

# LYME DISEASE

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## SYMPTOMS OR BEHAVIORS

- Red “bull’s eye” macule with clearing center
- Rash
- Flu-like symptoms (fever and headache)
- Joint pain
- Irregular heart beats
- Dizziness
- Shortness of breath
- Meningitis
- Paralysis of face
- Weakness of limbs
- Poor muscle movement
- Memory loss
- Difficulty concentrating
- Changes in mood
- Changes in sleep habits
- Fatigue
- Eye inflammation

## ABOUT THE DISORDER

Lyme Disease is a growing infectious disease caused by a type of bacteria called *Borrelia burgdorferi* and is transferred to humans mainly through tick bites. The disease is carried by deer ticks and western-blacklegged ticks. These ticks are tiny - about the size of a head of a pin. In order to contract Lyme disease a person has to be bitten by an infected tick. Once bitten and the tick remains attached to the skin for approximately 48 hours the bacteria can migrate from the ticks gut into the person’s blood stream. The bacterium then infects various parts of the body producing the clinical manifestations of Lyme disease.

The signs and symptoms of Lyme disease progress as the disease progresses. Those affected do not experience all signs and symptoms. Most often, people who contract the disease will initially develop a rash or a small red bump at the sight of the tick bite and experience flu-like symptoms (fever, body ache, chills and head aches). These signs and symptoms may disappear spontaneously, but if the infection remains untreated, symptoms of arthritis, migratory joint pain may develop and about 10 to 20 percent of untreated people will develop chronic arthritis. Chronic Lyme disease may cause neurological problems if the brain becomes infected. In these situations the following neurological symptoms may occur weeks, months or even years after an untreated infection:

- *Meningitis* (inflammation of the membranes surrounding the brain),
- *Bell’s palsy* (temporary paralysis of one side of the face),
- Numbness and weakness in the limbs,
- Poor muscle control,
- Memory loss,
- Difficulty with concentration,
- Changes in mood,
- Changes in sleep habits.

Fewer than one out of ten untreated people develop heart problems, such as irregular heartbeats, shortness of breath and dizziness.

A person should seek medical attention immediately if they see a bite that concerns them. Tick bites can often be the cause of other illnesses that also need to be treated. Physician will screen and diagnose the disease. If infected, the most common treatment will include antibiotics. If the disease has progressed to a later stage, hospitalization and other treatments may be necessary.



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## EDUCATIONAL IMPLICATIONS

In addition to physical symptoms, Lyme disease may cause neurological problems that result in cognitive deficits. These deficits may relate to difficulties with speech, dementia, dyslexia, problems maintaining focus, retrieving information, and short and long-term memory loss. These problems may manifest in the classroom with forgetfulness, inattention, distractibility, restlessness, articulation errors and reversals in math and spelling.

Students may need to compensate for these deficits by improving their ability to process and use information, and by restoring impaired function through repetitive exercises reserves.

## INSTRUCTIONAL STRATEGIES AND CLASSROOM ACCOMMODATIONS

Instructional strategies and classroom accommodations will vary depending on the student's symptoms and behaviors. In addition, the symptoms and behaviors may last for weeks or months and then recur. Because there are often recurrences, staff needs to monitor the student's health and cognitive deficits.

- Develop a plan and accommodations for physical limitation if the student suffers from related health problems such as arthritis, Bell's palsy, or heart problems.
- Teach the student to use an assignment book and daily schedule to help with organization
- Teach the student to take notes using notebooks, post-it notes and other aids.
- Use alarms to signal changes, meds, etc.
- Teach internal memory aids (including rehearing information).
- Teach how to use mnemonic devices.
- Repetition of instruction and concepts.
- Use multi-sensory instruction. Consider modifying or adapting the curriculum to better suit the learning style of the student.
- Provide consistent structure and clearly define expectations.
- School nurse may need to develop an Individual Health Plan.

## RESOURCES

### Lyme Disease Foundation

P.O. Box 332  
Tolland, CT 06084-0332  
860-870-0070  
[www.niams.nih.gov](http://www.niams.nih.gov)

### Mayo Medical Education & Research

200 First Street SW  
Rochester, MN 55905  
800-283-7800 (free of charge)  
<http://www.mayoclinic.com/>

### National Library of Medicine Medline Plus

Lyme Disease Interactive  
Tutorial  
<http://www.nlm.nih.gov/medlineplus/tutorials/lymedisease/html/index.htm>

### Publications:

*Coping with Lyme Disease: A Practical Guide to Dealing with Diagnosis and Treatment.*  
Denise Lang, 1997. Henry Holt & Co., Incorporated, June 2004.  
ISBN: 0805075631

### DVD/Video:

Kids Speak Out on Lyme. c. 1993.

Princeton Medical Conference,  
Lyme & Other Tick-borne  
Disease: Focus on Children &  
Adolescents, c2000.

Mail \$5.00 to order to:  
Lyme Disease Association  
P.O. Box 1438  
Jackson, NJ 08527

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