

Hookworms and Racing Greyhounds

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Persistent hookworm infections continue to be an issue that we struggle with in retired racing greyhounds. The parasitology team at UGA has documented resistant strains of hookworms and come out with some new treatment recommendations.

The standard treatment that is now recommended to start is the "triple combination" which is using Advantage Multi, followed within 24 hours by Drontal Plus (or any other equivalent dewormer containing pyrantel and fenbendazole/febantel), given on a monthly basis. A small study documenting the efficacy of this protocol can be found here:

<https://pubmed.ncbi.nlm.nih.gov/30870603/>

In dogs that have a significant number of eggs on fecal floats, it is recommended to do a fecal egg count reduction test to assess for resistance to the standard treatment. This involves performing a quantitative fecal egg count (by techniques such as McMasters or mini-FLOTAC) before treatment with Advantage Multi and Drontal Plus, and then again 10-14 days later, to see how much the egg count is reduced.

If the fecal egg count reduction test indicates the hookworms are resistant to treatment, an alternative deworming protocol has been developed using Profender. This is an off-label, experimental treatment that must be administered by a vet or with direct vet supervision.

The commercial diagnostic labs, IDEXX and Antech both now offer fecal egg count testing for hookworm. And an alternative lab that owners can submit fecals to themselves for fecal egg count testing if their vet doesn't offer it is [MySimplePetLab](https://mysimplepetlab.com/) (https://mysimplepetlab.com/). Vet school diagnostic labs are also likely to do it. Large animal vets may also be another resource to consider as fecal egg counts are more commonly used in large animal medicine. All the details on how to use fecal egg count testing to assess for resistance, and the alternative treatment protocol using Profender in cases of documented resistance, can be found in an article published in the August 2020 issue of Clinician's Brief. This article can be accessed by vets with a free subscription at the following link:

<https://www.cliniciansbrief.com/article/persistent-or-suspected-resistant-hookworm-infections>

Flow chart that goes along with the article:

<https://www.cliniciansbrief.com/article/persistent-hookworm-infections-dogs>

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Over the past few years, the greyhound community has noticed an increasing problem with persistent hookworms. Despite routine deworming at the track, the majority of racing greyhounds are now affected by hookworms. **A negative fecal on arrival to adoption does not mean a dog is clear, and all retired greyhound should be retested a few weeks later.** Many of these dogs show no symptoms, but some may get sick with GI signs. The stress of transportation and transition to home life can trigger the onset of clinical signs in dogs that were previously asymptomatic in the familiar environment of the track.

Hookworms can be difficult to completely clear because of a phenomenon called larval leak. Some of the immature larva can go dormant in the tissues outside the intestinal track. Those larva can stay inactive for long periods of time, and they often don't become active again until the number of worms in the intestines drop. So when the dog is dewormed, those dormant larva re-emerge and re-infest the intestines, and the whole cycle starts over again.

In addition to larval leak. Some hookworms are becoming resistant to the common dewormers. Racing greyhound breeders began to notice problems with hookworms even while deworming puppies with the standard, veterinarians-recommended products and protocols. More recently, researchers at UGA have documented multi-drug resistant hookworms in greyhounds and other dogs in the southeastern US. This combination of larval leak and resistance can make it very difficult to eliminate hookworm infestations.

Treatment & Management

Dogs can get re-infected from the environment, and hookworms can affect humans. Keeping stool picked up right away, and catching loose stools to prevent ground contamination (ie. by using a paper plate) are crucial. Use basic hygiene and wash hands after cleaning up stool, and do not go barefoot in the yard.

From my personal experience and discussion with parasitologists, **the mainstay of treatments should be monthly dosing of topical moxidectin (Advantage Multi or Coraxis)** which reaches steady blood levels to provide constant deworming activity after 3 doses. To reach steady state faster, the first 3 doses can be applied every 2 weeks, and then monthly thereafter.

For dogs that are asymptomatic for the hookworms, I often just treat with monthly Advantage Multi and only add another dewormer if the dog develops diarrhea or other GI signs. Examples of combination protocols include:

--Deworming in the middle of the month, between doses of topical moxidectin, with Drontal Plus (Or compounded equivalent) or a 5-day course of fenbendazole (Panacur) with a dose of Pyrantel Pamoate given on the last day.

--"Triple Combination" - Deworming with a course of fenbendazole and dose of Pyrantel at the same time as a dose of topical moxidectin. (Recommended by the parasitologists at UGA.) I often use this for the initial treatment of newly retired greyhounds, or when treating cases with significant clinical signs.

It is not unusual to take over a year to clear the hookworm infestations. Often, getting one or two negative fecal results doesn't mean the dog is clear. I recommend continuing treatment until a minimum of 3 negative results on fecals done at least several weeks apart. Fecal floats should be done at least 14 days after deworming because egg production can be temporarily suppressed even when worms have not been killed. The IDEXX fecal antigen test is a more sensitive test that can detect worms that are not shedding eggs.

Some dogs may need to stay on Advantage Multi for life, and some may have worms that are resistant to all approved dewormers. The team at UGA is exploring an experimental, off-label treatment option.