

## CANINE HEARTWORM DISEASE

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*Dirofilaria immitis*, or the "canine heartworm", is a nematode worm, not unlike the roundworm, which inhabits the pulmonary arteries and the right side of the heart. Unlike the roundworm, infection is not by ingestion of the egg, rather, by microscopic larvae called "microfilaria" which use mosquitoes as its vector, or, medium for distribution. When bitten by a mosquito carrying the larva, that larva will enter the dog through the mouthparts of the mosquito. It then undergoes a series of changes and migrations which result in young, adult worms being present in the dog's lung and heart within 90 to 100 days following infection. The worm's offspring can be detected in peripheral blood by six months following infection. This infection can then be transmitted to other dogs via mosquito.

The disease process is a result of adult worms. Their presence causes a reaction in the dog's body which results in changes in the walls of the arteries. These changes, along with the impedance to flow (OF WHAT?) (caused by the physical size of the worm - as much as 30 cm long) causes hypertension or increased pressure in the arteries. This pressure will, eventually, cause the right side of the heart to dilate and weaken. The net result is congestive heart failure. The clinical signs of this disease relate to cardiovascular changes and, depending on severity, can include chronic coughing, laboured breathing, reduced exercise tolerance and fainting. Early changes in the lungs can revert to normal if treated early enough but, the cardiac dilation cannot. So, what we have is an insidious disease that is fatal if not treated promptly. What's more, it is spread by the omnipresent insect vector leaving the risk of exposure and spreading uncontrollable.

If a dog develops heartworm disease it **can** be treated. Successful treatment is dependent on early detection and the severity of the disease as a direct proportion to the number of adult worms present in the host dog. The initial treatment is to kill the adult worms. This is followed by a period of therapy to offset the effects on the dog's body while the worms are dying. Lastly, a microfilaricide is given to kill the larvae and prevent the dog from becoming a source of infection for others.

Heartworm disease is endemic (ever-present) in southern and midwestern United States but the incidence of this disease in Canada is relatively low. The four areas of Canada that are most dangerous are Southern Quebec, the region south of Winnipeg, the Okanagan Valley and Southwestern Ontario. Southwestern Ontario accounts for 90% of all cases in Canada. In these areas, in particular, preventative measures are highly recommended.

Prevention can be accomplished, quite easily and inexpensively, using a monthly medication which will destroy invading microfilariae before they become adult worms.

