



## HOOKWORM INFECTIONS

Dogs and cats have many parasites, both internal and external. Internal parasites are those which live in the various organs inside the animal's body. Some of the internal parasites migrate through a number of different organs. Intestinal parasites are internal parasites that live in the small or large intestine (colon). External parasites, such as fleas, ticks, and mites, live on the outside of the body.

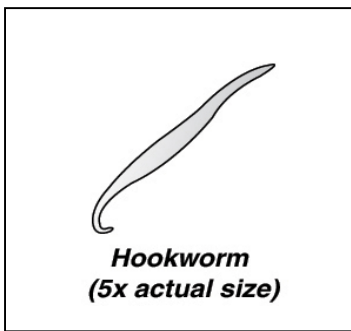
Hookworms represent a common intestinal parasite of the dog. In general, cats tend to harbor relatively few hookworms when compared to the large numbers found in dogs. Also, the feline hookworms tend to be less aggressive bloodsuckers than the canine species.

### Prevalence

Various species of hookworms are found on a worldwide basis. The most common hookworm of dogs in warm (tropical or subtropical) climates is called *Ancylostoma caninum*, and in cats *Ancylostoma tubaeforme* and *Ancylostoma braziliense*. The canine hookworm found in cooler climates is called *Uncinaria*. Occasionally, cats will also become infected with the dog hookworm.

### What are hookworms?

Hookworms are parasites that get their name from the hook-like mouthparts they use to attach to the intestinal wall. They are only about 1/8" (3 mm) long and so small that it is very difficult to see them with the naked eye. Despite their small size, they ingest large amounts of blood from the tiny vessels in the intestinal wall. A large number of hookworms can cause anemia. This problem is most common in puppies and kittens, but can occur in adults too.



### How did my pet get hookworms?

Animals may become infected with hookworms by four routes: orally, through the skin, through the mother's placenta before birth, and through the mother's milk.

Your pet may become infected when it swallows hookworm larvae. The larvae may also penetrate the skin and migrate to the intestine where they mature and complete its life cycle. If a pregnant dog or cat has hookworms, the pregnancy may reactivate larvae. These larvae will enter the female's bloodstream and infect the puppies in the womb. Finally, puppies and kittens may be infected through the mother's milk. This is considered to be an important route of infection.

### What kinds of problems do hookworms cause?

The most significant problems appear related to intestinal distress and anemia. Blood loss results from the parasites ingesting blood from intestinal capillaries. Pale gums, diarrhea, or weakness are common signs of anemia. Some puppies and kittens experience significant weight loss, bloody diarrhea, or failure to grow properly with hookworm infection.

Skin irritation and itching, especially of the paws, can be signs of a heavily infested environment. The larvae burrow into the skin and cause itching and discomfort.

### ***How is hookworm infection diagnosed?***

Hookworms are diagnosed with a microscopic examination of a stool sample. Since there are many eggs produced daily, they are easily detected. One adult female hookworm may produce as many as 20,000 eggs a day!

In young animals, large numbers of worms usually must be present before eggs are shed into the stool. For this reason, fecal examination may be less reliable in very young animals than in adults.

### ***How are the hookworms treated?***

There are several effective drugs to eliminate hookworms. They are given by injection or orally and have few, if any, side-effects. However, these drugs only kill the adult hookworms. Therefore, it is necessary to treat again in about 2-4 weeks to kill any newly formed adult worms that were larvae at the time of the first treatment.

A blood transfusion may be necessary in puppies and kittens with severe anemia.

Since the animal's environment can be infested with hookworm eggs and larvae, it may be necessary to treat with chemicals to remove them from your yard. We can offer recommendations for grass-friendly products.

### ***Are canine hookworms infectious to people?***

Adult hookworms do not infect humans; however, the juveniles (larvae) can burrow into human skin. This causes itching, commonly called "ground itch", but the worms do not mature into adults. Direct contact of human skin to moist, hookworm infested soil is required. Fortunately, this does not occur often if normal hygiene practices are observed.

In rare instances, the canine hookworm will penetrate into deeper tissues and partially mature in the human intestine. A few reports of hookworm enterocolitis (small and large intestinal inflammation) have occurred in the recent past.

### ***What can be done to control hookworm infection in dogs and to prevent human infection?***

1. All puppies and kittens should be dewormed with a veterinary-approved product at 2-3 weeks of age.
2. Prompt deworming should be done when parasites are detected; periodic deworming may be appropriate for pets at high risk for infection.
3. Prompt disposal of feces should occur, especially in yards, playgrounds, and public parks.
4. Strict hygiene is important, especially for children. Do not allow children to play in potentially contaminated environments. Frequent hand washing and bathing are essential in preventing human infections.
5. Nursing females should be dewormed with their pups and kittens. Nursing may reactivate hookworm infection in the female.
6. Most heartworm prevention products contain a drug that will prevent hookworm infections. However, these products will not kill the adult hookworms, so dogs must be treated for adult hookworms.