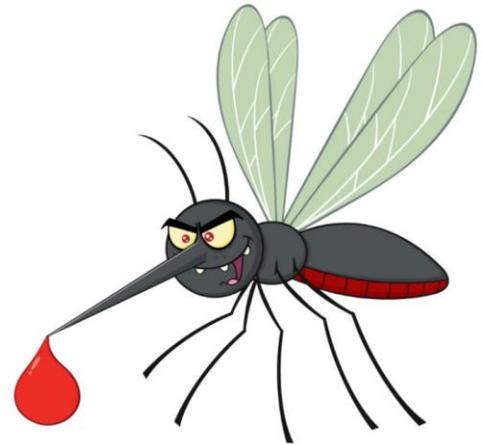


## Question.

***“My veterinarian told me that heartworm is transmitted by mosquitoes, but that they want me to keep my dog on heartworm prevention all year long. Isn’t it ok if I stop in the fall and start giving it again in the spring?”***



**Answer:** Your veterinarian is correct; heartworm can be transmitted via mosquito bites from an infected mosquito to our pets. What they are telling you about the preventative being given consistently, and on a year-round basis is similarly true, however as you’ve pointed out there is a gray area.

First, your strategy of stopping in the fall and resuming administration of the preventative in the spring is one that is commonly employed. However, the caveat would be that it needs to be in areas that have a cold winter where insects are not present year-round. This argument obviously cannot be held up in areas that have mosquitoes present all year. Similarly, travel to these types of areas during colder months could also put your pet at risk if they are not on prevention.

Secondly, times like “fall” or “spring” are very relative, and ceasing prevention in mid-fall, or before sufficiently cold weather to wipe out any/all mosquitoes in an area, could still allow exposure of your pet to mosquitoes that transmit heartworm. The main concern being that your pet potentially contracts heartworm. Many would argue that therefore you test for heartworm in the spring, the problem being that if the worms are not mature enough to be detected but are sufficiently mature to be resistant to the preventative.

A bit on the life cycle of heartworms: Adult female heartworms in infected animals produce many tiny microfilaria that enter the bloodstream. A non-infected mosquito bites the animal and ingests some of the microfilaria. It is in the mosquito that one stage of the worms’ maturation (L2 stage) must occur. From here a mosquito can bite another animal and transmit the now infective larvae to a new host. The larva now undergoes the process of maturation, developing through L3 and L4 larval stages, migrating through tissues, and eventually becoming adults. Unfortunately, in the older larval stage L4 (just before becoming a juvenile and eventually adult) worms cease having their susceptibility to preventatives with macrocyclic lactones.

Third is this problem of the lapse in susceptibility. Even if your pet is bitten late in the fall season, and they are then tested again in the spring, it can take 6-7 months for larval worms to reach adulthood and become antigen-producing worms that can be detected by heartworm laboratory tests. The other concern is that even if they are not at the stage where they can be detected as positive, but there are older larval stages present, that these will not be susceptible to prevention, and that the older larva will develop into adults in time, and your pet will still be infected.

Lastly is the cumulative benefit conveyed by numerous doses given several months in a row. Patients that receive regular dosing for several months in a row are LESS susceptible, and even more resistant, to heartworm infection than a patient that just received their first dose of heartworm prevention in the spring after a lapse in receiving preventative for several months. This indicates that there is some degree of cumulative benefit to regular dosing above-and-beyond what a single dose confers and adds another reason to recommend year-round heartworm prevention administration.

These concerns are what helped form the recommendation for preventative to be given on a year-round basis. This way, even if your pet is bitten “off season” by an infected mosquito, they are on preventative that should help kill the very young larval stages well before they reach a susceptibility gap, and they have the opportunity to reach adulthood. By following your veterinarian’s advice on year-round prevention, you also save both the cost, and the risk of complications (which can be very serious) involved with treating for the presence of adult heartworms.