

Testing for Heartworm Disease in Dogs

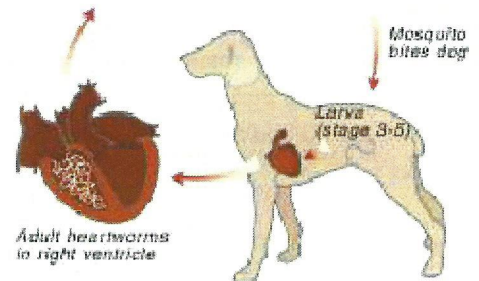
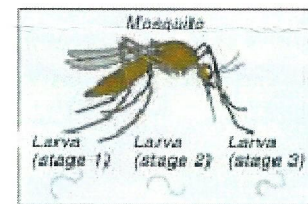
What is heartworm disease? How does a dog become infected?

Heartworm disease is caused by the internal parasite *Dirofilaria immitis*, better known as the heartworm. These parasites are long thin worms that live in the right side of the heart and the pulmonary arteries, the blood vessels that carry blood from the right side of the heart to the lungs. Dogs become infected when they are bitten by an infected mosquito that is carrying immature worms called larvae. Once they enter the dog, the larvae move through the tissues of the body, eventually entering the bloodstream and migrating to the right side of the heart. Within the heart, the worms complete their maturation, mate, and produce immature worms called microfilariae, which circulate in the bloodstream. When the infected dog is bitten by another mosquito, the microfilariae will pass from the dog to the mosquito. It takes about 5 – 6½ months for the heartworm life cycle to be completed.

Where is heartworm infection most common?

Heartworm disease is widespread in the United States and is particularly common along the eastern and gulf coasts, and in the Mississippi River valley.

The risk of infection is greatest when mosquitoes are actively feeding. This typically requires an average daily temperature of more than 64°F (18°C) for one month. In areas that experience killing frosts, the risk of contracting heartworm disease is limited to the warmer months (late spring to early autumn), even though mosquitoes may appear in early spring. By comparison, in subtropical United States, heartworm infection can be a year-round risk.



LIFE CYCLE OF THE HEARTWORM

Can infection be spread directly from one dog to another, or from a dog to a person?

No. Dogs can only get heartworm from an infected mosquito. There is no direct transmission of this infection from dog to dog, dog to cat, or dog to people.

What are the clinical signs of heartworm disease?

In the early stages of disease, dogs often have no clinical signs, especially if they only have a small number of worms in their heart.

As the disease progresses, clinical signs become more noticeable and include reluctance to exercise, rapid fatigue with exercise, coughing or collapse. *In advanced disease, dogs develop congestive heart failure.* Dogs in congestive heart failure lose weight, have a poor body condition, breathe rapidly or with difficulty, and develop a build-up of fluid in the abdomen.

How is heartworm disease diagnosed in the dog?

Heartworm is usually diagnosed with a simple blood test. There are two main tests for detecting heartworm infection; one test detects adult worms and the other detects microfilaria.



Testing for Adult Worms: The American Heartworm Society recommends that a **Heartworm Antigen Test** should be the primary method of testing for adult heartworm infection. This test is specific for the adult female worm. Antigen is detectable 6½ – 7 months after infection and positive results are possible with as few as 1–3 adult females. Antigen tests will be falsely negative if infection has been present for less than 5 months, or if the worms are either all male or all immature females.

Testing for Microfilaria: Any antigen test that is positive or weak positive should ideally be followed up with a test for microfilariae. The presence of microfilariae confirms the presence of mature adult worms in the heart and indicates the need for specific treatment to kill microfilariae.

In some infected dogs, the blood tests are negative even though there are heartworms in the heart. If a dog is suspected of having an 'occult' (hidden) heartworm infection, your veterinarian may either recommend x-rays to look for changes that indicate the presence of heartworm, or an ultrasound to examine the heart structure and function directly.

Do all dogs need to be tested?

No. *Puppies less than 6 months of age do not need to be tested.* Adult worms are not present before this time and both antigen tests and microfilariae tests will be negative.

Is there treatment for heartworm disease?

Yes. Treatment usually involves two stages; the first stage of treatment kills the adults, and the second stage, if it is needed, kills the microfilariae. Treatment of adult worms is usually effective although there may be side effects because of dead worms being pumped out of the heart into the lungs. Dogs undergoing treatment must be kept very quiet during the treatment period and for 3–4 weeks following treatment. If complications arise, hospitalization for further treatment may be needed.

Once the treatment for adult worms is complete, medication to kill the microfilariae may be warranted. Side effects of treatment are possible, especially if large numbers of microfilariae are present.

How can I prevent heartworm disease in my dog?

Several excellent products are available to prevent heartworm disease in dogs. We recommend treatment with Heartgard Plus once a month all 12 months of the year.

*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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