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Lyme Disease

Lyme disease is often associated with heavily wooded or grassy areas where mice and deer live. It's most common in the Northeast, the Pacific Northwest, and the northern Midwest states.

About Lyme Disease

Lyme disease is caused by the bacterium *Borrelia burgdorferi*, which is found in small animals like mice and deer. Ixodes ticks (also called black-legged or deer ticks) that feed on these animals can then transmit *Borrelia burgdorferi* to people through tick bites.

Ticks are small and can be hard to see. Immature ticks, or nymphs, are about the size of a poppy seed; adult ticks are about the size of a sesame seed.

It's important to know and watch for symptoms of Lyme disease because ticks are hard to find and it's easy to overlook a tick bite — in fact, many people who get Lyme disease don't remember being bitten. The good news is that most tick bites don't result in Lyme disease.

Signs and Symptoms

Lyme disease can affect different body systems, such as the nervous system, joints, skin, and heart. Symptoms are often described as happening in three stages (although not everyone experiences all three):

1. A circular rash at the site of the tick bite, typically within 1-2 weeks of infection, often is the first sign of infection. Although a rash is considered typical of Lyme disease, many people never develop one.

The rash sometimes has a characteristic "bull's-eye" appearance, with a central red spot surrounded by clear skin that is ringed by an expanding red rash. It also can appear as an expanding ring of solid redness. It is usually flat and painless, but sometimes can be warm to the touch, itchy, scaly, burning or prickling. The rash may appear and feel very different from one person to the next, and it might be more difficult to see on people with darker skin tones, where it can look like a bruise. It expands over the course of days to weeks, and eventually disappears on its own. Along with the rash, a person may have flu-like symptoms such as fever, fatigue,

headache, and muscle aches.

2. Left untreated, symptoms of the initial illness may go away on their own. But in some people, the infection can spread to other parts of the body. Symptoms of this stage of Lyme disease usually appear within several weeks after the tick bite, even in someone who has not developed the initial rash. A person might feel very tired and unwell, or have more areas of rash that aren't at the site of the bite.

Lyme disease can affect the heart, leading to an irregular heart rhythm, which can result in dizziness or heart palpitations. It can also spread to the nervous system, causing facial paralysis (Bell's palsy), or meningitis.

3. The last stage of Lyme disease can occur if the early stages were not detected or appropriately treated. Symptoms of late Lyme disease can appear anytime from weeks to years (average of 6 months) after an infectious tick bite, and in children is almost always in the form of arthritis, with swelling and tenderness particularly in the knee or other large joints.

Having such a wide range of symptoms can make Lyme disease difficult for doctors to diagnose, although certain blood tests can be done to look for evidence of the body's reaction to Lyme disease.



When to Call the Doctor

If you think your child could be at risk for Lyme disease or has been bitten by a tick, call your doctor. Although other conditions can cause similar symptoms, it's always wise to contact your doctor, especially if your child develops a red-ringed rash, prolonged flu-like symptoms, joint pain or a swollen joint, or facial paralysis. That way your child can get further evaluation and treatment, if necessary, before the disease progresses too far.

Prevention

There's no surefire way to avoid getting Lyme disease. But you can minimize your family's risk.

Be aware of ticks in high-risk areas like shady, moist ground cover or areas with tall grass, brush, shrubs, and low tree branches. Lawns and gardens may harbor ticks, too, especially at the edges of woods and forests and around old stone walls (areas where deer and mice,

the primary hosts of the deer tick, thrive).

If you or your kids spend a lot of time outdoors, take precautions:

- Wear enclosed shoes or boots, long-sleeved shirts, and long pants. Tuck pant legs into shoes or boots to prevent ticks from crawling up legs.
- Use an insect repellent containing 10% to 30% DEET (N,N-diethyl-meta-toluamide).
- Wear light-colored clothing to help you see ticks more easily.
- Keep long hair pulled back or tucked in a cap for protection.
- Don't sit on the ground outside.
- Check for ticks regularly — both indoors and outdoors. Wash clothes and hair after leaving tick-infested areas.

If you use an insect repellent containing DEET, always follow the recommendations on the product's label and don't overapply it. Place DEET on shirt collars and sleeves and pant cuffs, and only use it directly on exposed areas of skin. Be sure to wash it off when you go back indoors.

No vaccine for Lyme disease is currently on the market in the United States.

Treatment

Lyme disease is usually treated with a 2- to 4-week course of antibiotics. Cases that are diagnosed quickly and treated with antibiotics almost always have a good outcome. A person should be feeling back to normal within several weeks after beginning treatment.

Contagiousness

Lyme disease is not contagious, so it can't be transmitted from person to person. But people can get it more than once from ticks that live on deer, in the woods, or travel on pets. So continue to practice caution even if you or your child has already had Lyme disease.

If You Find a Tick

You should know how to remove a tick just in case one lands on you or your child. First, don't panic. The risk of developing Lyme disease after being bitten by a tick is only about 1% to 3%. On top of that, it takes at least 24 to 48 hours for the tick to transmit the bacteria that cause Lyme disease. (To be safe, though, you'll want to remove the tick as soon as possible.) This is why a daily tick check is a good idea for people who live in high-risk areas.

If you find a tick:

- Call your doctor, who might want you to save the tick after removal so it can be determined if it's the type that can carry Lyme disease. Put the tick in a sealed container to preserve it.
- Use tweezers to grasp the tick firmly at its head or mouth, next to the skin.
- Pull firmly and steadily on the tick until it lets go of the skin. If part of the tick stays in the skin, don't worry. It will eventually come out — although you should call your doctor if you notice any irritation in the area or symptoms of Lyme disease.
- Swab the bite site with alcohol.

One note of caution: Don't use "folk remedies" like petroleum jelly or a lit match to kill and remove a tick. These methods don't get the tick off skin and might just cause the insect to burrow deeper and release more saliva (which increases the chances of disease transmission).

Tick bites don't generally hurt — that's part of the difficulty in knowing whether someone has Lyme disease because pain usually helps to call attention to problems. So be on the lookout for ticks and rashes, and call your doctor if you're at all concerned.

Reviewed by: Elana Pearl Ben-Joseph, MD

Date reviewed: July 2013



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Note: All information is for educational purposes only. For specific medical advice, diagnoses, and treatment, consult your doctor.