

## Lyme disease

### Borreliosis

Lyme disease is an inflammatory disease spread through a tick bite.

### Causes, incidence, and risk factors

Lyme disease is caused by the bacterium *Borrelia burgdorferi* (*B. burgdorferi*). Certain ticks carry these bacteria. The ticks pick up the bacteria when they bite mice or deer that are infected with Lyme disease. You can get the disease if you are bitten by an infected tick.

Lyme disease was first reported in the United States in the town of Old Lyme, Connecticut, in 1975.

Cases have now been reported in most parts of the United States. Most of the cases occur in the Northeast, some parts of Minnesota and Wisconsin, the mid-Atlantic states, and along the Pacific coast.

Lyme disease is usually seen during the late spring, summer, and early fall.

There are 3 stages of Lyme disease.

- ⊗ Stage 1 is called primary Lyme disease.
- ⊗ Stage 2 is called secondary Lyme disease and early disseminated Lyme disease.
- ⊗ Stage 3 is called tertiary Lyme disease and chronic persistent Lyme disease.
- ⊗ Risk factors for Lyme disease include:
  - ⊗ Doing activities that increase tick exposure (for example, gardening, hunting, or hiking)
  - ⊗ Having a pet that may carry ticks home
  - ⊗ Walking in high grasses

### Symptoms

Not everyone infected with these bacteria gets ill. If a person does become ill, the first symptoms resemble the flu and include:

- ⊗ Chills
- ⊗ Fever
- ⊗ Headache
- ⊗ Lethargy
- ⊗ Muscle pain
- ⊗ There may be a "bull's eye" rash, a flat or slightly raised red spot at the site of the tick bite. Often there is a clear area in the center. It can be larger than 1 - 3 inches wide.

Symptoms in people with the later stages of the disease include:

- ⊗ Body-wide itching
- ⊗ Joint inflammation
- ⊗ Stiff neck
- ⊗ Unusual or strange behavior

Note: Deer ticks can be so small that they are almost impossible to see. Many people with Lyme disease never even saw a tick.

### Signs and tests

A blood test can be done to check for antibodies to the bacteria that cause Lyme disease. The most commonly used is the ELISA for Lyme disease test. A western blot test is done to confirm ELISA results. A physical exam may show joint, heart, or brain problems in people with advanced Lyme disease.

### Treatment

Everyone who has been bitten by a tick should be watched closely for at least 30 days.

Most people who are bitten by a tick do NOT get Lyme disease.

A single dose of antibiotics may be offered to someone soon after being bitten by a tick, if all of the following are true:

- ⊗ The person has a tick that can carry Lyme disease attached to their body. This usually means that a nurse or physician has looked at and identified the tick.
- ⊗ The tick is thought to have been attached to the person for at least 36 hours.
- ⊗ The person can begin taking the antibiotics within 72 hours of removing the tick.
- ⊗ The person is over 8 years old and is not pregnant or breastfeeding.
- ⊗ A full course of antibiotics is used to treat people who are proven to have Lyme disease. The specific antibiotic used depends on the stage of the disease and the symptoms.

Anti-inflammatory medications, such as ibuprofen, are sometimes prescribed to relieve joint stiffness.

### Expectations (prognosis)

If diagnosed in the early stages, Lyme disease can be cured with antibiotics. Without treatment, complications involving the joints, heart, and nervous system can occur.

Rarely, a person will continue having symptoms that can interfere with daily life. Some people call this post-Lyme disease syndrome. There is no effective treatment yet for this syndrome.

### Complications

Advanced stages of Lyme disease can cause long-term joint inflammation (Lyme arthritis) and heart rhythm problems. Nervous system (neurological) problems are also possible, and may include:

- ⊗ Decreased concentration
- ⊗ Memory disorders
- ⊗ Nerve damage
- ⊗ Numbness
- ⊗ Pain
- ⊗ Paralysis of the face muscles
- ⊗ Sleep disorders
- ⊗ Vision problems

### Calling your health care provider

Call your health care provider if you have symptoms of Lyme disease.

### Prevention

When walking or hiking in wooded or grassy areas:

- ⊗ Spray all exposed skin and your clothing with insect repellent (spray outdoors only, do not use on face, use just enough to cover all other exposed skin, don't spray under clothing, don't apply over wounds or irritated skin, wash skin after going inside)
- ⊗ Wear light-colored clothing to make it easier to spot ticks
- ⊗ Wear long-sleeved shirts and long pants with the cuffs tucked into shoes or socks
- ⊗ Wear high boots, preferably rubber
- ⊗ Check yourself and your pets frequently during and after your walk or hike.
- ⊗ Ticks that carry Lyme disease are so small that they are very hard to see. After returning home, remove your clothes and thoroughly inspect all skin surface areas, including your scalp.

For more in-depth information – go to the Center for Disease Control – <http://www.cdc.gov/lyme/>