

## Lyme Disease

Lyme disease is an infection caused by the spirochete, *Borrelia burgdorferi*, the deer tick or black-legged tick. There are three stages of the disease: localized (stage I); early disseminated (stage II), and chronic persistent stage (stage III). If left untreated, often the first and only symptom is arthritis, as the flu-like symptoms and rash from the localized phase will disappear.



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### Mechanism

#### Transmitted by Ticks (Vector-borne)

##### Ticks with New-born

Transmitted by the bite of an infected tick, Lyme disease is a spirochetal infection caused by *Borrelia burgdorferi*. It is considered a very common vector-borne disease and does NOT transmit from person-to-person.

### Signs and Symptoms

#### Flu-like Symptoms

##### Thermometer and Ice-bag

During the localized stage, acute flu-like symptoms often occur, such as a low grade fever, stiff neck, chills, fatigue, swollen lymph nodes, headache, and migratory joint and muscle pain.

#### Bulls Eye Rash (Erythema Migrans)

##### Bullseye with Red Migrating-ducks.

The most characteristic clinical symptom in the early localized stage is erythema migrans, a skin lesion also referred to as "bull's eye rash," as it mimics the appearance of a bull's eye. It occurs within 3 to 30 days following the tick bite and begins as a red macule or papule that gradually expands to form a large round lesion up to 12 inches, which is characterized by a central red spot surrounded by clear skin that is ringed by an expanding red rash.

#### Joint Pain and Stiffness

##### Joint Pain-bolt and Stiff-board

If the infection is left untreated, 60% of patients will experience chronic joint pain and stiffness.

#### Facial Paralysis

##### Face in Wheelchair

Facial paralysis or loss of tone in facial muscles may be seen and is often misdiagnosed as Bell's palsy. Early disseminated stage symptom occurring along with meningitis, carditis, dysrhythmias, palpitations, dizziness, dyspnea, and peripheral neuritis.

### Considerations

## Antibiotics

### [ABX-guy](#)

Oral antibiotics such as doxycycline (Vibramycin), cefuroxime (Ceftin), or amoxicillin are often used in treating early-stage infections and preventing later stages of the disease.

## Prevention

### [Wearing long sleeves and using bug repellent](#)

Prevention by reducing exposure to ticks is the most effective way to avoid Lyme disease. Wear long pants and light colored fabric when out in woods, so ticks can be easily seen. Have a "tick check" when coming in from hiking, and avoid walking in tall grass or sitting on logs. If ticks are noticed, they should be removed with tweezers.