



6444 N.W. EXPRESSWAY, SUITE 415D  
OKLAHOMA CITY, OK 73132  
405-728-1678

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## **LYME DISEASE IN DOGS**

Lyme Disease (not Lyme's Disease) is caused by a spirochete called Borrelia. A spirochete is a type of bacterium. It is transmitted to dogs through the bite of a tick. Once in the blood stream, it is carried to many parts of the body. It is especially likely to localize in joints.

It was first thought that only a few types of ticks could transmit this disease, but now it appears that several common species may be involved.

Lyme Disease is named after the city in which it was first discovered, Old Lyme, Connecticut. Thus, it is called "Lyme Disease" and not "Lyme's" Disease.

### **Also a Disease of Humans**

Humans also get Lyme disease; however they do not get it directly from dogs. They get it from being bitten by the same ticks that transmit it to dogs. Therefore, preventing exposure to ticks is important for you and your dog.

### **Clinical Signs**

Many people having the disease develop a characteristic rash at the site of the bite within 3 to 30 days. For these people, the disease can be easily diagnosed at an early stage. However, symptoms of Lyme Disease are more difficult to detect in animals than in people.

This characteristic rash does not develop in dogs or cats. Because the other symptoms of the disease may be delayed or not recognized, and because the symptoms are similar to those of many other diseases, Lyme Disease in animals is often not considered until other diseases have been eliminated.

Many dogs affected with Lyme Disease are taken to a veterinarian because they seem to be experiencing generalized pain and have stopped eating. Affected dogs have been described as if they were "walking on eggshells." Often these animals have high fevers.

Dogs may also become lame because of the disease. This painful lameness often appears suddenly and may shift from one leg to another. If untreated, it may eventually disappear, only to recur weeks or months later.

Some pets are affected with the Lyme Disease organism for over a year before they finally show symptoms. By this time, the disease may be quite widespread in the body.

### **Diagnosis**

Dogs with lameness, swollen joints, and fever are suspected of having Lyme Disease. However, other diseases may also cause these symptoms. There are two blood tests that may be used for confirmation. The first is an antibody test. This test does not detect the actual spirochete in the blood but detect the presence of antibodies created

exposure to the organism. A test can be falsely negative if the dog is infected but has not yet formed antibodies, or if it never forms enough antibodies to cause a positive reaction. This may occur in animals with suppressed immune systems. Some dogs that have been infected for long periods of time may no longer have enough antibodies present to be detected by the test. Therefore, a positive test is meaningful, but a negative is not.

The second test is the polymerase chain reaction (PCR) test, or DNA testing. This is also known as DNA testing. It is very specific and sensitive. However, not all dogs have the spirochete in their blood cells. If a blood sample is tested, a false negative may occur. The best sample for testing is the fluid from an affected joint.

### **Treatment**

Because the Lyme spirochete is a bacterium, it can be controlled by antibiotics. However, a lengthy course of treatment is necessary to completely eradicate the organism.

The initial antibiotic selected to treat an infected pet may not be effective against the disease, especially if the infection is long-standing. In this situation, a switch to another antibiotic is often effective. Occasionally, the initial infection will recur, or the pet will become reinfected after being bitten by another infected tick.

### **Prevention**

The key to prevention is keeping your dog from being exposed to ticks. Ticks are found in grassy, wooded, and sandy areas. They find their way onto an animal by climbing to the top of a leaf, blade of grass, or short tree (especially Cedar trees). Here they wait until their sensors detect a close-by animal on which to crawl or drop.

Keeping animals from thick underbrush reduces their exposure to ticks. Dogs should be kept on trails when walked near wooded or tall grass areas.

### **Removing a Tick from Your Dog**

Check your pet immediately after it has been in a tick-infected area. If you find a tick moving on your pet, the tick has not fed. Remove the tick promptly and place it in rubbing alcohol or crush it between two solid surfaces.

If you find a tick attached to your pet, grasp the tick with fine tweezers or your finger nails near the dog's skin and firmly pull it straight out. You may need another person to help restrain your dog. Removing the tick quickly is important since the disease is not transmitted until the tick has fed for approximately 12 hours. If you crush the tick, do not get the tick's contents, including blood, on your skin. The spirochete that causes Lyme Disease can pass through a wound or cut in your skin.

### **Vaccination**

A vaccine is now available for protecting dogs against Lyme Disease. This vaccine is initially given twice, at two or three week intervals. Annual revaccination is also necessary to maintain immunity. The vaccine has been shown to be safe and very effective. We recommend it for any dog that has exposure to ticks.