



⚠ Warning

As this material pertains to worms often occurring in the digestive or coronary tract, it contains graphic images. Although sensitive material, this provides the most accurate depiction of the symptoms or effects of common worm parasites.

This is for informational purposes only and is not intended to diagnose a medical condition. A veterinary check will yield the best health outcome. Always seek immediate veterinary assistance in case of emergency.



About worms

Heartworms, hookworms, roundworms, whipworms, and tapeworms can live in your dog's body and grow to adulthood in their intestinal tract or heart.

ROUNDWORMS

Roundworms can be found in the stools of infected dogs and cats and in the soil anywhere around. They mature into adults in the



intestines of dogs. Early infection may not be observable, however mature roundworms resemble spaghetti in stool.

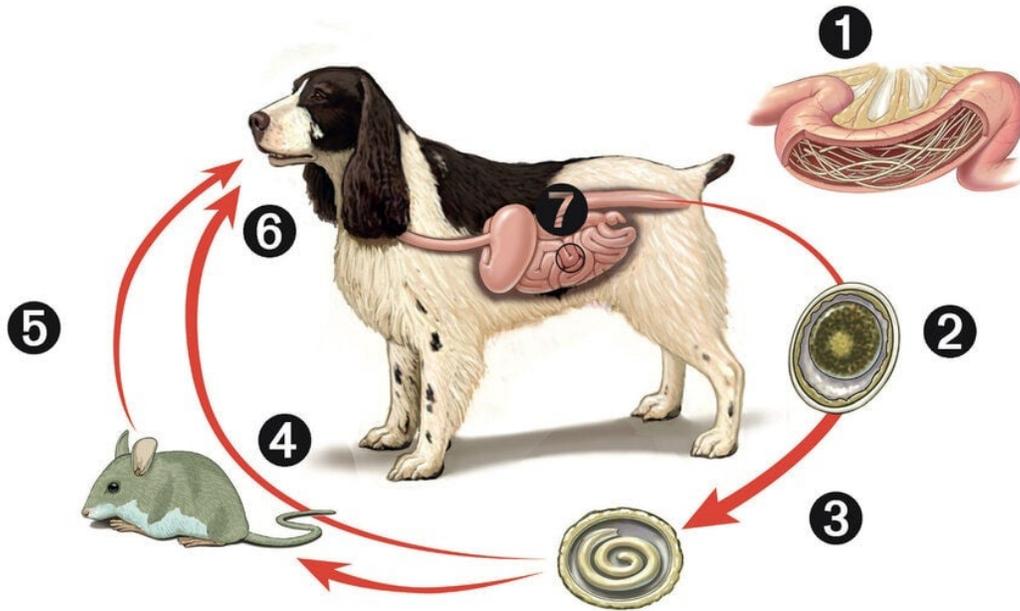
The worm that returns for more

It's quite common for dogs around the world to deal with roundworms. But young pups often experience the most severe effects of the resulting disease from a roundworm infection. And worst of all, your dog can become infected again and again. In dogs, roundworm infection* is associated with failure to gain weight, diarrhea, poor hair coat and a potbellied appearance.

*T.canis only

The roundworm lifecycle

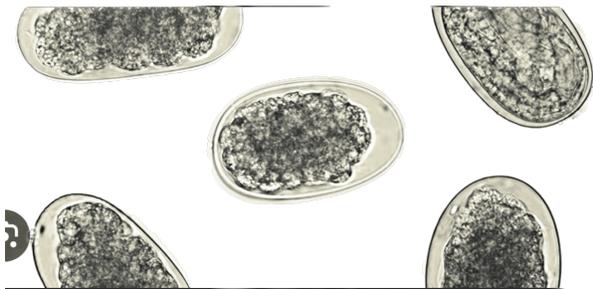
The incubation period for roundworm is around 4-6 weeks, meaning it can be over a month between ingesting the roundworm and them passing eggs in their stools which may infect other animals.



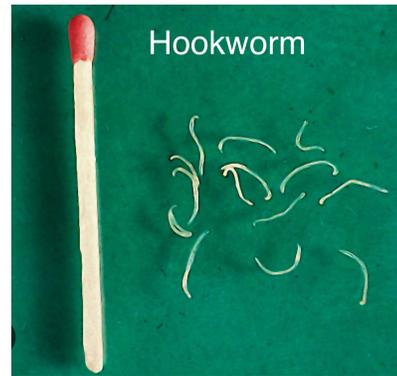
- 1 Adult worms lay eggs in the dog's small intestine.
- 2 Eggs are passed then passed in the dog's feces.
- 3 Eggs develop in the environment and become infective approximately 1 week after being passed in feces.
- 4 Embryonated eggs can be ingested by transport hosts, such as field mice or earthworms, who become carriers of larvae.
- 5 The dog ingests larvae through the tissues of the transport host.
- 6 Larvae migrate through the dog's liver and lungs to the small intestine, where they mature into adult worms.
- 7 Larvae are released from infective eggs and mature in the dog's intestinal tract.

HOOKWORMS

Hookworms are not typically expelled in feces. The eggs are discharged but are too small to be readily visible to the naked eye.



Microscopic view of eggs



Hookworms bury into the skin of dogs and move through internal organs before maturing into adults in the intestine.

Hookworm through the stages

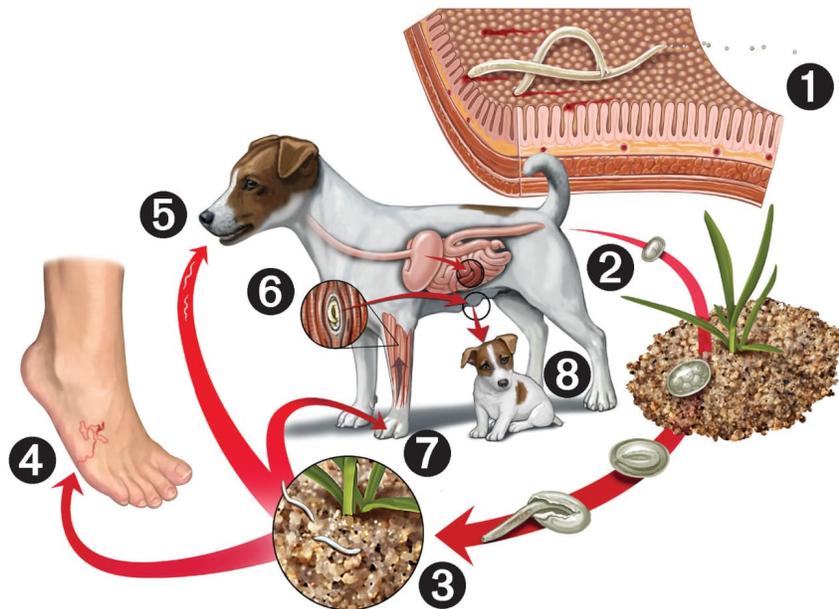
It can take 2-3 weeks from your dog ingesting the worm before it starts to affect their health. When a dog has a hookworm infection, it can be associated with bloody diarrhea, anemia, pale gums and even possible death.

It can be transmitted to humans.



The hookworm lifecycle

Hookworms attach (or hook) themselves to your dog's intestine to feed on their blood, but they are also a risk to humans.



1 Adult hookworms lay eggs in the dog's small intestine.

2 Eggs are released in feces approximately 10-21 days after infection.

3 Feces contaminate soil in your yard where immature worms develop and hatch.

4 By walking or playing where your soil is contaminated, humans can be infected by larvae penetrating and migrating into the skin.

5 Larvae can be ingested by a transport host which move them to other areas of soil.

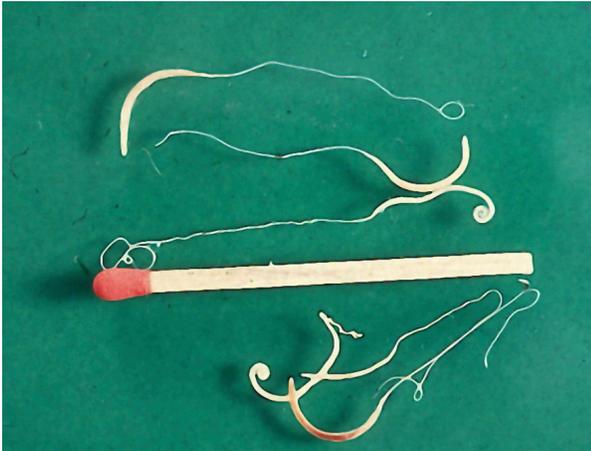
6 Immature worms can remain dormant in your dog's skeletal muscle.

7 Skin may be penetrated by immature worms in contaminated soil.

8 A puppy may become infected through milk when larvae migrate to their mother's mammary glands.

WHIPWORMS

Whipworm eggs are passed in stools and ingested by dogs. Larvae hatch from the eggs in the intestines and then mature into adults in the large intestine. The worms themselves appear in stool as threadlike, slightly larger at one end.



A dog-only worm

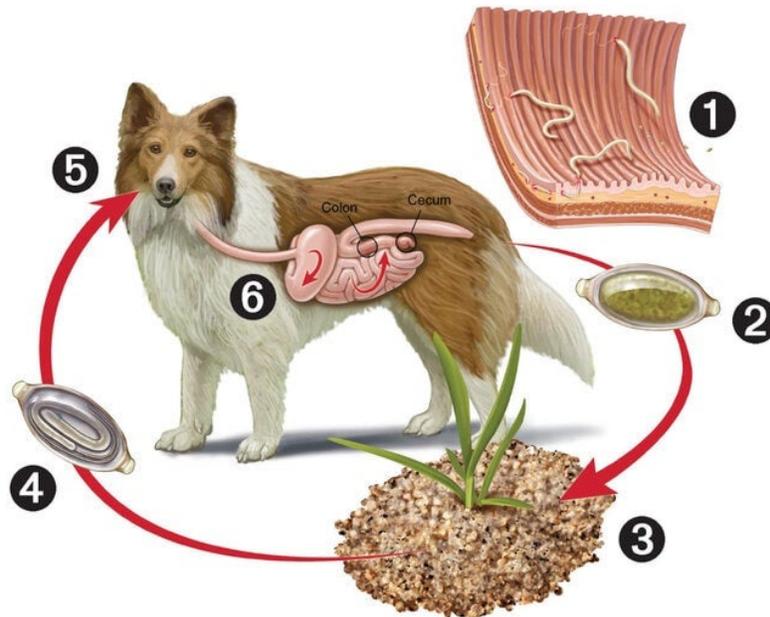
Whipworm only affects dogs. Many whipworm infections in dogs **don't have obvious clinical signs**, but you might notice signs such as bloody diarrhea and mucus in stools.

By comparison, Whipworms will appear much thinner than Tapeworm segments in stool.



The whipworm lifecycle

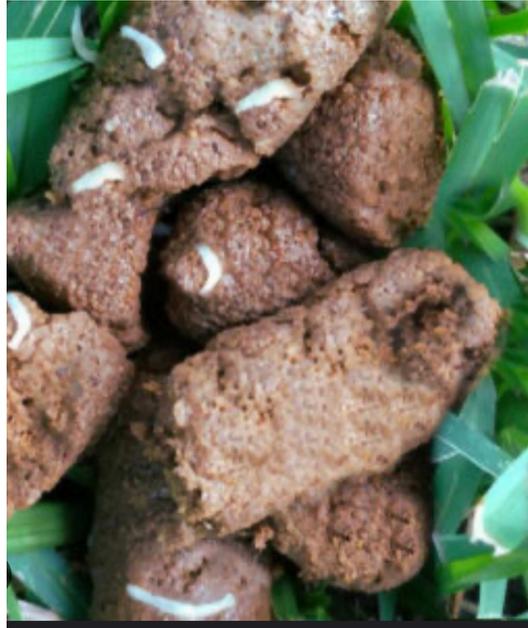
It can take around 8 weeks from the time of ingesting whipworm eggs to the time it starts to affect your dog's health.



- 1 Adult whipworms lay eggs in the dog's large intestine.
- 2 Eggs are passed in the dog's stools 74-90 days after infection.
- 3 Eggs contaminate the soil and embryonate, becoming infective within 9-21 days.
- 4 Embryonated eggs are ingested by the dog through contaminated soil.
- 5 Eggs penetrate the intestinal wall and develop for 2-10 days.
- 6 The eggs then move to the cecum where they mature into adults.

TAPEWORMS

Tapeworm is spread through ingesting infected animals and fleas. The proglottids (egg sack) are flat, rice size, motile segments near the anus or in stool. These segments can be passed at anytime and do not require defecation to be expelled.



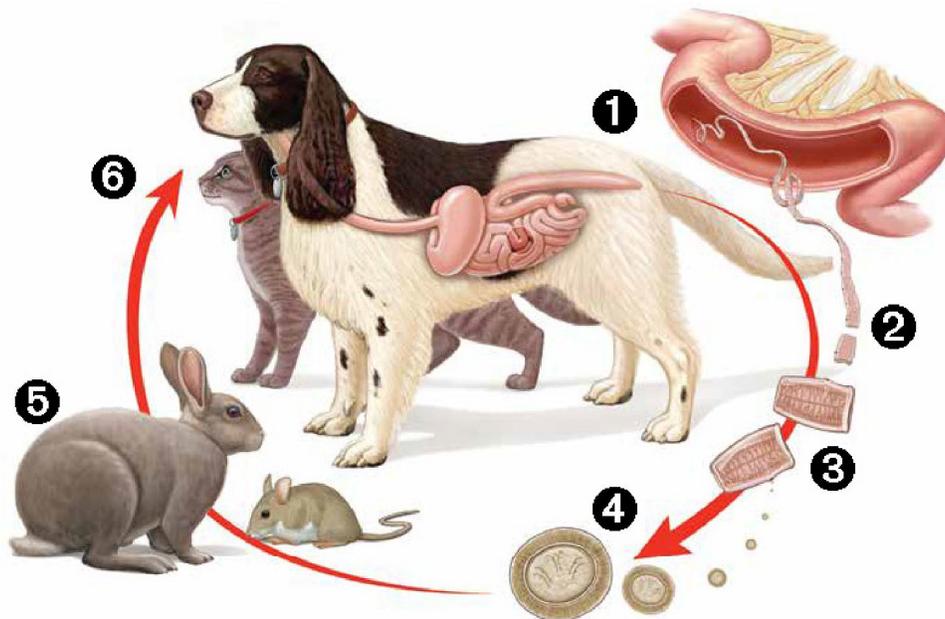
4 different tapeworms- 4 different risks

There are 4 common species of tapeworm you should be aware of:

- Dipylidium tapeworm – the most common species which is spread by fleas.
- Taenia tapeworm – caught by dogs who scavenge while out walking.
- Echinococcus granulosus tapeworm – known as the sheep tapeworm, caught by dogs only.
- Echniococcus multilocularis tapeworm – found in the northern hemisphere.

The tapeworm lifecycle

The incubation period for tapeworms is anywhere between 3-10 weeks from your dog ingesting a tapeworm and starting to pass egg segments – **but these eggs aren't always visible**. Humans can be infected by ingestion of eggs from the environment, which causes the formation of cysts in the liver and other organs and can be fatal.

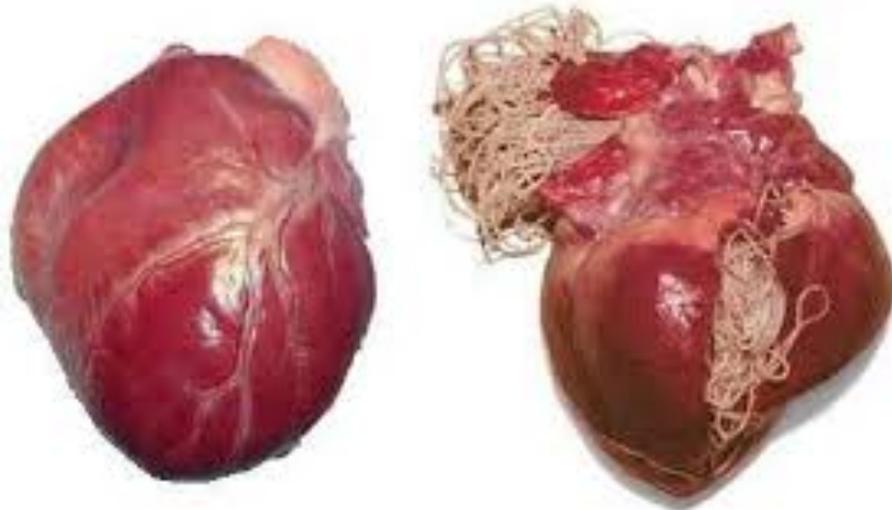


- 1 Adult worms lay eggs in the dog's small intestine.
- 2 Eggs released into the environment through the dog's stools.
- 3 These eggs can look like small grains of rice on your dog's rear or in the dog's stool.
- 4 Eggs are ingested by intermediate hosts, such as sheep, cattle, horses and fleas.
- 5 Larvae form in the liver or the lungs of the intermediate host.
- 6 The dog eats carcass containing hydatids and adult worms form in the intestine.

HEARTWORMS

Heartworms are spread by mosquito bites and develop into adults in the hearts and lungs of dogs. Prevention is the key.

HEARTWORM DISEASE



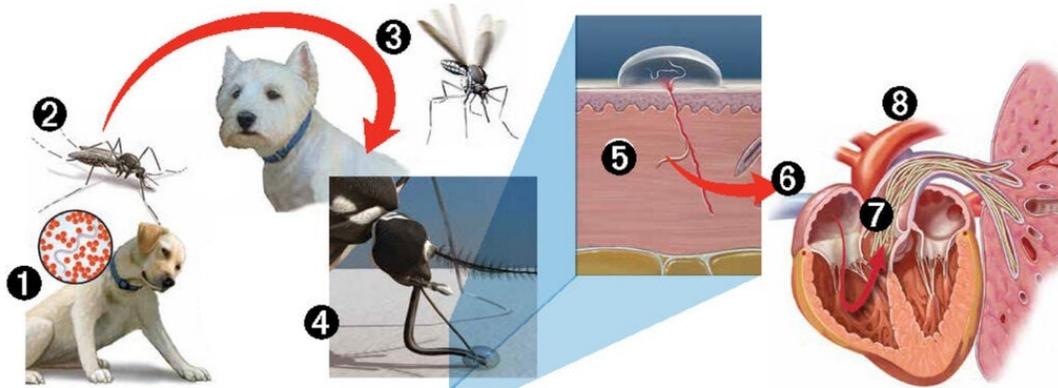
Risks of heartworm disease in dogs

Heartworms can live in an infected dog for 5-7 years, so they can produce severe damage in your dog's heart and lungs over time. This damage can include:

- Clogging and damage to the lining of the arteries leading from the heart to the lungs
- Heart valve malfunction
- Liver and kidney dysfunction
- Heart failure

The heartworm lifecycle

A dog's insides provide an ideal environment for the transmitted heartworms to mature into adults, mate and produce offspring.



- 1** Dog has an active heartworm infection. Larvae are produced by adult worms and circulate in the blood – they can appear in the dog's blood 6-9 months after infection.
- 2** Mosquito bites the dog and ingests blood containing heartworm larvae.
- 3** Infective larvae are contained in the saliva of the mosquito.
- 4** The infective larvae enter the bite wound from the mosquito.
- 5** Larvae move through the dog's tissue, making their way to the dog's heart and pulmonary arteries 70 days after infection.
- 6** The larvae make their way to the dog's heart and pulmonary arteries 70 days after infection.
- 7** Larvae develop into adult heartworms and reside in the dog's pulmonary arteries, or in heavy infections, the chambers of the heart.
- 8** Adult heartworms produce microscopic larvae that are released into the bloodstream.

DeWorming

Most young puppies are infested with ascarids. Other worm parasites may also be present, but they're not as common. It is advisable to have your veterinarian check your puppy's stool before deworming for ascarids, because if other worms are present, a broad-spectrum deworming agent may be recommended. This stool check also determines the proper course of treatment, precautions for possible human contraction, and preventive measures for other pets or reinfection.

Puppies should be dewormed at 2 weeks of age (before ascarid eggs are passed in the stool) and again at 4, 6, and 8 weeks of age. Then, it's prudent to put them on a monthly heartworm preventive for life that also protects the dog against other parasites. This schedule kills all ascarids, whether acquired in utero, through infected mother's milk, or by ingesting the eggs.

Worm medications can be harmful to puppies that are ill from a respiratory infection, malnourishment, chilled, crowded in unsanitary surroundings or abruptly weaned from their mothers. Stressful conditions such as these should be corrected before administering the dewormer. Do not deworm a puppy who has diarrhea unless your veterinarian has determined that the diarrhea is caused by the parasite.

 Due to the dangers associated with medicating at risk animals, such as those often relinquished to rescues, fosters and new pet parents should not undertake deworming measures prior to assessment and recommendations by the faculty health advisor or their veterinarian.

Preventive Measures

How can I protect my pets—and my family and myself—against worm infections?

- Have puppies and kittens dewormed by a veterinarian at an early age. Puppies and kittens need to be dewormed more than once. Follow the veterinarian's advice on how frequently puppies and kittens need to be tested and treated.
- Start or keep your pets on a drug program that prevents, treats, and controls these worms. Prevention is the Most effective control for worms.
- Wash your and your children's hands with soap and water after playing with pets or other animals, after outdoor activities, and before handling food or eating.
- Avoid touching soil, sand, plants, and other objects that might be contaminated by animal feces.
- Avoid cross contamination from infected pet to non-infected pet
 - Do not share water bowls or toys.
 - Sanitize empty food bowls with bleach between feedings or fostering (minimum 2 minute soak after cleaning)
 - Areas for elimination should be separated until infected animal is cured of parasites
 - Sanitize toys and bedding with hot water and bleach through washing machine.
 - Do not permit physical interaction between healthy pet and infected pet.
 - Keep pets flea free. Fleas are vectors for certain worm species. Blue Dawn detergent is an effective de-flea soap that can safely be used on young animals and multiple days.
- Keep play areas, lawns, and gardens around your home free of animal feces.
 - Bag and throw away pet feces immediately to prevent eggs from contaminating soil.
 - Cover sandboxes when not in use for feral animals.
- Avoid areas with fleas (tapeworms) and/or mosquitos (heartworms)

