humans. It may cause death, sometimes cardiac related.

6. Children account for 30% of Lyme cases; ages 5-14 are at the highest risk. A Columbia University study shows a significant IQ drop in a student with Lyme, reversed after treatment.

7. Laboratory tests for Lyme disease are not reliable, about 50% accurate; you can test negative and still have Lyme disease.

8. The Lyme bacteria can cross the placenta, infect the fetus, possibly cause birth defects and CDC says can result in fetal death, especially in untreated mothers. The Lyme bacteria’s DNA has been found in human breast milk, no transmission has been shown. *Borrelia in a fetal brain, courtesy of A. MacDonald, MD.*

9. *Borrelia burgdorferi*, Bb, the Lyme bacteria, has not been found to be transmitted through the blood supply. However, a CDC study shows it is possible in mice under lab conditions, and other studies show Bb can survive blood banking conditions. *Babesia* can be transmitted through the blood supply.

10. About 50% may get a rash with Lyme disease, but only 9% get the classic bull’s eye rash. Symptoms may occur days or months after a tick bite. Rash at another than bite site may be disseminated disease.

This material is presented to provide practical & useful information on the subject matter covered. It is being presented with the understanding that LDA is not engaged in rendering medical or other professional services. If medical or other expert assistance is required, the services of a licensed physician should be sought. If you chose to use preventive products on yourself or your pets, carefully read and follow your medical professional and manufactures' suggestions. Do not alter this material.
When to see your doctor

See a doctor if you develop a fever, a rash, severe fatigue, facial paralysis, or joint pain within 30 days of being bitten by a tick. Be sure to tell your doctor about your tick bite. If you have these symptoms and work where Lyme disease is common, it is important to get treatment right away.

If you do not get treatment, you may later experience severe arthritis and problems with your nerves, spinal cord, brain, or heart.

Antibiotics are used to treat Lyme disease

Your doctor will prescribe specific antibiotics, typically for 2-3 weeks. Most patients recover during this time. You may feel tired while you are recovering, even though the infection is cured.

If you wait longer to seek treatment or take the wrong medicine, you may have symptoms that are more difficult to treat.

Looking ahead to recovery

Take your antibiotics as recommended. Allow yourself plenty of rest. It may take time to feel better, just as it takes time to recover from other illnesses.

Some people wonder if there is a test to confirm that they are cured. This is not possible. Your body remembers an infection long after it has been cured. Additional blood tests might be positive for months or years. Don't let this alarm you. It doesn't mean you are still infected.

Finally, practice prevention against tick bites. You can get Lyme disease again if you are bitten by another infected tick.

Additional information

1. http://www.cdc.gov/Lyme

2. The Clinical Assessment, Treatment, and Prevention of Lyme Disease, Human Granulocytic Anaplasmosis, and Babesiosis: Clinical Practice Guidelines by the Infectious Diseases Society of America http://cid.oxfordjournals.org/content/43/9/1089.full


For more information please contact Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-63548
Email: cdcinfo@cdc.gov Web: www.cdc.gov
It's Lyme Time!
Be Tick Aware!

1. Walk in the middle of trails; avoid sitting on logs and leaning on trees.
2. Wear a hat, tuck in hair, if possible.
3. Wear a long-sleeved shirt fitted at the wrist.
4. Wear shoes, no bare feet or sandals.
5. Wear long pants tucked into high socks or duct tape around pants.
6. Consider Deet for skin and permethrin for clothes.
7. Wear white or light-colored clothing to make it easier to see ticks.
8. Do tick checks immediately and 3 days after outdoor activity.
9. If you find a tick, ask an adult to remove it carefully and save it.

Lyme Disease is transmitted by a tiny tick the size of a poppy seed.
Remove tick with tweezers. Pull straight out as close to the skin as possible. Save tick in container and call doctor.

California Lyme Disease Association
www.lymedisease.org
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