

Heartworm Disease Questions and Answers: (*Information from IDEXX Laboratories*)

The following answers include [American Heartworm Society](#) information.

What is heartworm disease?

Heartworm disease (also called dirofilariasis) is a preventable but serious and potentially fatal, parasitic disease that primarily affects dogs and cats. The heart and lungs are the major organs affected by heartworms in dogs.

Adult heartworms (*Dirofilaria immitis*) can be up to 14 inches long. They live in the right side of the heart and the pulmonary arteries, which connect the heart to the lungs. Heartworms cause blockage and injury that may lead to heart failure and may damage other organs, including the liver and kidneys. A dog may harbor several hundred heartworms, but in most cases, the number is much lower.

Cats usually have smaller and fewer heartworms than dogs, and they often don't exhibit clinical signs until the disease is considerably advanced. Occasionally, heartworms are found in other animals, such as foxes, wolves and ferrets. Heartworms can also lodge in the lungs of people and form nodules, but their presence has not been associated with clinical disease.

How is heartworm disease transmitted?

Mosquitoes transmit heartworms.

- Adult female heartworms release microfilariae into the bloodstream of infected animals. When a mosquito bites an infected animal, it takes up blood containing these microfilariae.
- The microfilariae incubate in the mosquito for 10–14 days, during which time they become infective larvae. When the mosquito bites another animal, the infective larvae are passed on to the second animal through the wound.
- Infective larvae migrate through the tissues of the body for 2–3 months and then enter the heart and pulmonary arteries, where they reach adult size in another 3 months. If both sexes are present, the mature worms will mate and produce new microfilariae, and the cycle begins again.
- Adult heartworms may survive for 5–7 years in dogs. The mosquito is the only natural agent of transmission for heartworms. Microfilariae cannot mature into adult heartworms without passing through a mosquito.

Cats rarely develop microfilaremia. When present, microfilariae are usually short-lived. Some cats rid themselves of heartworm infections spontaneously, whereas infective larvae in other cats may mature into adult heartworms that can cause serious disease.

How can I tell if a dog or cat has heartworm disease?

Pets recently or lightly infected with heartworms may show no signs of disease. In later stages, dogs with heavy or persistent infection may cough, become lethargic, lose their appetites or have difficulty breathing. Owners may first notice that their dogs seem to tire rapidly after only moderate exercise. Fluid may accumulate in the abdomen (ascites) as a result of advanced heartworm infection. Another serious, but less common, manifestation is caval syndrome (a form of liver failure). Animals affected by caval syndrome rapidly become weak and their urine turns dark brown. Caval syndrome requires prompt surgical removal of the heartworms.

Veterinarians can detect heartworm infection in its early stages by examining a dog's blood for the presence of circulating microfilariae or by performing laboratory tests to look for heartworm antigen (a protein produced by adult heartworms). Radiography of the chest and electro- or echocardiography are also helpful in making a diagnosis and may indicate the severity of the infection.

Clinical signs in cats are similar. However, most cats never show signs of disease and heartworm infection may be a postmortem diagnosis. While the diagnostic approach to heartworm disease in cats is similar to that used for dogs, diagnosis is much more difficult because cats usually harbor very few adult worms.

Can heartworm disease be prevented?

Yes, heartworm disease is almost 100% preventable with oral (daily or monthly), topical (monthly) or injectable (biannually) medications.

Prior to beginning a prevention program, a blood test is recommended to detect or rule out the presence of heartworms. Then prescribe an appropriate preventive and tell the pet owner how often and how long that preventive should be administered. You can determine the patient's risk for heartworm disease on the basis of its species, lifestyle and geographic location.

When should patients be tested?

The American Heartworm Society's and Companion Animal Parasite Council's guidelines encourage annual testing, testing in between prevention product changes and year-round prevention to manage heartworm disease in dogs and cats. "Annual testing is an integral part of ensuring that prophylaxis is achieved and that more timely treatment can be provided to dogs that test positive in order to minimize pathology."¹

Reference

1. Executive Board of the American Heartworm Society. *Current Canine Guidelines for the Diagnosis, Prevention, and Management of Heartworm (Dirofilaria immitis), Infection in Dogs*. Wilmington, DE: American Heartworm Society; 2012. www.heartwormsociety.org/veterinary-resources/canine-guidelines.html. Accessed: March 1, 2012.