

# HEALTH IN OUR HANDS!

The Arkansas State University Wellness Program Newsletter  
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## Lyme Disease

### Overview

Summer is approaching and people need to be aware of Lyme disease. Lyme disease is a bacterial infection caused by a bacterium called *Borrelia burgdorferi*. A deer tick houses the *Borrelia burgdorferi* in its stomach and transports the bacterium through a tick bite. People that spend time in woody and grassy areas should be cautious of tick bites because early treatment can lead to better outcomes.

### History of Lyme disease

In the mid 70's, a group of children and adult residents from Lyme, Connecticut suffered from unusual arthritis symptoms. In 1977 scientist linked deer ticks as the cause of the "Lyme arthritis". It was not until 1982 when they connected the bacterium, *Borrelia burgdorferi*, with this disease. That is when the term Lyme disease was adopted.

Lyme disease has been reported in all 50 states and also in Europe, Japan, China and Australia. Most reports come

from the northeastern parts of the United States.

### Signs & Symptoms

Signs and symptoms vary in people with Lyme disease. Often this disease affects multiple systems such as, integumentary, musculoskeletal, and nervous system. Signs and symptoms might vary depending on early detection versus late detection. The following is a list of early signs and symptoms associated with Lyme disease.

- Rashes can be normal after a tick bite, but if the outer ring of the rash begins to expand after a few days this might suggest Lyme disease. The rash has been described as resembling a bull's eye.
- Flu-like symptoms are also seen in person with Lyme disease. They might experience, chills, fever, fatigue, aches, and headaches.

Later signs and symptoms associated with Lyme disease are the following:

- Joint pain is associated with Lyme disease. The swelling and pain can resemble arthritic pain.
- Neurological impairments are due to swelling of the meninges, layers of the brain. These impairments can range from temporary Bell's palsy to impaired muscle movement.
- The heart can also be affected by Lyme disease causing arrhythmias and even heart failure.
- Depression and anxiety is also associated with this disease.

### Causes

Deer ticks can carry a bacterium called *Borrelia burgdorferi*. Once the tick bites into human flesh the bacterium can move into the bloodstream and cause fever-like symptoms, joint pains, neurological impairments, etc. Early detection is important for better recovery.

## Risk Factors

The following are risk factors for Lyme disease.

- Environment: Spending time in grassy or woody areas can increase the chance of getting bit by a tick.
- Clothing: Wearing shorts, skirts, etc. that exposes the skin can increase the risk of Lyme disease.
- Tick Removal: Removing the tick in a timely matter can reduce the chance of bacteria entering the bloodstream.

## Complications

Lyme disease can cause many complications if left untreated. The following is a list of complications:

- Joint inflammation
- Neurological deficits such as Bell's palsy, general muscle weakness, and numbness.
- Cognitive deficits such as memory problems and depression.
- Irregular heart beat

## Tests and diagnosis

Early detection of the disease is usually diagnosis by the red rash along with flu like symptoms. This makes early diagnosing difficult because these signs and symptoms are common with other diseases.

A few weeks after obtaining the tick bit, antibodies form. This can be helpful in confirming diagnosis of Lyme. Several tests look to see if antibody formation has occurred. The following is a

list of methods to see development of antibodies:

- Enzyme-linked immunosorbent assay (ELISA) test: This test is most often used to diagnose Lyme disease. It exposes antibodies for the *Borrelia burgdorferi*. Sometimes the ELISA can give a false-positive and should never be the only source for diagnosis.
- Western blot test: This test is used after receiving a positive test with the ELISA. The Western blot test helps confirm the Lyme diagnosis.
- Polymerase chain reaction (PCR): This test examines the fluid in a joint to determine infection.

## Treatment

Lyme disease is treated with antibiotics. If the patient is diagnosed early then antibiotics will be given orally. Intravenous antibiotics are used for later diagnoses of Lyme disease. Oral antibiotics are using given for 14-21 days and 14-28 days is recommend for intravenous antibiotics.

Early detection of Lyme disease is important for better recovery. Individuals might still experience joint aches or neurological symptoms once treatment is completed.

## Helpful Tips

The following is a list of helpful tips to prevent exposure to Lyme disease:

- Apply insect repellent.

- Wear long sleeves and long pants in grassy or woody areas.
- Check for ticks after being outside.
- Remove ticks as soon as possible.

## References

- <http://www.mayoclinic.org/diseases-conditions/lyme-disease/basics/definition/CON-20019701>
- [http://www.medicinenet.com/lyme\\_disease/article.htm](http://www.medicinenet.com/lyme_disease/article.htm)
- <http://www.ct.gov/dph/cwp/view.asp?a=3136&q=388506>
- <http://lymediseaseguide.org/lyme-disease-prevention>

## Other News:

\*\*If you have any suggestions for newsletter topics, please contact Dean Susan Hanrahan at [hanrahan@astate.edu](mailto:hanrahan@astate.edu).

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The Arkansas State University Employee Wellness Newsletter is published monthly during the academic year by the College of Nursing and Health Professions. Health questions can be addressed to Dean Susan Hanrahan, Ph.D., ext. 3112 or [hanrahan@astate.edu](mailto:hanrahan@astate.edu). Produced by Kayla James, graduate student in the College of Nursing and Health Professions, Physical Therapy Program.