



# LYME DISEASE

FACT SHEET 18-011-0618

## What is Lyme disease?

Lyme disease (LD) is an infectious disease that can begin with a characteristic rash, and later damage the joints, nervous system and/or heart. It is caused by a spiral-shaped bacterium (spirochete) called *Borrelia burgdorferi* which is transmitted to humans or domestic animals by the bite of an infected tick. Lyme disease can be debilitating, but is rarely fatal.

## How does a person get Lyme disease?

You can get LD if you are bitten by a tick that is infected with *Borrelia burgdorferi*. Bacteria in the tick's saliva are transferred to you while the tick is feeding. An infected tick must be attached to you for at least several hours (usually 48-72) to transmit diseases, so prompt tick removal lessens your chance of getting sick. However, not all ticks are infected, so a tick bite does not always mean you have been infected. Ticks must feed to transmit diseases and you cannot get LD from a tick crawling on your skin, or through person-to-person contact.

## What are ticks and where are they found?

Ticks are small arachnids and are relatives of spiders and insects. They must feed on the blood of animals in order to grow and reproduce. In the U.S., LD is transmitted by *Ixodes scapularis* (blacklegged tick or "deer tick") in the East and Midwest, and by *Ixodes pacificus* (western blacklegged tick) in the Western U.S. *Ixodes ricinus* (sheep tick) transmits LD in Europe, while *Ixodes persulcatus* (taiga tick) is responsible for transmission in Asia. Ticks do not fly or jump. Ticks climb to the top of grass blades, shrubs, or weeds and wait quietly with their front legs extended to grab onto a passing animal or human. Ticks are most common in wooded, brushy areas, un-mown fields, and overgrown places. These are the areas where their animal hosts (such as mice and deer) live.

## What are the symptoms of Lyme disease and how is it treated?

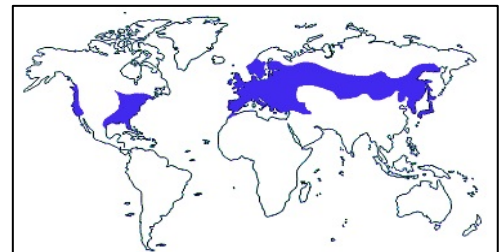
In about 70% of cases, the first symptom of LD is a skin rash called "erythema migrans" (EM) that occurs at the bite site 3 days to 1 month following tick bite (usually seven days). The tick itself may go undetected. The rash begins as a small, red spot, and gradually enlarges. Often the rash partially disappears in the center so that it resembles a bullseye. The rash may grow up to 12 inches in diameter. While the rash is red on light skin, it may look more like a bruise on dark-skinned individuals. Up to 30% of people with LD do not have the early skin rash. Other early common signs of LD include flu-like symptoms such as significant fatigue, headache, sore and aching muscles and joints, fever, sore throat, stiff neck, and swollen glands. If left untreated, these early symptoms of LD may disappear on their own over a period of weeks; however, this does not mean that the disease is gone, and serious complications may occur later. If promptly treated with appropriate antibiotics, the skin rash and flu-like symptoms go away within days, and complications can usually be prevented. If left untreated, infection can spread to joints, the heart, and the nervous system. Seek medical attention if you experience the symptoms described in the Fact Sheet.

## How can Lyme disease be prevented?

There is no vaccine to protect against LD. Therefore, you can help prevent LD and other tick-borne diseases by protecting yourself from ticks using the DoD Insect Repellent System when in tick habitat (tall grass, weeds, scrubby areas, woods and leaf litter). It incorporates permethrin repellent on the uniform; DEET, picaridin or IR3535® repellent on exposed skin; a properly worn uniform; and sleeping inside a permethrin-treated bed net. Routinely check your skin and clothing for ticks while you are outdoors in tick habitat and do a careful check of your whole body once you come indoors. The ticks can be very small. Look for new "freckles" or moving specks of dirt. Remove attached ticks as soon as you find them.



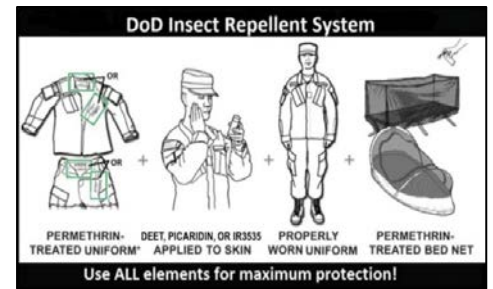
*Ixodes scapularis*, the blacklegged tick (also known as the "deer tick"), a vector for *B. burgdorferi* in the East and Midwestern U.S.



World distribution of Lyme disease

## What can I use to treat my clothing with permethrin?

Factory-treated permethrin Army Combat Uniforms (ACU) and Occupational Camouflage Pattern (OCP) uniforms are now available to all Soldiers. The ACU/OCP trouser and coat will have a sewn-in label indicating the uniform is factory-treated with permethrin. Untreated ACUs can be permanently treated with the IDA kit (NSN 6840-01-345-0237), which can last up to 50 washings, or temporarily treated using the 0.5% aerosol spray can (NSN 6840-01-278-1336), which can be reapplied after 6 weeks and the sixth washing. Never retreat uniforms that have been factory-treated, treated with an IDA kit, or treated using a 2-gallon sprayer. Always read and follow the label directions when applying permethrin. Permanently mark the uniform label with the permethrin treatment date. NEVER APPLY PERMETHRIN TO THE SKIN! Civilians can purchase commercially available 0.5% permethrin aerosol products and permethrin factory-treated clothing.



## What are the standard military insect repellent products available for use on exposed skin?

Approved military insect repellents for use on exposed skin come in a variety of formulations. Always refer to the label to determine frequency of repellent application based on activity. **Do not apply repellent to eyes, lips, or to sensitive or damaged skin.** Available military repellents are:

- Cutter® pump spray (NSN 6840-01-584-8598) contains 25% DEET; one Application protects for up to 10 hours.
- Bullseye™ Bug Repellant pump spray (NSN 6840-01-656-7707) contains 20% IR3535®; provides protection for up to 8 hours.
- Natrapel® pump spray (NSN 6840-01-619-4795) contains 20% picaridin; one application protects for up to 8 hours.
- Ultra 30™ Insect Repellent Lotion (NSN 6840-01-584-8393) contains 30% Lipo DEET; one application protects up to 12 hours.
- Ultrathon™ (NSN 6840-01-284-3982) contains 34% controlled-release DEET lotion; one application protects for up to 12 hours.

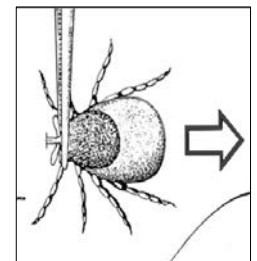


## What is considered a “properly worn” combat uniform?

Military combat uniforms act as a physical barrier against insects, ticks and other disease transmitters and biting nuisance pests when worn properly. Wear uniforms with the sleeves rolled down and tuck pants into boots and undershirt into pants. A permethrin-treated uniform does not provide protection to exposed skin; protect exposed skin with an approved insect repellent.

## What should I do if I find a tick attached to my skin?

Unattached ticks do not present a threat by crawling on you. Remove attached ticks as soon as you find them. Use tweezers to firmly grasp the tick's mouthparts up against the skin, and pull back firmly and steadily. Do not pull back abruptly, or the tick's mouthparts may break off, leaving them embedded in the skin. If the mouthparts do break off, don't panic – the mouthparts alone cannot transmit disease because the infective body of the tick is no longer attached. However, to prevent secondary infection, remove the mouthparts like you would a splinter. Never squeeze the body of the tick or use methods to “make the tick let go,” such things as petroleum jelly, fingernail polish remover, or a lighted match. Those alternate methods could force more infective fluid into the skin. Wash the wound site and apply an antiseptic after removal. See the picture to the right about effectively removing an embedded tick from your skin. For more information on tick removal, view <http://www.tickencounter.org/> and [https://www.youtube.com/watch?v=3bl37ceSZ\\_s](https://www.youtube.com/watch?v=3bl37ceSZ_s). Ticks removed from military personnel, their dependents, or DoD Civilians can be submitted for identification and disease testing through the Army Public Health Center's DoD Human Tick Test Kit Program: <http://phc.amedd.army.mil/topics/envirohealth/epm/Pages/HumanTickTestKitProgram.aspx>



## References:

- Centers for Disease Control and Prevention: <https://www.cdc.gov/lyme/>
- Army Public Health Center: DoD Insect Repellent System [https://phc.amedd.army.mil/PHC%20Resource%20Library/DoD\\_Insect\\_Repellent\\_System\\_FS\\_18-009-0317.pdf](https://phc.amedd.army.mil/PHC%20Resource%20Library/DoD_Insect_Repellent_System_FS_18-009-0317.pdf)