

Heartworm Disease

The Life Cycle of Heartworms

Heartworm disease is a blood parasite spread by mosquitoes. The life cycle begins in an infected animal, like a coyote, fox or even another dog. Adult heartworms reside in the host animal's heart, lungs and blood vessels, producing young called **microfilariae**. They circulate in the host's blood stream and are ingested by mosquitoes during feeding.



Infected dogs and cats cannot spread heartworm disease from one to another; the mosquito is essential to the development and spread of the parasite.

Once inside the mosquito, the microfilariae mature and develop. When they're ready, they migrate to the mosquito's stomach and mouth. They enter their next host through the mosquito's bite.

The heartworm larvae migrate and mature in the infected animal's veins. While in the early stages of development, these larvae can be killed by the orally administered heartworm medication used monthly. If medication is not used, the larvae will continue to develop to sexual maturity and produce more microfilariae. Symptoms of infection in early stages are simply a cough and some abnormal lung sounds. As infection progresses, pets can develop difficulty breathing, exercise intolerance, fluid accumulation in the abdomen, enlargement of organs and more. Serious heartworm infections can lead to death in untreated dogs and cats.

Heartworm Disease Prevention

Most traditional heartworm medications include one of two medications—**ivermectin** (used in products like Heartgard) and **milbemycine oxime** (used in products like Interceptor). These products are generally considered very safe. These medications work retro-actively, meaning they do not prevent heartworm exposure but instead kill immature heartworms to prevent full blown infection. That's why it's so important to administer these medications regularly during heartworm season.

Frequently, people allege that as long as your pet is healthy, eats a raw diet and is not over-vaccinated, they will not get heartworms. Unfortunately, this is not true. Challenge studies have shown that in dogs deliberately infected with heartworm larvae, about 90% of them will develop heartworm disease, regardless of diet and vaccination regimen. This suggests that perhaps dogs do have some natural resistance to heartworm disease, but it's a serious mistake to bet your dog's life on this notion.

Some holistic practitioners suggest various herbal and homeopathic preparations for heartworm disease. However, none of them have been studied for safety, and there are no published reports demonstrating their effectiveness in protecting against heartworm disease. Some herbal dewormers like wormwood and black walnut are potentially toxic when used at the dosages need to control even an intestinal parasite.

Alternatives to Traditional Dosing Schedules

Many veterinarians advocate year-round administration of heartworm medications. This is likely to help owners stay in the routine of giving the pills and therefore ensure their pets are protected during heartworm season. However, in our part of the country, it is not necessary to dose your dog or cat with this medication year-round.

The larvae's development in the mosquito is dependent upon environmental temperatures. They may not be able to develop to the stage needed to infect dogs and cats unless the temperature has been over 57 degrees Fahrenheit, day and night, for at least fourteen days. If temperatures drop below that point at any time during the cycle, development may be prevented (though there's no 100% guarantee). Remember, temperatures can vary according to where mosquitoes live (for example, it may be warmer under the eaves of the house or in other protected areas than the general ambient temperature).



With one drug (Interceptor), you can give your dog less than the recommended dose of preventative without compromising safety. The FDA has reported that milbemycin oxime can be given at 1/5 the regular dosage for the control of heartworms (instead of the full dosage, which controls heartworms and a variety of intestinal parasites).

This brings up the issue of pill splitting. Representatives from the drug companies producing Heartgard and Interceptor say that their active ingredients are mixed into their products before the pills are formed, so the medication should be evenly distributed. However, they cannot guarantee this, so both manufacturers advise against pill splitting.

Additionally, it may not be necessary to give heartworm preventatives every month. This schedule was originally devised to make it easier to remember when to administer the drug, and ensure the pet was protected should the pill be spit out or vomited up. FDA approvals cite that many preventatives provide protection beyond 30 days, so if you're good about remembering to give the pills (and your pet is good about not spitting it out, or throwing it up), you can dose them every 45 days instead of every month.



Remember this disclaimer! If you decide to modify the way these medications are given from the manufacturer's recommendations, the guarantees for protection are invalid. Under normal usage, if your pet develops heartworm disease while on medication, the manufacturer may assist in payment for treatment.