

Hookworms in Dogs

Two species of hookworms are parasites in dogs in Alberta. The smaller species, *Uncinaria stenocephala* (males = 7.0 mm; females = 10.0 mm long) tolerates the cold and is the most common hookworm in dogs in Canada. The second species, *Ancylostoma caninum*, is larger (males = 11 mm; females 15 mm long), but requires a warmer climate in which to develop. This species is not common in Canada.

Life cycle of hookworms

Adult hookworms become attached to the intestine and feed on blood and tissue. The females lay their eggs in the intestine. The eggs pass in the feces and develop in the soil. The egg then hatches, releasing a larva.

The hatched larva moults through two stages to the third (infective) stage. The time required to develop to the infective stage depends on the temperature and moisture content in the soil. Normally, this development takes from two to eight days.

The larvae of *A. caninum* will not develop at temperatures below 15°C (59°F), and the eggs and larvae are killed by freezing. *Uncinaria stenocephala* can tolerate colder temperatures, which probably accounts for its widespread distribution in Alberta.

Dogs can become infected with *A. caninum* in four ways:

- **eating infective larvae**
When infective larvae are eaten, they pass directly to the small intestine and develop into adults.
- **skin penetration**
Infective larvae penetrate the skin (especially the soft areas between the toes and the belly) and migrate through the blood vessels to the lungs, enter the trachea, are coughed up, swallowed and pass to the intestine where they complete

their development.

- **colostral or lactogenic ingestion**

Infective larvae enter lactating dogs by skin penetration, then pass to the mammary glands and from there are passed to the pup in the colostrum. If the female is not nursing, the larvae stop their migration and enter a state of dormancy.

- **prenatal infection**

If the female is pregnant, some migrating larvae may pass to the placenta and enter the fetus. These larvae will complete their development when the pup is born.

The life cycle of *Uncinaria stenocephala* is similar to that of *A. caninum* except that dogs probably do not become infected by the prenatal or colostral routes.

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How do hookworms harm dogs?

The damage done depends on the species and number of hookworms present. The age, nutritional status and natural resistance of the dog are also important factors. Puppies are most severely affected. Dogs usually acquire a natural resistance to infection by 8 to 11 months of age.

Infections with *A. caninum* can cause anemia as a result of blood loss through the intestine. Diarrhea may occur as early as four days post infection. By day eight, fresh blood appears in the stools. Heavily infected puppies may die between 10 to 24 days after infection. Infections with *U. stenocephala* are not usually associated with anemia. However, diarrhea may be severe.

How will I know my dog has hookworms?

Dogs may show signs of anemia (pale

mucous membranes), weakness, pass loose bloody stools and may be dehydrated. These signs may appear with other common diseases of pups. Consult your veterinarian if your dog shows any of these symptoms.

How can I be sure my dog has hookworms?

Diagnosis is based on clinical signs and finding large numbers of hookworm eggs (several thousand eggs per gram) in fresh stool samples. Anemia may develop before the eggs can be demonstrated to be in the feces. Therefore, your veterinarian may have to examine three consecutive fecal samples taken two to three days apart to confirm the diagnosis.

How can I treat my dog?

Several anthelmintics are available. Consult your veterinarian for the drug of choice and treatment program.

How can I prevent my dog from becoming infected?

Infections usually occur during warm, damp days. These conditions allow for the rapid development and prolonged survival of infective larvae in the soil.

Remove feces regularly from runs, kennels and any place where dogs are confined. Larval hookworms do not survive dessication, so keep the ground and pens dry.

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