

The background of the entire image is a lush green forest with tall, thin trees and a dense canopy. A white tent is pitched in the center of the forest, with its ropes and stakes visible. The tent's structure is a large, inverted triangle. The text is overlaid on this tent structure.

**7 THINGS TO KNOW  
ABOUT LYME DISEASE**

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**STAY  
SAFE**

# 7 THINGS TO KNOW ABOUT LYME DISEASE

## ***What is it?***

Lyme disease is a bacterial infection transmitted by deer ticks, and on the West Coast, black-legged ticks. Early signs and symptoms mimic the flu - fever, chills, headache, fatigue, muscle and joint pain, and swollen lymph nodes. In up to 80% of Lyme infections, a rash is one of the first symptoms. The traditional “Bull’s Eye” rash is a clear indication of a tick bite, but may go unnoticed (scalp, groin). In some Lyme cases, there is no rash. Symptoms can begin from 3 to 30 days after the bite and can be wide-ranging, depending on the stage of the infection. In some cases, symptoms can appear months after the bite.



- \* Without treatment, symptoms can get worse. They might include:
- Severe headache or neck stiffness
  - Rashes on other areas of the body
  - Arthritis with severe joint pain and swelling, particularly in the knees
  - Loss of muscle tone or “drooping” on one or both sides of the face.
  - Heart palpitation or an irregular heartbeat
  - Inflammation of the brain and spinal cord
  - Shooting pains, numbness, or tingling in the hands or feet

## ***How can you get it?***

You get Lyme Disease by being bitten by a tick that carries *Borrelia burgdorferi* bacteria (Bb). Ticks don't start out being infected with Lyme. They get it by feeding on an infected animal, often a mouse or other small rodent. Then, they pass it along to the next animal or person they bite. (You can't "catch it" from another person or pet who has it.)

The chances you might get Lyme disease from a tick bite depend on the kind of tick, where you were when the bite occurred, and how long the tick was attached to you, the CDC says. This [tool](#) will generate a map of the number of reported positive cases Lyme disease in dogs your area, one indicator of Lyme Disease risk.

The longer a tick stays on you, the more likely it will transmit disease.

It's important to find and remove any tick as soon as possible.



## ***How to Remove a Tick***

If you have a tick, it is important to remove it properly. Using fine-tipped tweezers, grasp the part of the tick that's closest to your skin -- you want to grab the head, not the belly. Slowly pull the tick straight out, without twisting it. Wash the bite site with soap and warm water.

Some people suggest saving the tick (in a small air-tight container or zip-top bag) so it can be tested if symptoms of Lyme Disease appear. Do not use a lit match, nail polish, petroleum jelly, or other topical agents in an attempt to remove a tick.

## ***How can you prevent it?***

\* Wear protective clothing. Before you venture outdoors, pull on a light-colored, long-sleeved shirt, and pants that extend all the way down to your feet. Long sleeves and pants will act as a barrier to your skin, while light-colored clothing will help you spot ticks more easily. Take off all clothing and socks and place them in the dryer on its highest setting for 20 minutes after coming indoors. This will kill any ticks attached.

\* Use Tick Repellent. You can purchase clothing that has been pre-treated with the repellent permethrin or purchase permethrin and spray clothing yourself. Spraying footwear with permethrin will prevent ticks from crawling up your shoes. (In one study, those with treated shoes had 74% fewer tick bites than those with untreated shoes.) There are many effective natural and chemical tick repellents for use on exposed skin, DEET has been proven most effective.

\* Stay on the trail. Whether you're hiking, biking, or jogging outside, stick to a well-managed path or trail. Ticks are less likely to hang out in sunny, open spaces with minimal leaf litter.



\* Don't overlook your pets. Ticks and other blood-sucking insects can pass on harmful diseases to our furry friends, too. Have your pets regularly treated to reduce ticks and fleas. When your dog comes inside after running through the yard, check it thoroughly for ticks. Remember: Ticks like to hide in stealthy spots. Check your dog's gums, ears, and toes, along with the rest of his furry self.

\* Maintain your yard. Ticks love to hang out in tall grass, so be sure to keep your lawn trimmed this spring and summer. They also enjoy moist, shaded wood piles. If you stack firewood in your yard, for instance, make sure it's in a spot that gets some sun, to help keep it dry. You can also use wood to your advantage. Ticks don't enjoy crossing over rough surfaces, so use wood chips or gravel to create a 3-foot-wide barrier between your lawn and any wooded areas. It's not foolproof, but it will go a long way toward keeping ticks out of your yard.

\* Replace deer-friendly plants. As enjoyable as it might be to see deer in your backyard, they often carry Lyme-bearing ticks. The Global Lyme Alliance recommends removing plants that attract deer if you can, including apple, pear and cherry trees, as well as rhododendrons, rose bushes, pansies, daisies, lilies, tulips, and black-eyed susans. You can replace them with plants that are not typically deer favorites, such as ornamental grass, red osier dogwood shrub, lavender, yarrow, dwarf aster, and creeping juniper groundcover. The Tick Management Handbook is a guide for homeowners, pest control operators and public health officials from the Connecticut Agricultural Experiment Station. It provides information on ticks, diseases, personal protection, prevention, how to prepare your landscape and chemical controls.

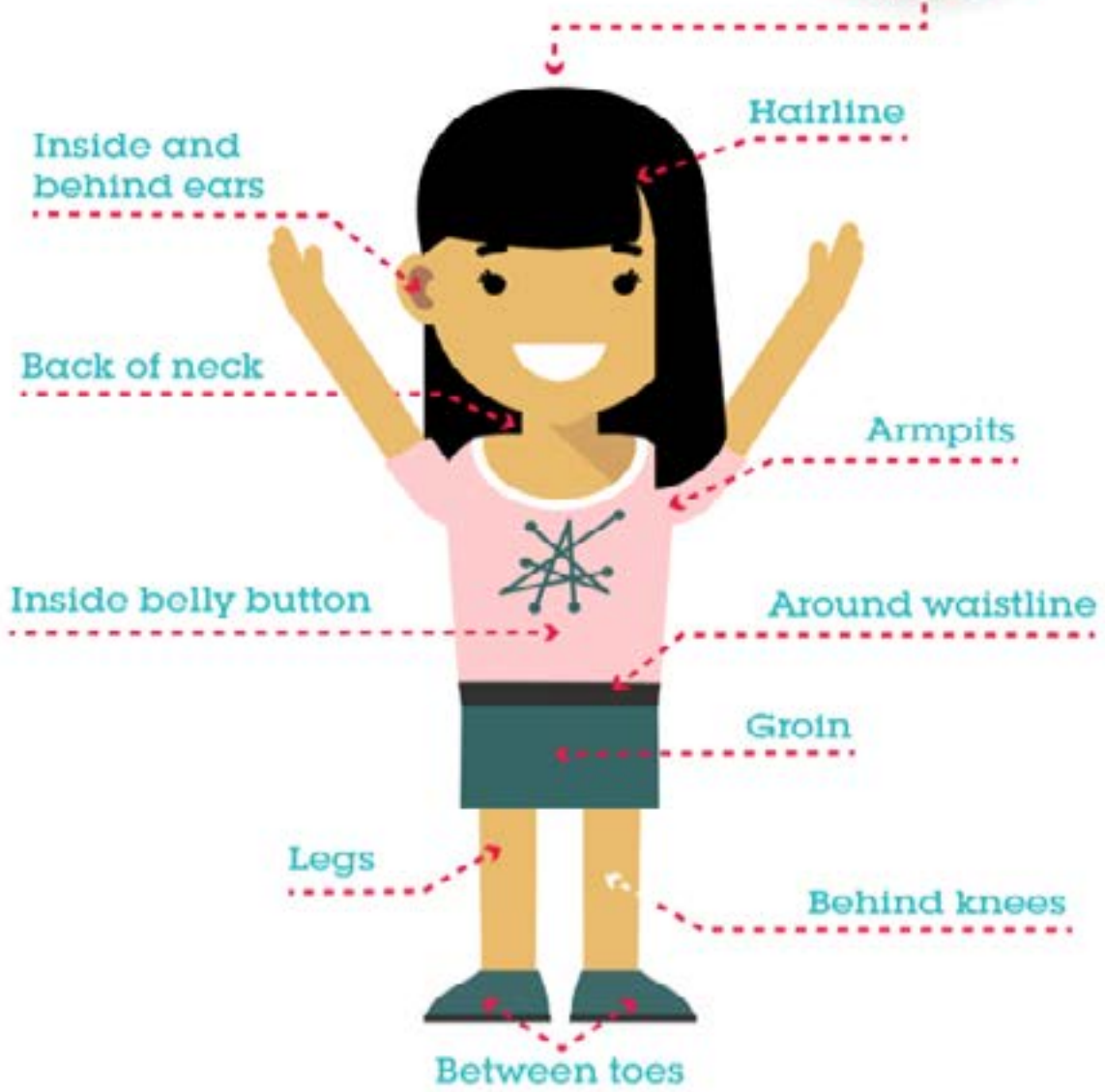
Click here to [download it](#).

\* Perform regular self-checks!! Even the quickest physical contact with vegetation is enough to pick up a tiny hitchhiker. So if you have a close brush with nature, stop and check for ticks. Remember that some ticks are smaller than a pinhead – use a bright light and magnifying glass if needed. Shower within two hours of coming indoors, if possible. Repeat the check three days later and check for embedded ticks and any rash.

WebMD

Where to check for

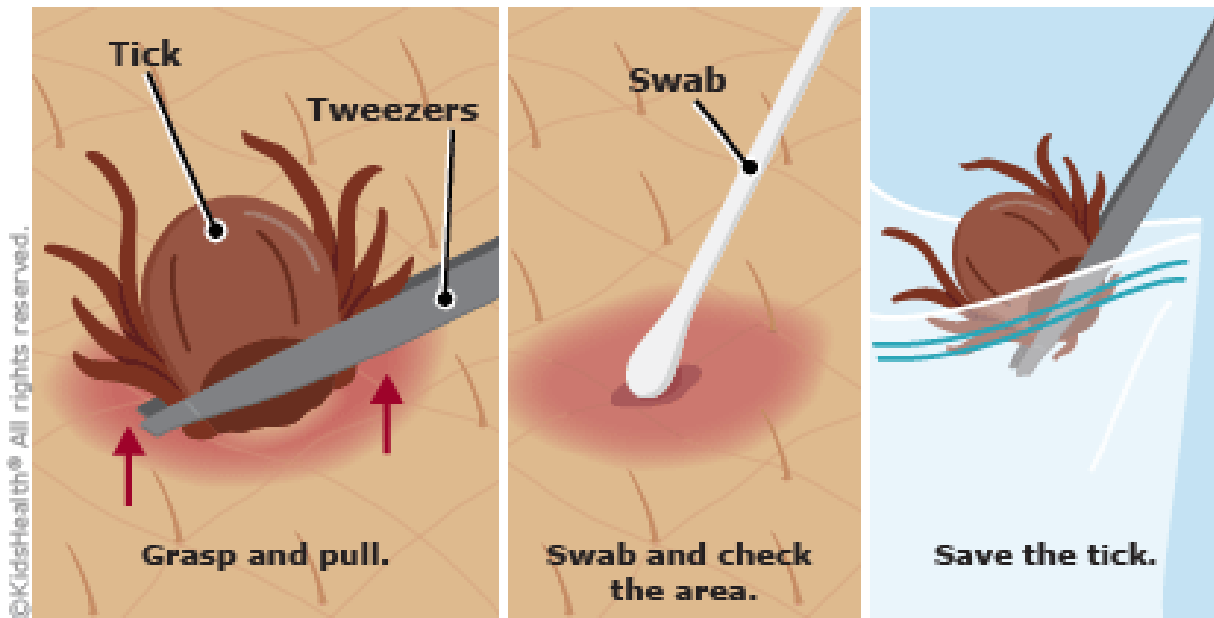
# TICKS



Sources: CDC, Massachusetts Department of Health and Human Services

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## ***How is it diagnosed?***

Doctors diagnose Lyme Disease based on symptoms and a history of tick exposure. Unfortunately, diagnostic testing is unreliable in the early stages of infection, often giving false negatives, as antibodies take a few weeks to develop. Even in later stages, the two-tiered testing is highly insensitive missing roughly half of those who have Lyme disease. False positives are also quite common.

Doctors may not recognize symptoms, especially those who practice in areas where Lyme infection isn't prevalent, and up to 30% of the infections are not accompanied by a rash. However, because diagnosing Lyme can be difficult, many people who actually have Lyme may be misdiagnosed with other conditions.

It has been reported that it takes an average of 22 months and seven doctors for the average Lyme patient to be diagnosed with a Bb infection.

Treatment should not be delayed pending a positive test result if the suspicion of Lyme disease is high (exposure, tick bite, possible rash).

## What to look for?

# LYME DISEASE SYMPTOMS

**EARLY LYME\*** -VS- **CHRONIC LYME\*\***

Fatigue **76%**

Headache **70%**

Rash **<70%**

Fever **60%**

Sweats **60%**

Chills **60%**

Muscle Pain **54%**

Joint Pain **48%**

Neck Pain **46%**

Sleep Issues **41%**



Fatigue **79%**

Joint Pain **70%**

Muscle Pain **69%**

Other Pain **66%**

Sleep Issues **66%**

Cognitive **66%**

Neuropathy **61%**

Depression **62%**

Heart Related **31%**

Headaches **50%**

\*(Aucott 2013)    \*\* (Johnson 2014. Moderate to very severe symptoms)  
Estimates of rash rates range from 25-80% <http://tinyurl.com/kfvu8yt>

## ***How is it treated?***

Antibiotics are used to treat early stage Lyme infection. Patients typically take doxycycline for 10 days to 3 weeks, or amoxicillin and cefuroxime for 2 to 3 weeks. In up to 90% of cases, the antibiotic cures the infection. If it doesn't, patients might get other antibiotics either by mouth or intravenously.

For early disseminated Lyme disease, which may happen when a Lyme infection goes untreated, oral antibiotics are recommended for symptoms such as facial palsy and abnormal heart rhythm. Intravenous antibiotics are recommended if a person has meningitis, inflammation of the lining of the brain and spinal cord, or more severe heart problems. In late-stage Lyme, a patient may receive oral or intravenous antibiotics. Patients with lingering arthritis would receive [standard arthritis treatment](#).

## ***Is there a cure?***

Most Lyme disease is curable with antibiotics, particularly when the infection is diagnosed and treated early. Later stages might require longer-term, intravenous antibiotics. It is estimated that 10% - 20% of Lyme Disease patients will not respond to antibiotics and the disease will progress to post-treatment Lyme disease syndrome (PTLDS), formerly called Chronic Lyme Disease. There is no currently approved treatment for PTLDS, although many alternative therapies have been successful.

## ***What else should I know?***

If you have Lyme Disease, you are not alone. The Centers for Disease Control and Prevention estimate that 300,000 people are diagnosed with Lyme disease in the US every year, and that number is rising rapidly.

There are many support groups who offer a variety of resources:

- o Rochester Lyme Group
- o <http://www.empirestatelymediseaseassociation.org/>
- o <http://www.lymenet.org/SupportGroups/UnitedStates/>
- o <https://groups.yahoo.com/neo/groups/NewYorkLyme/info?gucounter=1>

**Hyperbaric Oxygen Therapy**  
has been shown to improve symptoms of  
Chronic Lyme Disease/PTLDS.

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