# Hookworms

## Information for Dog Owners

### Key Facts

- Hookworms are intestinal parasites that are common in dogs - especially puppies.
- Puppies infected with a large number of worms can get very sick, and young pups with severe infections may die.
- Effective prevention methods, such as deworming, are critical for decreasing illness and limiting spread to other dogs.

## What is it?

Hookworms are a common infection in dogs caused by a type of parasitic worm called *Ancylostoma* or *Uncinaria*. Young pups are infected through their mother's milk, and also from eating hookworm larvae from the feces of infected dogs. After this happens, the young hookworm larvae travel to the dog's intestine, mature, and begin to shed eggs. These eggs are defecated into the environment. They are not immediately able to infect another dog, but after a few days, these eggs mature and can infect another dog if they are eaten.

Hookworm infection causes disease through the worms eating and sucking blood from the dog's intestine. This causes anemia (blood loss), which can be very severe in young puppies, diarrhea, and failure to thrive (considered 'poor do-ers').

*Ancylostoma* hookworms are found throughout the USA and Canada , especially in warm or humid climates; however, the hookworm *Uncinaria stenocephala* prefers cooler climates (e.g. northern USA and Canada).

## Who gets it?

Infection is most common in young dogs and dogs who are outdoors frequently. Dogs whose lifestyles increase their risk of contact with dog feces and feces-contaminated environments, are at greater risk (e.g. shelters, dog parks, breeding facility, kennel).

## Can people get sick with it?

Yes. Hookworm is the most common cause of cutaneous larval migrans (itching and pain in the skin), a condition that occurs when people have contact with hookworm larvae in the environment. This is most common in the tropics or southern USA/gulf states, particularly in sandy areas such as beaches and sandboxes.

## How is it spread? (Transmission & Infection Risk)

In puppies, transmission from the bitch through milk is common, and accounts for the high risk of infection and re-infection in breeding facilities. Feces ingestion, or living in a fecal contaminated environment is another common source of infection and re-infection. In hunting or outdoor dogs, eating hookworm-infected prey can be another route of infection.

## What should I look for? (Signs of Disease)

Adult infected dogs typically do not show any signs of disease, and may be subclinically infected (i.e. have hookworms but not have any obvious signs of disease). Puppies with small numbers of hookworms may not have obvious signs of disease. Puppies with a heavy worm infection may

be very ill, with anemia, diarrhea and failure to thrive. Young puppies with severe worm infections may die suddenly in their 2nd or 3rd week of life.

The most common signs of illness in puppies are:

- Anemia which may be severe. Puppies are pale, have dark feces (due to digested blood), and are weak.
- Weight loss, failure to thrive, 'poor do-er'
- Diarrhea

## How is it diagnosed?

Diagnosis is made by recognizing signs of infection and completing a fecal exam (flotation) to confirm infection. Unfortunately, in very young pups severe infection can occur before worms shed eggs into a dog's feces and this can make diagnosis difficult.

## What is the treatment? Will my dog recover?

Treatment of hookworm consists of anti-parasitic (deworming) medication, together with environmental 'clean-up' to prevent re-infection. Severely ill puppies may require more intensive treatment, such as hospitalization, fluid support and potentially blood transfusion if anemia is severe.

Treatment is recommended in all infected dogs, regardless of severity of infection in order to reduce environmental contamination and spread to other dogs (or people).

Dogs generally respond quickly to appropriate deworming treatment. Dogs with larval stage hookworms require a series of deworming treatments to remove these larvae, which is especially important in an infected bitch to prevent transmission to nursing pups through milk. Following treatment, feces should be retested to ensure the infection has been eliminated

Prompt disposal of feces and cleaning of kennels and runs are important for preventing reinfection and reducing further spread.

## How can I stop this from happening to my dog and other dogs?

Infection Control: Following a regular schedule for deworming (anti-parasite) treatments is very important. Puppies should be dewormed at 2,4,6 and 8 weeks of age, and then moved to a preventive schedule. A regular deworming schedule is also very important for outdoor dogs that hunt. Most drugs that are used for heartworm prevention also control hookworms.

Strict protocols should be followed for removal of feces and cleaning for kennels, shared runs, and breeding areas, especially those with dirt flooring. Because hookworm larvae must mature for a few days in the environment to become able to infect dogs (or people), regular removal of feces will greatly reduce any risk. Regular fecal testing of older puppies and adult dogs for intestinal parasites is advised.

## Risk Prevention

Leashing dogs and confining them to yards will limit feces consumption, and infected prey ingestion. Prompt removal of feces, and reducing sharing of kennels, or bedding with unfamiliar dogs at canine group events is recommended.

## Outbreak management

When a number of dogs in a group or event become infected, it is recommended to immediately contact someone with experience in veterinary infectious disease risk assessment and outbreak management to help control the further spread of infection, particularly with larger dog group events and facilities that house groups of dogs together.

## Zoonotic alert

Humans can be infected with hookworm larvae. Typically this is due to travel and exposure in high-risk areas (sandy tropical beaches), not wearing gloves/shoes while gardening, and in children due to playing in sandboxes that are contaminated with animal feces.

## Additional Resources

Companion Animal Parasite Council

Infectious Disease in Dogs in Group Settings

Worms and Germs Blog