

What is Lyme disease?

Lyme disease is a tick-borne disease caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged ticks.

What are the symptoms of Lyme disease?

Early Signs and Symptoms (3 to 30 days after tick bite)

- Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes
- Erythema migrans (EM) rash (may appear on any area on the body):
 - Occurs in approximately 70 to 80 percent of infected persons
 - Begins at the site of a tick bite after a delay of 3 to 30 days (average is about 7 days)
 - Expands gradually over a period of days reaching up to 12 inches or more (30 cm) across
 - May feel warm to the touch but is rarely itchy or painful
 - Sometimes clears as it enlarges, resulting in a target or “bull's-eye” appearance

Later Signs and Symptoms (days to months after tick bite)

- Severe headaches, neck stiffness, dizziness, and/or shortness of breath
- Additional EM rashes on other areas of the body
- Arthritis with severe joint pain and swelling, particularly the knees and other large joints.
- Facial or Bell's palsy (loss of muscle tone or droop on one or both sides of the face)
- Intermittent pain in tendons, muscles, joints, and bones
- Heart palpitations or an irregular heartbeat (Lyme carditis)
- Inflammation of the brain and spinal cord
- Nerve pain, shooting pains, numbness, or tingling in the hands or feet
- Problems with short-term memory

How is Lyme disease diagnosed and treated?

Diagnosis is made based on clinical signs and symptoms, as well as the patient's recent activity (travel, contact with high-risk areas, etc.), and can later be confirmed using specialized laboratory tests. The first test is an EIA (enzyme immunoassay). If negative, no further testing is recommended. If positive or indeterminate, a “Western blot” test is recommended. Results are considered positive only if EIA and immunoblot are both positive. Patients treated with appropriate antibiotics (doxycycline, amoxicillin, or cefuroxime axetil) in the early stages of Lyme disease usually recover rapidly and completely. Patients with certain neurological or cardiac forms of illness may require more extensive, intravenous treatment.

The most effective way to prevent Lyme disease is to prevent tick bites:

- Before spending time outdoors, apply repellents that contain 20-30% DEET on exposed skin and clothing, and/or treat clothing and gear with repellents containing 0.5% permethrin.
- Avoid wooded and brushy areas with high grass and leaf litter, and walk in the center of trails.
- Examine your entire body, as well as gear and pets, after returning indoors. Promptly remove any attached ticks with a pair of fine-tip tweezers.

For more information on Lyme disease, please visit the CDC Lyme disease website:

- <http://www.cdc.gov/lyme/>