

How to Strengthen Your Pets Fight Against Heartworms

Empower yourself with knowledge about effective heartworm prevention that could potentially save your dog's life.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Heartworm infection in dogs is serious; it's crucially important that pet parents understand their treatment options and the steps involved in each
- The standard protocol per the American Heartworm Society involves Immiticide, a fast-kill approach; an alternative protocol using ivermectin plus doxycycline is a slow-kill approach that is less costly, and equally effective
- Pet parents should work closely with their veterinary team to determine the most appropriate course of action based on the level of infection and the health of their dogs, as well as financial considerations
- Dogs with heartworm disease must be kept inactive (i.e., confined to a crate or other small space) during treatment; it's important to understand what your pet can and can't do while undergoing therapy
- Entirely holistic heartworm treatment protocols are typically ineffective; if you're interested in trying such an approach, you should absolutely talk with a very knowledgeable integrative or holistic veterinarian before making a decision

As almost all dog parents know, a heartworm infection is serious. Adult heartworms can grow up to a foot in length and live as long as five years inside a dog. They can clog pulmonary arteries, and if there is significant infestation, the worms back up into the heart itself and eventually fill it. They cause blood clots, and the heart has to work abnormally hard to pump blood through plugged arteries.

Heartworms also cause serious inflammation in the arteries that can affect important organs like the liver and kidneys.

If heaven forbid your dog is diagnosed with a heartworm infection, navigating through the required steps can feel overwhelming. The following information from the American Heartworm Society will help arm you with an understanding of the treatment process so that you can take the best care of your dog every step of the way.

Diagnosis and Staging

As described above, heartworm disease involves worms living and growing inside your dog's heart. The disease is spread through a mosquito bite. Over time, a heartworm infestation can damage your dog's lungs, put back-pressure on the heart, and create a risk for heart and lung disease and sudden death.

The good news is that most cases of heartworm disease diagnosed in the early stages of infection can be successfully treated.

After a heartworm diagnosis, your veterinary team will perform additional testing to determine the severity of your dog's disease. Classification is used to help establish a patient's overall prognosis, the most effective treatment approach, and what additional precautions may need to be taken to ensure the best possible outcome.

Treatment Process

Eliminating heartworm disease is a process involving a variety of treatments administered over the course of a few months. One of the treatments is the use of Immiticide, an injectable drug that kills the adult heartworms in your pet.

Strict exercise restriction and confinement are crucially important to reduce the risk for treatment complications. Exertion, excitement, and exercise increase blood flow to the lungs, which in turn increases the likelihood the blockages caused by dying heartworms may lead to illness or death.¹

It is recommended that your pet's activity be restricted for 6 to 8 weeks after treatment, with your veterinary team offering further guidance on when and how to return your pet to normal activity.^{2,3}

Since it's not a simple task to keep a dog calm, quiet, and unexercised, mental stimulation will be very important for your pet's emotional health. Suggestions:

- Create rest areas inside and outside your home so your dog can experience a change of scenery
- Puzzle toys and food-dispensing toys
- Clicker training for new tricks that don't require physical activity
- **Calming music** or white noise
- Calming pheromone products

American Heartworm Society Treatment Timeline

The following treatment protocol is recommended by the American Heartworm Society. Dogs with more serious illness may require alternate treatment options.

Months 1 and 2

- Your dog will be given his/her first dose of heartworm prevention, which will affect immature heartworms and prevent new heartworm infections from occurring. Your veterinarian may choose to give the first dose in the hospital and monitor your dog for the day for any potential reactions. You'll need to keep your dog on heartworm prevention for the duration of his or her life. (For my own recommendations, see Important Heartworm Prevention Tips in this recent **article**.)
- Your veterinarian will dispense 30 days of doxycycline for you to administer orally to your dog. Doxycycline is an antibiotic that kills the bacteria commonly found in heartworms. By giving doxycycline before treatment, you are lessening the chance for complications and improving the chance for successful treatment.

- Another dose of heartworm prevention will be administered by you on day 30, followed by a 30-day waiting period to allow for elimination of the youngest stages of heartworms.

Month 3

- Your dog will be admitted to the hospital for his/her first treatment, which is a single injection of Immiticide. Your veterinarian may decide to mildly sedate your dog if he/she seems anxious. Your dog will remain in the hospital for the day for observation and may experience some soreness at the injection site for a few days afterward.
- You will continue to administer heartworm prevention orally to your dog once a month.
- Your veterinarian will likely give you a steroid to administer for 1 month to reduce the risk for complications associated with inflammation that may occur from treatment. He or she may also dispense oral pain medication for a few days to alleviate soreness.

Month 4

- One month after the first Immiticide injection, 2 additional injections will be administered 24 hours apart. Your dog will be admitted to the hospital again for these treatments. These injections will eliminate about 98% of adult heartworms.
- Your dog will need to be strictly rested for an additional 6 to 8 weeks while the remainder of the heartworms die.
- Your veterinarian will likely dispense another steroid for 1 month and may dispense oral pain medication as well.

Month 5

- At the end of month 4, your veterinarian will draw blood to assess whether your dog still has circulating microfilariae (heartworm babies) in his/her system. Additional medication and testing may be recommended if this test is positive.
- You will continue to administer heartworm prevention orally to your dog once a month.

The 1-Year Mark

- Your veterinarian will run a heartworm test 9 months after your dog's last Immiticide injection to assess whether he/she still has adult heartworms.
- Your dog will be considered "cleared" of heartworm disease once he/she has had 2 consecutive negative heartworm tests 6 months apart.
- Continue regular heartworm prevention throughout the life of your pet to safeguard your dog from reinfection.

An Alternative Protocol

Years ago, there was a long-running shortage of Immiticide, so veterinarians, including me, were forced to find other ways to treat active heartworm infections in dogs. I opted to go with a less costly, slow-kill protocol of ivermectin (a heartworm preventive) and doxycycline.

As it turned out, low dose ivermectin therapy in dogs with no sensitivity to the drug, in combination with the antibiotic doxycycline, can be an extremely effective, inexpensive option for treating heartworm infection. Ivermectin is 50% to 75% cheaper than Immiticide and my patients cleared their infections beautifully.

I decided that going forward, I would only consider using Immiticide with ivermectin-sensitive patients.

Doxycycline, a member of the tetracycline antibiotic group, kills Wolbachia, an organism that lives inside heartworms. Wolbachia organisms worsen the effect of both the heartworms themselves and the adverse events associated with heartworm treatment, including allergic reactions, inflammation, and embolism.

Doxycycline not only kills Wolbachia, but It also simultaneously weakens the heartworms and sterilizes them so they cannot reproduce, which lessens the damage they can do inside a dog's body. It also dramatically reduces the risk of adverse reactions to heartworm treatment.

A 2008 study⁴ demonstrated that treatment with a combination of ivermectin and doxycycline has the following effects on heartworm infections:

- Sterilizes female heartworms
- Prevents the infected dog from infecting other dogs via mosquitoes
- Hastens the death of heartworms
- Limits inflammation and other damage caused by the presence of heartworms in the body
- Reduces risk of serious adverse reactions to Immiticide

These effects are significantly improved when the two drugs are used together rather than one without the other.

The doses used for the study were ivermectin (Heartgard) given weekly at the usual monthly preventative dose for 33 weeks, and doxycycline given at 10 mg/kg daily during weeks one through six, weeks 10 and 11, 16 and 17, 22 through 25, and 28 through 33.

Questions About Dosing

Different theories and protocols exist for how much, how often and how long ivermectin and doxycycline should be given in treating heartworm infections. As suggested by the American Heartworm Society, one approach is to give doxycycline at normal doses for 30 consecutive days before starting (in this case) Immiticide.

However, a laboratory study conducted in 2005⁵ indicates intermittent treatment with doxycycline is more effective in killing Wolbachia than continuous treatment.

In another study published in 2010,⁶ 11 heartworm-infected dogs were given doxycycline daily for 30 days and ivermectin every 15 days for six months, with the following result:

“One hundred percent of dogs became negative for circulating microfilariae by day 90, while 8/11 (72.7%) of dogs became antigen-negative by day 300. Of the 7 dogs that were positive for visualization of parasites at echocardiography, 6 (85.7%) became negative by day 300. Treatment was well-tolerated by all dogs. These results suggest that a combination of doxycycline and ivermectin is adulticide in dogs with D. immitis.”⁷

Using this therapy, the gradual death of adult heartworms dramatically reduces the risk of pulmonary thrombosis — blood clots in the lungs that pose a serious adverse effect associated with other adulticides. This is the protocol I have used in my practice with 100% success.

If Your Dog Has a Heartworm Infection

The best advice I can offer is to work with your veterinarian to determine the most appropriate course of action based on the level of infection and the health of your dog, as well as financial considerations. Your vet may be able to treat the infection with ivermectin and doxycycline. Or Immiticide may be the better option.

Some dogs also need a drug like Benadryl or as noted earlier, a course of steroid therapy to mitigate the side effects of the treatment.

And no matter whether you opt for a fast-kill or slow-kill approach, your dog will need to be kept inactive (which generally means confined to a crate or other small space) during treatment. That’s why it’s extremely important to understand what your pet can and can’t do while undergoing heartworm drug therapy.

The decision about the best way to treat a precious pet infected with heartworms is never easy, so I encourage you to work closely with your dog’s health care providers to decide the best and safest treatment for your canine companion.

What About Natural/Holistic Heartworm Treatments?

I have had many owners request holistic options for treating heartworm. I have also had clients who decided to treat their pets with nutraceuticals purchased online.

Unfortunately, entirely drug free heartworm treatment protocols have ranged from moderately successful to epic fails (dogs were still positive after treatment and their heart disease was worse).

Because I haven’t found one specific entirely holistic protocol that is consistently successful at treating moderate heartworm infection, I recommend you discuss options for natural protocols with an integrative or holistic veterinarian.

Please keep in mind that heartworms are blood borne parasites, not gastrointestinal (GI) parasites. Natural remedies effective in treating GI parasites don’t work on blood borne parasites. A natural dewormer won’t work for heartworms because heartworms live in your dog’s bloodstream, not in the gastrointestinal tract.

Sources and References

^{1,2} [American Heartworm Society: Heartworm Treatment Guidelines for the Pet Owner](#)

³ [American Heartworm Society, Current Canine Guidelines, Revised 2018](#)

⁴ [McCall, J.W. et al. Veterinary Parasitology, 2008 Dec 10;158\(3\):204-14](#)

⁵ [Makepeace, B.L. et al. Antimicrobial Agents and Chemotherapy, 2006 Mar; 50\(3\): 922-927](#)

^{6,7} [Grandi, G. et al. Veterinary Parasitology, 2010 May 11;169\(3-4\):347-51](#)
