

rice" that signal tapeworm infection or if your pet has diarrhea, bloody feces, weight loss, excessive coughing, or a dull coat, or is dragging (scooting) their rear end on the ground more than usual.

To test for intestinal parasites, your veterinarian may ask you to bring in a fresh stool sample, or may collect a small sample straight from your pet's rear end. A portion of the sample will be prepared and examined under a microscope for the presence of worm eggs and single-celled parasites. Your veterinarian also may recommend an antigen test that detects certain parasite proteins in feces, or a test that detects parasite DNA. Giardia infection is harder to detect than other infections, and several stool samples may need to be tested before the parasite is found.

#### HOW CAN INTESTINAL PARASITES BE TREATED AND PREVENTED?

If worm eggs or tapeworm segments are found in your pet's stool sample, this means your pet is infected with adult worms. Your veterinarian will recommend a deworming program to eliminate the parasites. Unfortunately, dewormers and other parasite preventive products don't work on single-cell intestinal parasites like coccidia and *Giardia*. If these parasites are found and are making your pet sick, your veterinarian may recommend other medications to treat the infection.

Whether or not parasites are found in your pet's stool sample, your veterinarian will recommend a regular parasite control program to protect your pet year-round. Several monthly heartworm prevention products also protect against intestinal worms and external parasites like fleas (which can carry tapeworms) and can help keep your pet safe. By using them for your pet, you'll be protecting people as well. This is especially important in households with young children, the elderly, or people with weakened immune systems. Your veterinarian can help you decide which parasite control product and program is best given you and your pet's unique needs.

You can further protect your pet from intestinal parasites by keeping them away from potential sources, like feces,

puddles, or rodents. For cats, the easiest way to do this is to keep your cat indoors. This also will protect other animals and people by preventing your cat from using gardens, sandboxes, and other sites as litterboxes.

Dog parks pose a particular risk of exposure to intestinal parasites, especially if dog waste isn't immediately removed, because the parasites can survive for a long time in the environment. The easiest way to lower your dog's risk when at the park or outside is to keep the dog leashed. You can protect others—no matter where you are—by immediately picking up your dog's feces and properly disposing of it, and by avoiding dog parks and other public places if you know your dog has diarrhea or intestinal parasites.

People can avoid worm infections by practicing good hygiene and sanitation:

- Discourage children from eating dirt or playing in areas that might be soiled with animal feces.
- Keep sandboxes covered when not in use.
- Always wash your hands after handling soil and after contact with pets, and make sure children do the same.
- Wear shoes when outside to protect feet from any parasite larvae.
- Wash raw vegetables thoroughly.
- Immediately pick up animal feces from your yard, garden, and public areas and properly dispose of it.

**A regular parasite control program can protect your pet year-round.**

FOR MORE INFORMATION ON HOW TO KEEP YOUR PET HAPPY AND HEALTHY AS LONG AS POSSIBLE, VISIT:

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# INTESTINAL PARASITES IN CATS AND DOGS

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Most internal parasites in dogs and cats are worms and single-celled organisms that live and reproduce in the intestines. The most common are roundworms, hookworms, whipworms, and tapeworms, and the single-cell parasites *Coccidia* and *Giardia*.

### ROUNDWORMS: WHAT ARE THEY AND HOW ARE THEY SPREAD?

Roundworms are common in dogs and cats. They get their name from their tubular bodies. Infected animals pass roundworm eggs in their feces (droppings). Your pet can catch roundworms by swallowing these eggs in feces-contaminated soil or water, and by licking contaminated fur or paws. Once inside the body, the eggs hatch, releasing larvae that move through the lungs and liver and eventually settle in the small intestine. There, they grow to adult worms and mate, producing eggs and continuing the infection cycle. Roundworm infections usually peak during the winter and decrease over the summer.

Puppies and kittens are especially vulnerable to roundworms. Infected female dogs may pass the parasite to their puppies before birth or afterwards through their milk when puppies are nursing. Infected female cats cannot infect their kittens before birth, but can pass on the infection through their milk.

#### What are the health risks to pets and people?

Adult roundworms steal nutrients from the food that pets eat, and can cause poor nutrition and intestinal problems. In young animals, roundworm larvae also can cause serious respiratory problems like pneumonia as the larvae move through the lungs.

Roundworm infections are zoonotic, meaning that they can be transmitted to people. Most human infections come from accidentally swallowing roundworm eggs. Children, especially those who eat dirt, are at particular risk. Unlike

## Roundworm and hookworm infections can be spread to people.

in pets, roundworm larvae in people travel to organs like the liver, lungs, and brain and settle there, never becoming adult worms. Most infected people will have no symptoms. However, those unable to fully fight the infection—such as young children, the elderly, and people with weakened immune systems—may develop lung, brain, liver, or eye damage.

### HOOKWORMS: WHAT ARE THEY AND HOW ARE THEY SPREAD?

Hookworms are also common in dogs, and cats are vulnerable too. They get their name from their hook-like mouthparts. Infected animals pass hookworm eggs in their feces, which then hatch in the environment to release larvae. Your pet can become infected by swallowing larvae in feces-contaminated substances or by eating an infected animal or insect. Direct contact with the larvae also can cause infection if they penetrate your pet's skin. An infected female dog can pass the parasite to her puppies through her milk, but this does not occur in cats. Once an animal is infected, hookworm larvae travel through their body. Larvae that make it to the small intestine attach themselves there, where they grow into adult worms and produce eggs. Unlike roundworms, hookworm infections peak in the summer and fall.

#### What are the health risks to pets and people?

Hookworms are dangerous because the adults actually bite into the intestinal lining of an animal and suck blood. Puppies and kittens are at high risk of infection and developing severe disease. Left untreated, hookworm infections can result in weakness, poor nutrition, and potentially life-threatening blood loss.

Hookworms also can infect people if the larvae are swallowed or penetrate the skin—for example, when someone is walking barefoot on contaminated soil or sand. Swallowed larvae can cause intestinal and other problems in people. Larvae that penetrate the skin can cause severe itching and tunnel-like, red areas.

### WHIPWORMS: WHAT ARE THEY AND HOW ARE THEY SPREAD?

Whipworms get their name from their whip-like shape. Infection is much more common in dogs than in cats. Infected animals (mostly dogs, foxes, and coyotes) pass whipworm eggs in their feces. Your pet can catch whipworms by swallowing whipworm eggs in feces-contaminated soil and by licking contaminated fur or paws. Infections tend to peak in the winter.

#### What are the health risks to pets and people?

Adult whipworms thread themselves into the lining of an animal's intestine and eat blood and tissue. Although this may sound serious, whipworms usually do not cause health problems in dogs or cats. Occasionally, severe infections can occur, causing diarrhea, weight loss, blood loss, or even death. The risk of pets spreading whipworms to people is considered low.

### TAPEWORMS: WHAT ARE THEY AND HOW ARE THEY SPREAD?

Tapeworms get their name from their long, thin, flat appearance, like strips of tape. Dogs and cats become infected with certain types of tapeworms when they swallow fleas or lice infected with tapeworm larvae. This happens most commonly when the dog or cat is grooming. Your pet also can catch certain types of tapeworms by eating infected rodents.

#### What are the health risks to pets and people?

Adult tapeworms live in the small intestine, but rarely cause disease. Infection is usually diagnosed when egg-containing tapeworm segments are seen under the pet's tail, in their feces, or on their bedding. These segments look like flattened grains of rice or cucumber seeds, and could be mistaken for maggots or fly larvae. Only rarely are these types of tapeworms a risk to people.

### OTHER INTESTINAL PARASITES

#### *Coccidia*

*Coccidia* are microscopic, single-celled parasites. Dogs and cats are vulnerable to certain types of *coccidia*, which are broadly known as *Cystoisospora*. Like other intestinal parasites, infected animals pass *coccidia* in their feces. Your pet can become infected by swallowing feces-contaminated soil, food, or water, and by licking contaminated paws or fur. Once swallowed, *coccidia* damage the lining of the intestines and interfere with absorption of nutrients. Infected animals may have loss of appetite, abdominal pain, diarrhea (which may contain blood), dehydration, and weakness. However, these signs don't always occur, and other infected animals may seem healthy.

Puppies and kittens are particularly vulnerable to *coccidia* infection and severe illness because they have no immunity to the parasite. This means that the infection is highly contagious to other puppies and kittens. However, the types of *coccidia* that infect dogs and cats are not known to infect people.



#### *Giardia*

*Giardia* are also single-celled parasites that, if swallowed, can damage the lining of the intestine and reduce nutrient absorption. They too are passed in feces. Your pet can catch *Giardia* through the same routes as *coccidia*. Infected animals may have diarrhea (persistent or on-and-off) and/or greasy (fatty) feces, excess gas, and weight loss, while others may seem healthy. The strains of *Giardia* that infect dogs and cats do not usually infect people.

### HOW ARE INTESTINAL PARASITES DIAGNOSED?

Except for some tapeworm infections, you won't be able to tell your pet has intestinal parasites just by looking at their feces. In fact, pets can look healthy and still have intestinal parasites, and some pets can be infected with multiple types of parasites at the same time. Plus, infections can happen any time of the year.

This is why routine fecal testing is so important—ideally twice a year or more for adult pets, four times a year or more for puppies and kittens, or if your pet is pregnant. See your veterinarian sooner if you notice the "grains of