

## Stopping Heartworm Disease in Dogs

**A veterinarian offers advice on preventing deadly heartworms in your dog.**

*Leslie Sinclair, DVM*

Q. What is heartworm disease, and why does my dog need to take a heartworm preventative?

Leslie Sinclair, DVM says: *Dirofilaria immitis* is a spaghetti-sized worm that lives in the heart of dogs (and some cats). An infected dog can have anywhere from 1 to 250 worms in his heart, and each worm can live as long as seven years. These adult worms release larvae, called microfilariae, into the dogs bloodstream. The larvae are transmitted from one dog to another by mosquitoes. Heartworms damage a dogs heart, lungs, and kidneys, and often cause death. Canine heartworms are found throughout the U.S., and all dogs, regardless of their age, health status, or habitat, are susceptible to infection, although male dogs are four times more likely to be infected than female dogs are (for unknown reasons). Dogs who live outdoors full-time are five times more likely to be infected than mostly indoor dogs, presumably due to greater mosquito exposure. Dogs with mild or early cases of heartworm infection show no symptoms, and the disease is detected only with routine testing. Dogs with more severe or chronic cases may exhibit lethargy, inability to withstand exercise, weight loss, coughing, and breathing difficulty.

Several tests are used to diagnose canine heartworm infection. If enough microfilariae are in the dogs bloodstream, a veterinarian can find them simply by examining a drop of the dogs blood with a microscope. If the infestation is slight, the veterinarian can strain a larger sample of blood through a filter, or he or she can centrifuge-a test tube full of blood so that the larvae become packed together-and examine the result with a microscope.

It is possible for a dog to have heartworms but no microfilariae. This is called an occult (hidden) infection, and it occurs when the worms in the heart cannot produce larvae because they are not yet mature or because they are all of the same sex (all male worms or all female).

Many occult infections can be detected using antigen tests. These tests, which can be performed quickly at the veterinary hospital on a small sample of blood, detect the presence of proteins (antigens) found on the skin of female heartworms. This is the most accurate test available, but it cannot detect heartworms in a dog who has been infected for less than seven months.

A dog with mild to moderate damage from heartworms can usually be successfully treated. A dog with a more severe infection can undergo treatment but may have permanent heart, lung, and kidney damage that requires lifelong care, and complications during treatment are more likely. Two heartworm treatment drugs, both derivatives of arsenic, are available: thiacetarsamide was used for many years, and melarsomine is a newer and safer drug. In most cases, two treatments are given a few weeks apart. The most likely complication is that pieces of the dead worms will break loose in the heart and lodge in the blood vessels of the lungs, causing severe damage and inflammation. Therefore, dogs undergoing treatment must be kept quiet and be carefully monitored for several weeks during and after treatment. Once the adult heartworms have been killed, another medication is given to kill any microfilariae circulating in the dogs bloodstream so that they don't mature into adults.