

# Ticks (Lyme Disease)



Lyme Disease Rash

## **Information you should know about ticks:**

Ticks are small arachnids from the order of Ixodida. They constitute from the subclass Acarina (group that contains mites and ticks). Ticks are classified as ectoparasites (external parasites) that live by the blood off of mammals, birds, and some reptiles. Deer ticks are among the most common in the U.S. today. Ticks have three life stages: larva, nymph, and adult. The adult female is about 1/2 -1 inch larger than the male and they extract the most blood from their hosts. It takes a total of two years for the tick to hatch from its egg, go through all three stages, reproduce, and finally die. In each stage, the tick requires a blood meal in order to continue its growth successfully.

The first stage is the larval; usually the adult female tick lays her eggs in the spring in order for them to hatch into larvae in the summer. Around August is when these larvae reach their peak activity. The larva will usually descend into the ground and wait for a host, usually a bird or a small mammal, to come across its path so it can attach itself to that animal. After a few days of feeding on the host, the larva begins to become engorged with blood (it will start to swell). An interesting note, if the animal has already been infected by Lyme disease, the larva can become infected by the previous tick bites (larval ticks are not born infected with Lyme disease and instead must have it transmitted to them). After it has fed, the larval tick must then wait until it reaches the next stage in its life cycle, therefore, they do not pose a threat to humans or other hosts.

The nymph is the second stage and begins as larvae drop off their hosts from feeding and begin the transformation to become nymphs. Nymphs go through their transformation in the fall and usually stay inactive during the winter. Early spring is when nymphs begin activity. Like they did when they were larvae, nymphs wait on the ground for a host to approach and attach themselves on that animal. Once, attached, the nymph feeds for about a week on the host and while indulging on blood, can engorge to about ten times their original size. If infected, the nymph may transmit Lyme disease to its host during its feeding process. This is the most commonly seen way of transmitting Lyme disease from ticks to humans. These nymphs are

highly active during early spring to mid-summer and because nymphs are so small, they go unnoticed by humans until the nymph is engorged. Nymphs are usually the most responsible when it comes to Lyme disease and humans.

The third stage occurs after the nymph is engorged; it drops off its host and then transforms into an adult. The adult tick's body consists of the capitulum (head) and the scutum (lower body, also known as a shield to protect the tick). Adults are active in the fall and can now travel to high grounds for bigger hosts. Adults are active around mid-fall and they can be located on tall grass, weeds, and even the lower part of a tree. About half of the adult tick population carries the Lyme disease; therefore transmission of the disease from tick to human is highly probable if not removed within 36 hours (total time for complete transmission). If adult ticks are unsuccessful in finding a host, they will usually become inactive around winter time and won't begin the search for a host until late winter-early spring when temperatures begin to rise. Adults that attach themselves to a host usually feed for about a week with males feeding intermittently. It is important for the females to complete their blood meals in order to mate. Mating can take place on or off the host. After mating, the female drops off of the host, where they begin to lay their eggs in early spring and proceed to die. The female can lay approximately 3000 eggs. The eggs hatch in the summer and the life cycle begins again.

#### **Information you should know about Lyme disease symptoms and treatment:**

The most common symptom for those suffering from Lyme disease is a skin rash. Approximately 80% of people acquire the rash within 3-32 days after the tick bite. The rash begins as a small red area at the site of the bite that gradually enlarges, leaving a clear center with an outer ring of inflammation. Flu-like symptoms such as fever, chills, headache, fatigue, and pain in the joints and muscles may also be present. If left untreated, Lyme disease may lead to joint, heart, and nervous system problems. Arthritis, with joint pain and swelling, is the most common late symptom of Lyme disease. Heart symptoms can include dizziness, weakness, and an irregular heartbeat. Many types of nervous system symptoms of Lyme disease can be seen; one that is commonly mentioned is weakness of the facial muscles.

If Lyme disease is detected early, treatment with appropriate antibiotics appears to prevent the development of later illnesses.

#### **Information you should know to prevent ticks and Lyme disease:**

Be sure that if walking in grassy or wooded areas where ticks are found, you should wear long pants with cuffs tucked into socks and a long-sleeved shirt tucked into the pants. By wearing lighter colored clothing, it makes it easier to spot ticks. Repellent containing N-diethyl-metatoluamide (DEET) is highly recommended when traveling through those mentioned areas. Checking yourself every 2-3 hours on your skin or clothing is another way to reduce your chances of acquiring a tick. When you return home, brush off your clothing before entering the house and make sure to undress and check your clothing before any ticks have a chance to crawl off. Since ticks are small look for any "new" freckles or birthmarks on your skin that you know you've never seen before.

#### **Information you should know about removing ticks:**

To remove a tick you must use tweezers to firmly grasp its body close to the skin and pull it straight out. Try to apply the tweezers as close to the mouth of the tick (or closest to host's skin) as removing the tick from anywhere else on its body may prove to be difficult. If tweezers are not available, one can remove the tick by grasping it close to the skin with one's fingers, but be sure to use a paper towel between your fingers and the tick to prevent any contact, such as fluids between you and the tick as those fluids can transmit infections. Don't squash or squeeze the tick during removal. Wash the area of your hands with soap and water after the tick has been removed. Disposal of the tick is best accomplished by flushing it down the toilet. If a rash appears after you dealt with tick removal (usually occurs weeks after you last came in contact with a tick) seek medical treatment and be sure to tell your physician about your experience with the tick. Also, if you have pets, watch them carefully because they too are susceptible to Lyme disease. If you suspect your pet has Lyme disease, call your veterinarian. Check your pets for ticks often, especially around their eyes and ears, before they enter the house. Using the same precautions when removing the tick from your pet should be done the same as they would with a person.

### **Other important resources for Ticks and Lyme disease:**

Tick information regarding identification, size, biology, etc.: [✉ http://www.tickinfo.com/](http://www.tickinfo.com/)

Information about tick ecology and Lyme disease: [✉ http://www.aldf.com/deerTickEcology.shtml](http://www.aldf.com/deerTickEcology.shtml)

Lyme disease and its symptoms, including development of Arthritis: [✉ http://www.webmd.com/rheumatoid-arthritis/arthritis-lyme-disease](http://www.webmd.com/rheumatoid-arthritis/arthritis-lyme-disease)

Controlling ticks and preventing spreading disease: [✉ http://www.cdc.gov/Features/StopTicks/](http://www.cdc.gov/Features/StopTicks/)

Tick bite prevention and use of repellants: [✉ http://www.ct.gov/caes/lib/caes/documents/publications/fact\\_sheets/tickbiteprevention05.pdf](http://www.ct.gov/caes/lib/caes/documents/publications/fact_sheets/tickbiteprevention05.pdf)