

Lyme Disease

Prevention & Control

Larval and nymphal deer ticks often hide in shady, moist ground litter, but adults can often be found above the ground clinging to tall grass, brush, and shrubs. They also inhabit lawns and gardens, especially at the edges of woodlands and around old stone walls where deer and white-footed mice, the ticks' preferred hosts, thrive. Within the endemic range of *B. burgdorferi* (the spirochete that infects the deer tick and causes Lyme Disease), no natural, vegetated area can be considered completely free of infected ticks.

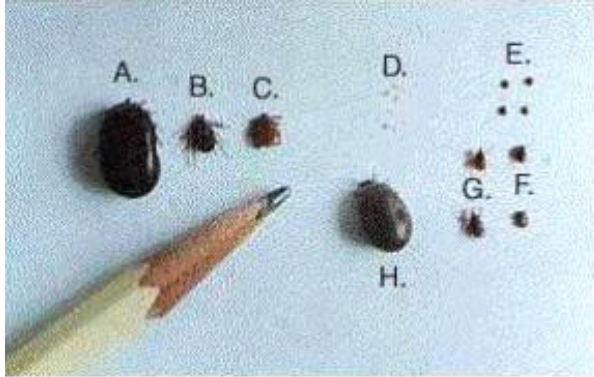
Deer ticks cannot jump or fly, and do not drop from above onto a passing animal. Potential hosts (which include all wild birds and mammals, domestic animals, and humans) acquire ticks only by direct contact with them. Once a tick latches onto human skin it generally climbs upward until it reaches a protected or creased area, often the back of the knee, groin, navel, armpit, ears, or nape of the neck. It then begins the process of inserting its mouthparts into the skin until it reaches the blood supply.

In tick-infested areas, the best precaution against Lyme Disease is to avoid contact with soil, leaf litter and vegetation as much as possible. However, if you garden, hike, camp, hunt, work outdoors or otherwise spend time in woods, brush or overgrown fields, you should use a **combination of precautions** to dramatically reduce your chances of getting Lyme disease:

First, using color and size as indicators, learn how to distinguish between:

- deer tick* nymphs and adults
- deer ticks and two other common tick species - dog ticks and Lone Star ticks (neither of which is known to transmit Lyme disease)

*Deer ticks are found east of the Rockies; their look-alike close relatives, the western black-legged ticks, are found and can transmit Lyme disease west of the Rockies.

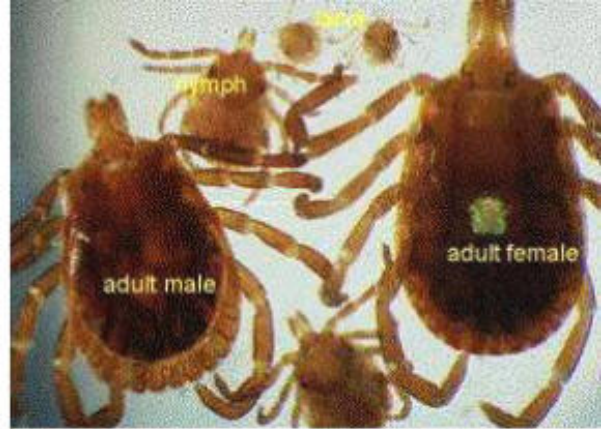


Brown Dog Ticks

- A. Engorged Female**
- B. Female**
- C. Male**

Deer Ticks

- D. Larvae**
- E. Nymphs**
- F. Males**
- G. Females**
- H. Engorged Females**



approx. 1/2 inch

Lone Star Tick

Then, when spending time outdoors, make these easy precautions part of your routine:

- **Wear enclosed shoes and light-colored clothing** with a tight weave to spot ticks easily
- **Scan clothes and any exposed skin frequently** for ticks while outdoors

- **Stay on cleared, well-traveled trails**
- **Use insect repellent containing DEET (Diethyl-meta-toluamide)** on skin or clothes if you intend to go off-trail or into overgrown areas
- **Avoid sitting directly on the ground or on stone walls** (havens for ticks and their hosts)
- **Keep long hair tied back**, especially when gardening
- **Do a final, full-body tick-check at the end of the day** (also check children and pets)

When taking the above precautions, consider these important facts:

- If you tuck long pants into socks and shirts into pants, be aware that ticks that contact your clothes will climb upward in search of exposed skin. This means they may climb to hidden areas of the head and neck if not intercepted first; spot-check clothes frequently.
- Clothes can be sprayed with either DEET or Permethrin. Only DEET can be used on exposed skin, but never in high concentrations; follow the manufacturer's directions.
- Upon returning home, clothes can be spun in the dryer for 20 minutes to kill any unseen ticks
- A shower and shampoo may help to dislodge crawling ticks, but is only somewhat effective. Inspect yourself and your children carefully after a shower. Keep in mind that nymphal deer ticks are the size of poppy seeds; adult deer ticks are the size of sesame seeds.

Any contact with vegetation, even playing in the yard, can result in exposure to ticks, so careful daily self-inspection is necessary whenever you engage in outdoor activities and the temperature exceeds 40 degrees F (the temperature above which deer ticks are active). Frequent tick checks should be followed by a systematic, whole-body examination each night before going to bed. Performed consistently, this ritual is perhaps the single most effective current method for prevention of Lyme disease.

If you DO find a tick attached to your skin, **[there is no need to panic](#)**. Not all ticks are infected, and studies of infected deer ticks have shown that they begin transmitting Lyme disease an average of 36 to 48 hours after attachment. Therefore, your chances of contracting LD are greatly reduced if you remove a tick within the first 24 hours. Remember, too, that the majority of early Lyme disease cases are easily treated and cured.

To remove a tick, follow these steps:

- Using a pair of pointed precision* tweezers, grasp the tick by the head or mouthparts right where they enter the skin. **DO NOT** grasp the tick by the body.
- Without jerking, pull firmly and steadily directly outward. **DO NOT** twist the tick out or apply petroleum jelly, a hot match, alcohol or any other irritant to the tick in an attempt to get it to back out. These methods can backfire and even increase the chances of the tick transmitting the disease.
- Place the tick in a vial or jar of alcohol to kill it.
- Clean the bite wound with disinfectant.

*Keep in mind that certain types of fine-pointed tweezers, especially those that are etched, or rasped, at the tips, may not be effective in removing nymphal deer ticks. Choose unrasped fine-pointed tweezers whose tips align tightly when pressed firmly together.

Then, monitor the site of the bite for the appearance of a rash beginning 3 to 30 days after the bite. At the same time, learn about the other early symptoms of Lyme disease and watch to see if they appear in about the same timeframe. If a rash or other early symptoms develop, see a physician immediately.

Finally, prevention is not limited to personal precautions. Those who enjoy spending time in their yards can reduce the tick population around the home by:

- keeping lawns mowed and edges trimmed
- clearing brush, leaf litter and tall grass around houses and at the edges of gardens and open stone walls
- woodpiles neatly in a dry location and preferably off the ground
- clearing all leaf litter (including the remains of perennials) out of the garden in the fall
- having a licensed professional spray the residential environment (only the areas frequented by humans) with an insecticide in late May (to control nymphs) and optionally in September (to control adults).

Lyme Disease Symptoms may show up fast, with a bang, or very slowly and innocuously. There may be initial flu-like symptoms with fever, headache, nausea, jaw pain, light sensitivity, red eyes, muscle ache and stiff neck. Many write this off as a flu and because the nymph stage of the tick is so tiny many do not recall a tick bite. The [classic rash](#) may only occur or have been seen in as few as 30% of cases (many rashes in body hair and indiscrete areas go undetected). **Treatment in this early stage is critical.**

If left untreated *or treated insufficiently* symptoms may creep into ones life over weeks, months or even years. They wax and wane and may even go into remission only to come out at a later date...even years later.

With symptoms present, a negative lab result means little as they are somewhat unreliable.
The diagnosis, with today's limitations in the lab, must be clinical.

Many Lyme patients were firstly diagnosed with other illnesses such as Juvenile Arthritis, Rheumatoid Arthritis, Reactive Arthritis, Infectious Arthritis, Osteoarthritis, [Fibromyalgia](#), Raynaud's Syndrome, [Chronic Fatigue Syndrome](#), Interstitial Cystitis, Gastroesophageal Reflux Disease, Fifth Disease, Multiple Sclerosis, scleroderma, lupus, early ALS, early Alzheimers Disease, [Crohn's disease](#), Ménière's syndrome, Reynaud's syndrome, Sjogren's syndrome, irritable bowel syndrome, colitis, prostatitis, psychiatric disorders (bipolar, depression, etc.), encephalitis, sleep disorders, thyroid disease and various other illnesses. see -- [Other Presentations and Misdiagnoses](#)

If you have received one of these diagnoses please scroll down and see if you recognize a broader range of symptoms.

The one common thread with Lyme Disease is the number of systems affected (brain, central nervous system, autonomic nervous system, cardiovascular, digestive, respiratory, musco-skeletal, etc.) and sometimes the hourly/daily/weekly/monthly changing of symptoms.

No one will have all symptoms but if many are present serious consideration must be given by any physician to Lyme as the possible culprit. Lyme is endemic in Canada **period**. **The infection rate with Lyme in the tick population is exploding in North America and as the earth's temperature warms this trend is expected to continue.**

Symptoms may come and go in varying degrees with fluctuation from one symptom to another. There may be a period of what feels like remission only to be followed by another onset of symptoms. Here is a [rough guide to establish whether further consultation](#) is a good idea.