

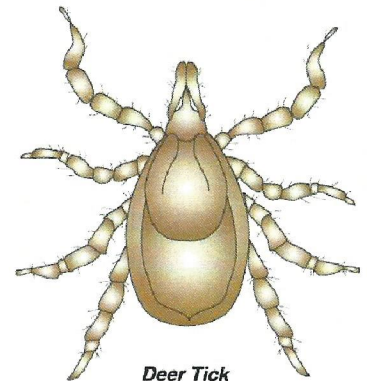
## Testing for Lyme Disease in Dogs

### What is Lyme disease? How could my dog be infected?

Lyme disease is a systemic infection caused by a corkscrew-shaped bacterium called a spirochete. The bacterium is carried by several species of ticks, most commonly the Deer tick or blacklegged tick, and dogs become infected when they are bitten by an infected tick. The tick needs to feed on the dog for one to two days before infection occurs. The tick itself becomes infected by feeding on infected mice, birds, deer and other animals.

### Where is Lyme disease found?

In the United States, Lyme disease has been reported in every state, but more than 95% of cases are from the Northeastern, Mid-Atlantic, and upper Midwestern states (Massachusetts to Virginia, Wisconsin and Minnesota), with smaller numbers of cases reported along the West Coast, especially Northern California.



Deer Tick

### Does being outdoors put my dog at greater risk for catching Lyme Disease?

Yes. Dogs are more likely to be infected if they spend a lot of time outdoors in wooded or grassy areas where deer ticks are abundant, especially in deciduous (hardwood) forests that have moist sandy or loamy soil. This includes forested woodlands in the country as well as wooded areas in city parks.

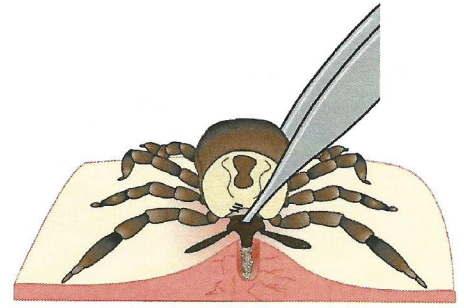
*The risk of infection is greatest in the warmer months of the year from spring through autumn, when ticks are most active.*

### What should I do if I find a tick on my dog?

The tick should be removed quickly but carefully so that none of the tick's mouthparts is left in the dog's skin. If you have not done this before, or are not sure how to do this, then take your dog to a veterinarian to have the tick removed safely. Your veterinarian will advise you about steps you can take to protect your dog against further tick bites using tick control products.

## Can infection be spread directly from one dog to another dog or from my dog to my family?

Direct transmission of Lyme disease from one dog to another dog has not been reported, even when infected and uninfected dogs have lived together for long periods. Transmission of Lyme disease from dog to people has not been reported, although dogs and people can get infected if they visit the same wooded areas and are bitten separately by infected ticks.



## What are the clinical signs of Lyme disease?

Some dogs do not show any signs of illness. In dogs that get sick, the signs may be vague and may not appear for several months after an infected tick bite.

Younger dogs are more likely to show clear signs of illness than mature dogs. The most common clinical sign is lameness, but a small percentage of dogs develop severe, life-threatening kidney disease.

**Lameness:** Infected dogs may show sudden lameness involving one or more joints. Affected joints may be swollen and painful, and the lameness may shift from one leg to another. Joint fluid collected from sore joints shows large numbers of infection-fighting cells called neutrophils. Other signs of infection include fever, lethargy and lack of appetite; some dogs develop enlarged lymph nodes. Routine blood work (see handouts on CBC and Biochemistry Profile) is usually not helpful in diagnosing the disease.

The lameness often passes quickly by itself and, as a result, a dog may not get proper treatment. Although the lameness resolves, the dog remains infected and will continue to experience episodes of lameness, which may shift to different joints. *This long-term infection may lead to progressive and permanent injury to the joints.*

**Kidney failure:** A less common but more serious consequence of Lyme disease is sudden kidney failure, with protein loss in the urine. In some dogs, kidney involvement appears at the same time as lameness but in other dogs, it appears 3–6 weeks after an episode of lameness. Dogs with kidney involvement suddenly stop eating and become lethargic; they often vomit and lose weight. Routine laboratory tests on these dogs show abnormalities typical of kidney failure, including protein loss in the urine.

## How is Lyme disease diagnosed?

The traditional blood tests for diagnosing Lyme disease have largely been replaced by two new tests called the C6 Test and Quant C6 test. Exposure to Lyme disease (as well as exposure to other tick-borne disease) can be detected with a blood test run in-house in our clinic. If a dog tests positive on our in-house test, we recommend a send-out blood test, the C6 test, to differentiate recent exposure from historical, or previous exposure to Lyme disease.

The Quant C6 test, determines if the level of antibody is high enough to require treatment. If treatment is needed, this initial Quant C6 value is used as the starting point for monitoring the dog's response to treatment.

If the C6 test is positive, the veterinarian may also want to run a urine test to look for abnormally high levels of protein in the urine. A positive test for urine protein may signal the presence of the serious underlying kidney disease that can be found in some dogs with Lyme disease.

## What is the treatment for Lyme disease?

The decision to start treatment can be influenced by a number of factors including:

- the amount of C6 antibody present (as measured by the Quant C6 test);
- signs of illness compatible with Lyme disease at the time of testing;
- a history of illness compatible with Lyme disease in the recent past;
- the presence of abnormal levels of protein in the urine.

Lyme disease can be treated with a variety of antibiotics, and most dogs show improvement within 24 to 48 hours of starting treatment. The duration of antibiotic treatment can vary, but usually the dog will receive antibiotics for up to 30 days.

## Is there a vaccine against Lyme disease?

There is a vaccine available. Your veterinarian is the best person to advise you about vaccinating your dog for Lyme disease. Previous vaccination does not interfere with the Quant C6 test.

## How can I prevent Lyme disease in my dog?

The easiest preventive measure is a comprehensive tick control program. The use of commercial products to prevent tick bites can greatly reduce the risk of your dog catching Lyme disease. There are a number of effective products available, and your veterinarian can advise you which ones are best for your dog. In addition, *after outdoor exercise, carefully inspect your dog's skin and hair coat to look for ticks.* Prompt removal of ticks, before they are finished feeding, reduces the chances that Lyme disease will be transmitted to your dog.

*This client information sheet is based on material written by: Kristiina Ruotsalo, DVM, DVSc, Dip ACVP & Margo S. Tant, BSc, DVM, DVSc  
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