

Title: Lyme Disease Prevention

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Abstract: Patients in Minnesota are often bitten by ticks, and may be worried about their risk of Lyme disease. This brochure provides information on how to avoid tick bites, how to recognize Lyme disease, and when antibiotics are needed.

This document was created by a medical student enrolled in the Primary Care Clerkship at the University of Minnesota Medical School as part of the course project. The aim of the project is to present information on a medical topic in the format of a patient education handout. It does not necessarily reflect the views of the University of Minnesota Medical School physicians and faculty. These materials are provided for informational purposes only and are in no way intended to take the place of the advice and recommendations of your personal health care provider. The information provided may no longer be up to date since it has not been reviewed since the date of creation. The information provided should not be used to diagnose a health problem or disease, or as a means of determining treatment. In the event of a medical emergency, immediately contact a doctor or call 911.

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## *Lyme Disease*

Lyme disease is caused by the bacteria *Borrelia burgdorferi*, which is carried by deer ticks.

Symptoms of Lyme disease include joint and muscle aches, fever, headache, fatigue, and a characteristic bulls-eye rash, called erythema migrans. If untreated the disease may cause neurologic symptoms such as facial paralysis, changes in heartbeat and palpitations, and arthritis. Lyme disease can be treated with antibiotics.



**Erythema migrans, the bulls-eye rash of early Lyme disease.** CDC/James Gathany, from <http://phil.cdc.gov>

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## *Where to go for more information:*

CDC:  
<http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>

Infectious Disease Society of America:  
<http://www.idsociety.org/lymediseasefacts.htm>

Medline Plus:  
<http://www.nlm.nih.gov/medlineplus/lymedisease.html>

## *References:*

Hayes EB, Piesman J. How can we prevent Lyme disease? *N Engl J Med.* 2003 Jun 12;348(24):2424-30.

Nadelman, *et al.* Prophylaxis with single-dose doxycycline for the prevention of Lyme disease after an *Ixodes scapularis* tick bite. *N Engl J Med.* 2001 Jul 12;345(2):79-84.

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## *Information for Patients*

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## Prevention



**An adult deer tick.**  
CDC/ Michael Levin, from <http://phil.cdc.gov>

The best way to prevent Lyme disease is to avoid deer tick bites. When outdoors...

- ④ Use insect repellent.
- ④ Wear long pants, and consider tucking them into your socks.
- ④ **Check yourself daily for ticks.** Studies show that a deer tick must be attached to your body for more than 36 hours to transmit the bacteria that causes Lyme disease.

## Prevention

**To remove a tick from your body...** Grasp the tick close to your skin with a pair of tweezers. Pull steadily up to remove the tick, and then wash your skin with soapy water. If some mouthparts remain in your skin this is ok. Do not use petroleum jelly, matches, or other products to remove ticks, because they may make the tick burrow deeper.

### Look for the bulls-eye rash!

70-80% of people who are infected with Lyme disease will get this rash, usually 3-30 days after exposure. Because deer ticks are small, many patients (up to 75%) who are diagnosed with Lyme disease never found a tick on their body.

You can also decrease the number of ticks on you property.

- ④ Remove brush and leaf litter.
- ④ If you live near the forest, place a wood chip barrier between your lawn and the forest. Ticks dry out quickly.
- ④ Consider using acaricides (pesticides active against ticks) on tick habitat. These can be sprayed or delivered to mice or deer, which both carry deer ticks, through bait boxes.

## Do I need antibiotics?

If you are diagnosed with Lyme disease you will be given antibiotics for 10-14 days.

If you were bitten by a tick but do not have symptoms or a rash, you probably do not need antibiotics. In a few cases, when it seems plausible that a patient may develop disease, a doctor may give a single dose of antibiotics as prophylaxis against Lyme disease.

For antibiotic prophylaxis you must meet these criteria:

- ④ You have removed an embedded deer tick from your body in the past 72 hours.
- ④ You encountered the tick in a region where Lyme disease is endemic. In the U.S. this includes the upper Midwest and the Northeastern states.
- ④ You or the doctor can confirm that a deer tick bit you. (If you can, bring the tick to clinic!)
- ④ There are no reasons that you shouldn't be on antibiotic therapy.

If you meet these criteria you may get a single dose of doxycycline, an antibiotic. This will reduce your risk of developing Lyme disease.