



Bulloved Bulldogs

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Heartworm: A Realistic Look

Heartworm is of concern to all dog owners, and is a potentially serious, sometimes even fatal, disease. It is not, however, the unavoidable scourge that many vets and pharmaceutical companies would have us believe. If your dog is reasonably healthy, eating a **SARF** diet, is vaccine free, is not currently on any HW "preventives" or chemical flea and tick preventives, his immune system should be strong enough to fight off a heartworm infestation with none of the larvae reaching adulthood. In the event that some of the larvae should manage to get past your dog's immune system defenses and survive to adulthood, it is still far from a death sentence. They will be much weakened, and the truly healthy dog will make a less hospitable host. Even at the adult stage, a healthy dog, possibly with some veterinary assistance, should be able to fight them off with no lasting ill effects to his health. Nor are the currently available cures more dangerous than the "preventive," as the veterinary and pharmaceutical industries would have us believe.

The mid and southern Atlantic states and the north-central states (where we live) have the most reported cases of heartworm. See the maps at http://web.archive.org/web/20040605095457/http://cal.vet.upenn.edu/merial/hrtworm/hw_3.htm. Note the tremendous increase in heartworm since the introduction of mass vaccinations (figure three).

Mosquitoes are the only known vector of the infective stage of the heartworm larvae. In some parts of the country mosquitoes are a problem all year round, while in others this problem is limited to the warm months.

There are many sites out there on the internet with lots of "information" on heartworm. The problem with much of it is that it is either wrong or incomplete. Much of it is intended to mislead and frighten you. One site says simply that a mosquito bites an infected dog then bites another dog and infects it. While that, to some extent, in the most general of ways, is true, it is very misleading because the entire process is much more complicated and time consuming than that that "explanation" would lead one to believe. Another says that the mosquito injects the heartworm into your dog. This is simply false.

This is a compilation of information I've been collecting for a couple of years, including some tips on what you can do to protect your dog from heartworm.

The heartworm has 5 separate larval stages referred to simply as L1, L2, L3, L4, and L5. The L5 is actually the young adult stage. The fully mature adult is often referred to as L6. In addition, heartworm also has two separate cycles, which, combined, make up the total lifecycle of the heartworm. One cycle takes place in a mosquito, and the other inside a dog or cat.

When a mosquito bites a dog harboring microfilariae, the mosquito ingests the L1 larvae, or microfilariae. This can only happen if the dog is also harboring the L6, or mature adult heartworm, because the microfilariae are the offspring of the adult heartworm. These microfilariae can live for up to two years in the dog's blood without causing any harm. They must, however, be taken up by a

mosquito in order to develop any further. If they are not, they will simply die of old age and be passed out of the system.

Once the mosquito ingests the microfilariae from the infected dog, the larvae must go through two stages of development, or molts, changing from L1 to L2 and from L2 to L3, while in the mosquito's system before the mosquito can infect another dog. Once the L3 stage has been reached the larvae migrate to the mosquito's mouth. **It is only the L3 larvae which are capable of infecting another dog.** This mosquito cycle takes anywhere from two weeks to about a month depending on the weather. The warmer the weather, the faster the development. If the larvae haven't made the final development by then, they never will because the mosquito dies of old age at about 35 days, and along with the mosquito, die the larvae.

The importance of temperature: While the larvae are developing in the mosquito, development continues only when the temperature is above 64 degrees F. Further, **the temperature MUST remain above 57 degrees Fahrenheit at all times, day and night during the entire mosquito cycle. If at any time during the development into the L3 stage, the temperature drops below 57 F, the development is aborted and must start over. Remember, it is only the L3 larvae which are capable of infesting your dog.**

Now let's say that a mosquito has bitten an infested dog; and that the temperature has remained above 57 degrees F for a minimum of 14 days since that bite; and that the mosquito bites your dog. Still, your dog is not infested because the L3 larvae are deposited in a tiny droplet of mosquito saliva adjacent to the bite, not injected into your dog by the mosquito--as many would have us believe. Providing the humidity and temperature are such that the droplet does not evaporate before they get the chance, the L3 larvae must swim through the saliva and into the hole left by the mosquito bite, thereby entering your dog's system.

Once inside your dog, the L3 larvae must spend the next two weeks or so developing into the L4 larvae. During this period of time the larvae are living in the subcutaneous tissue just under the skin, not in the blood of the newly infected dog. The L4 will continue to live and develop in the subcutaneous tissue for the next two to three months, where they develop into the L5 stage. Once they make this development or molt into the L5 or young adult stage, they then leave the subcutaneous tissue and enter the blood stream. The L5 or young adults then migrate to the heart and pulmonary arteries where they make their final development into the L6 or mature, breeding, adult stage and attach to the tissue of the heart and pulmonary arteries. Once there, approximately 5 to 7 months after entering the dog's body, they will mate. This mating produces the microfilariae.

If the dog is not re-infested with L3 larvae from another bite from another infected mosquito, the adult heartworm will die of old age in about 2 years. The microfilaria will also die a natural death unless taken up by a mosquito.

The adult female mosquito, the only one which bites, usually lives little more than thirty days. Some species live only a couple of weeks. See,

http://web.archive.org/web/20040605095457/http://www.sci-ctr.edu.sg/ScienceNet/cat_life/cat_zoo03865.html

For a great deal more information on the mosquito visit,

<http://web.archive.org/web/20040605095457/http://www.mosquito.org/mosquito.html>

When Is A Preventive Not A Preventive

The most popular heartworm "preventives," Heartgard and Interceptor, are not really preventives at all; rather they act by killing the microfilariae, L3, and/or L4 larvae in an infested dog. Interceptor kills the L3s, and L4s, while Heartgard will kill the L4s and some of the youngest L5s. **In other words they're poisons**, as are all of the other popular HW "preventives." None of them kills the fully adult or L6 heartworms in the dosages prescribed for "prevention." At higher doses, however, some of them will.

There are basically two standard tests for heartworm. One is called the antigen or occult test which tests for the antigens produced by the adult female heartworm. This test does not show the presence of microfilariae. The other is the microfilaria test. This test, of course, tests for microfilariae. Both Heartgard and Interceptor kill microfilariae. Therefore, if one's dogs have been on either of these products, they will test negative for heartworm when given the microfilaria test, even though they may be infested with adult heartworms. It is not common, but it does happen. There have been many reports of dogs having very bad reactions to both Heartgard and Interceptor. Giving one's dog doses of poison month after month to kill something which probably isn't there anyway, doesn't make an awful lot of sense to me.

In his book "Homeopathic Care For Cats and Dogs", under the heading Heartworm, p332, Dr. Don Hamilton says:

"This is a serious disease that primarily affects dogs... It can be treated homeopathically but this should be under the care of an experienced veterinarian.

Heartworm preventives are generally very effective at protecting dogs against the disease....In dogs the "monthly" preventives are effective if given at six week intervals, and possibly even at seven- or eight week intervals.... The daily preventives are almost a thing of the past, but these are usually effective if given every other day.

Although the preventive drugs are generally safe, they can initiate an autoimmune disease in susceptible animals...The homeopathic nosode that is made from heartworm larva is employed commonly as a preventive to avoid the drug side effects. Many question its effectiveness, though I have several clients who use the nosode (apparently successfully) with animals in heartworm endemic areas. Most animals have no trouble with heart worms. I do know of some cases where the nosode did not protect, however. I believe it does offer some protection, though it may be incomplete... If you decide to try the nosode, you must understand that its effectiveness is currently unknown."

To me this quote says pretty clearly that Dr. Hamilton has more faith in the drugs like Heartgard than he does in any homeopathic approach to prevention.

On the other hand, Dr Martin Goldstein, in his book, "The Nature Of Animal Healing" pp, 220, 221, 223, says:

"Granted, heartworm is a serious condition...

A few caveats are in order, however. Only a small percentage of dogs who get heartworm die of it, especially if they're routinely tested twice yearly for early detection. Even in untreated dogs, after a period of uncomfortable symptoms, the adult worms die... The chances of a microfilaria-infected mosquito biting your dog the first time are slim. Of it happening to the same dog twice? Very

slim...Early in my career, I saw and treated hundreds of cases of heartworm disease, most with routine medication, yet witnessed only three deaths (the last was in 1979). By comparison, we're seeing, cancer kill dogs on a daily basis. To my mind, the likelihood that toxicity from heartworm pills is contributing to the tremendous amount of immune suppression now occurring, especially in cases of liver disease and cancer, is far greater and more immediate than the threat of the disease they're meant to prevent...

As a precaution, I recommend that all dogs be tested twice a year for heartworm. For clients who insist on a more active form of prevention, I suggest doses of black walnut given two to three times a week, as I've actually reversed clinical heartworm with it..."

Obviously two very differing opinions on the safety of the common heartworm preventive drugs and the efficacy of alternative treatments from two very respected authors and healers.

Other alternative preventives I've run across are:

Soaking an old towel in equal parts of the essential oils of pennyroyal and citronella; tearing it into pieces and hanging it in various places around one's dog runs or property is said to make an excellent repellent. Citronella, rose geranium (plumarosa), eucalyptus, pennyroyal, rosemary, rue, and wormwood are the strongest herbal repellents available, not only for mosquitoes, but for fleas, and ticks as well. Rubbing fresh leaves of pennyroyal, rosemary, eucalyptus, lavender, and/or wormwood on one's dog's coat and/or one's own skin is also said to be a good temporary repellent.

At Bulloved Bulldogs, as with all things, our first line of defense is diet. We include approximately one to two cloves of garlic per day in everybody's food. Garlic is a natural mosquito repellent; just the aroma will keep them at bay. As such, it is a genuine heartworm preventive. If the mosquito never bites your dog your dog cannot contract heartworm. We also spray the runs and surrounding grounds and the deck with a commercial garlic-based spray to help reinforce the effects of the garlic we feed our Bulldogs.

If, in addition to the above, if you are more comfortable using an applied repellent, here a couple of suggestions for safe, natural repellents you can make at home.

Fill a small spray bottle with the following.

- 2 drops each, rosemary and lavender oil *
- 3 drops of citronella oil
- 20 drops or so of rose geranium (plumarosa) oil
- 1/2 ounce or one tablespoonful of alcohol based tincture of bay
- 1/2 ounce or one tablespoonful alcohol based green black-walnut hull tincture
- 8 ounces of distilled water

*You may, if you prefer, use 3 to 4 drops of one or the other.

This can be sprayed directly on one's dogs every time they go out, or one's self for that matter. Spraying it on things like lawn or deck furniture can also be very effective. This is a variation I devised from a recipe included in "The Encyclopedia Of Natural Pet Care," by CJ Puotinen.

An alternative to the above combination is the following formula and protocol originally posted to **The Holistic Bulldogger** by Carol Anne Rayson, Mississauga, Ontario. Carol Anne calls this "The Mother of all Homemade Natural Flea and Bug Repellants". Place approximately one cup of dried calendula (wild marigold) blossoms (available at most health food stores or herb shops) in a one quart glass container with lid; a canning jar would be ideal. Cover with naturally fermented raw apple cider vinegar. Be sure to add enough ACV that it covers the dried blossoms plus about an additional inch of liquid. Cover tightly and let stand undisturbed for two weeks. At the end of the two week period strain the liquid through several layers of cheesecloth. Rebottle the strained infusion and store in the refrigerator for future use. Don't worry if there are small particles of the calendula blossoms in the liquid. When you are ready to use the infusion (when mosquito and tick season arrives) mix a small quantity of the infused ACV with ten parts of spring water in a spray bottle, and return the original container of the undiluted calendula-ACV infusion to the refrigerator for later use. This final dilution can then be sprayed directly onto your Bulldogs, although I would recommend avoiding the eyes. They don't seem to like getting it in their eyes. Carol Anne also claims "A 50/50 solution of the original infusion and spring water also works wonders on hot-spots and is a good general skin tonic.

The garlic is so effective that we have relatively little use for these final lines of defense. However, rain will wash away the spray that has been sprayed on the premises; therefore, when sitting out of a late evening following several days of rain, we take the added precaution of spraying ourselves and our Bulldogs with one of the two mixtures above. Once the rains have passed we re-spray the runs, grounds, and deck with the garlic spray. I am convinced that, providing one's dogs are fed a species appropriate raw food diet; that they are not vaccinated; they are not treated with flea and tick preventives; and are not currently being treated with drugs such as antibiotics, our dogs are at greater risk from the poisons used to kill/prevent heartworms than they are from any infestation of heartworm. Remember, the best protection against any infection or infestation is a healthy immune system. If your dog is healthy and has a truly healthy immune system, even if it is bitten by a mosquito carrying the L3 larvae, it will most likely be able to fight off the invasion without ever developing any symptoms.

For a quite different view of the subject as well as some interesting additional information go to <http://web.archive.org/web/20040605095457/http://www.io.com/~tittle/ivc/1996/internet-vet.3.17.html>

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