QUICK LINKS

Lyme Disease—TRAVELER INFORMATION
• Introduction • Transmission • Risk Areas • Risk Factors • Symptoms
• Need for Medical Assistance

Traveler Information

LYME DISEASE

This article covers Lyme disease and briefly discusses Southern tick-associated rash illness (STARI).

INTRODUCTION

Lyme disease is caused by the bite of an infected *Ixodes* tick. Lyme disease occurs most commonly in the United States and Europe, where cases are increasing.

Southern tick-associated rash illness (STARI) is caused by the bite of the Lone-Star tick and has a rash similar to that seen in Lyme disease. Other symptoms may include mild flu-like symptoms and fever. STARI can be treated with doxycycline. Cases have occurred in Missouri and Maryland, as well as states where Lyme disease is uncommon or unknown (e.g., Georgia, South Carolina, and North Carolina).

TRANSMISSION

Lyme disease is transmitted by the bite of hard ticks (*Ixodes*). These ticks parasitize deer and rodents in North America and Europe, and sheep and some bird species in Europe.

Ticks are usually found in brushy, woodland, or forested areas and become attached to humans in these environments. Pets can also bring ticks into the home. Ticks often attach themselves in hard-to-see areas such as the scalp, neck, armpit, groin, or navel. The longer the tick is attached, the more likely it is to transmit Lyme disease. Usually, however, it takes about 36-48 hours of attachment before the disease is transmitted. Ticks in the nymph stage are so small that they may be hard to find and thus may be able to stay attached longer.

RISK AREAS

Lyme disease is rare outside North America and Europe; however, cases have been reported from provinces in China, mostly in forested areas across the north of the country.

In Europe and parts of northern Asia, Lyme disease occurs in forested areas from the Atlantic seaboard to Russia, including its far eastern regions, and from northern Turkey and the Atlas Mountains of Morocco and Algeria to northern Sweden. Most cases are concentrated in Germany, Austria, Switzerland, the Netherlands, the Czech Republic, Slovenia, Sweden, Estonia, and the Finnish islands.

In the U.S., 3 regions have high levels of Lyme disease: from Maine to Maryland on the East Coast, Wisconsin and Minnesota in the Midwest, and northern California and Oregon on the West Coast. The center of the country has little to no risk of disease. Most cases occur in Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, Virginia, and Wisconsin.

In Canada, Lyme disease is most notably present along the eastern seaboard and St. Lawrence River basin, southeastern Ontario, and the southern coast and islands of British Columbia.

RISK FACTORS

Lyme disease is typically acquired during the summer months, when ticks are most active and humans and pets are outdoors more frequently.

Travelers at high risk in North America include those who engage in outdoor activities such as hiking and camping in forested or brushy areas where deer and mice abound. In Europe, hikers, campers, farmers, foresters, hunters, and persons collecting mushrooms or picking berries are at risk.

SYMPTOMS

The first symptom of Lyme disease is usually a well-defined circular rash that develops approximately 3-30 days after the initial infection. This rash expands slowly and eventually develops a central clearing that produces the characteristic "bull's-eye" appearance. Fatigue, chills, fever, headache, muscle and joint aches, and swollen lymph glands commonly accompany the rash. Sometimes these general symptoms occur without the rash.

If not treated at this stage, the disease can evolve, producing multiple lesions, chronic rash, ongoing joint problems, and/or neurological or cardiac involvement.

PREVENTION

Strategies to prevent Lyme disease include insect precautions, tick avoidance, removal of attached ticks, and preventive antibiotics. A vaccine is not available.

Tick Avoidance

People living in or entering tick-infested areas should:

- Wear long, light-colored pants tucked into socks.
- Use a DEET insect repellent on skin and/or an insect repellent containing permethrin on clothes.
- Check for ticks daily while in the risk area and for a few days after leaving the area.
    - Shower and check for adult ticks and nymphs, especially on the neck, scalp, groin, armpits, and navel.
    - Pets should also be inspected, especially in the ears.
- Remove attached ticks immediately with fine-tipped tweezers, grasping the tick as close to the skin surface as possible and pulling directly upwards, steadily, without twisting or jerking.
    - Clean the site with an alcohol swab or soap and water.
    - Avoid handling the tick with bare hands.
    - Inspect site of tick attachment for signs of rash every day for 30 days, as the rash may occur without other symptoms present.
- If possible, stay on well-cleared trails when crossing wooded areas.

These precautions reduce but do not eliminate the risk of tick bites.

Prophylactic Antibiotics

A dose of doxycycline may be advised in some situations following a tick bite. See below.

Vaccine

There is no longer a vaccine against Lyme disease.

NEED FOR MEDICAL ASSISTANCE

- Attached ticks should be removed promptly, as described above.
- If possible, save the tick in a glass container for identification.
- A single 200-mg dose of doxycycline may be considered for self-treatment if medical care will not be available within 72 hours. Consult a medical provider before traveling to determine if this is an option.
- If symptoms of Lyme disease appear after returning from a risk area, seek medical evaluation. The disease is treatable in the early stage but can have serious consequences if left untreated.