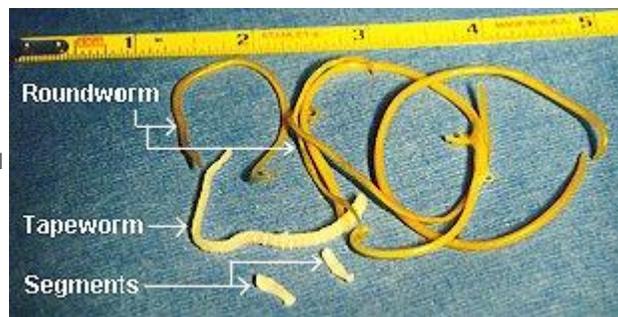


WORMS IN DOGS (AND CATS)!

Why does the veterinarian want to check a stool sample? Dogs (and cats) are victims of several internal parasites frequently referred to as worms. The most common are the roundworms, hookworms, whipworms and tapeworms. Of these four only two are commonly seen in the stool with the unaided eye: roundworms and tapeworms.

Most worm infestations cause any or all of these symptoms: diarrhea, perhaps with blood; weight loss; dry hair; general poor appearance; and vomiting, perhaps with worms in the vomit. However, some infestations cause few or no symptoms; in fact some worm eggs or larvae can be dormant in the dog's body and activated only in times of stress, or in the case of roundworms and hookworms, until the later stages of pregnancy when they activate and infest the soon-to-be-born puppies and kittens.

Look at the photo on the right and you can see that roundworms can assume different sizes. Tapeworms, meanwhile, will not be seen externally; in fact, all you might see in the stool or attached to the fur would be the small segments that detach from the end of the tapeworm. Hooks and whips are also so small that they seldom are seen in the stool.



This is precisely why a stool sample is often required in order to discover which parasite is present; the presence of these worms' eggs can often only be detected microscopically.

Keep in mind that it is the goal of each parasite to stay in the safety of the intestinal tract; if they come out, they'll die! They don't want to be detected!

LET'S EXAMINE EACH TYPE OF WORM INDIVIDUALLY:

Parasite Eggs, As Seen Under the Microscope in a Stool Sample



Roundworm Egg	Whipworm Egg	Hookworm Eggs	Tapeworm Egg Packet
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ROUNDWORMS

A large percentage of puppies (and kittens) are born with microscopically small roundworm, or ascarid, larvae in their tissues. The larvae is introduced to the developing pup (or kitten) right in the mother's uterus -- via migration through the mother's tissues!

Roundworm larvae can also be transferred to the nursing pup or kitten from the mother's milk. The larvae make their way to the intestinal tract where they can grow up to five inches in length. They start shedding eggs and try desperately to keep house in the small intestine of the pup (or kitten).

The eggs that the adult worms pass in the stool can now re-infest the animal or other dogs and cats if somehow the egg-bearing stool is eaten. When the worm eggs hatch, larvae are released internally to migrate to the animal's lungs where the larvae (remember, the larvae are microscopic in size) are finally coughed up, swallowed, and finally grow up to adults in the small intestine.



Female roundworms can produce 200,000 eggs in just one day. These eggs are protected by a hard shell, which enables them to exist in soil for up to years. Puppies (and kittens) with active roundworms in the intestines often have a pot-bellied appearance and poor growth. The worms may be seen in vomit or stool. If not treated in time, a severe infestation can cause death by intestinal blockage.

Roundworms don't just affect young pups (or kittens), though. They can infest adult dogs and cats, too. However, as mentioned above, the larvae can encyst in body tissue of adult dogs and cats, remain dormant for periods of time, and can activate during the last stages of pregnancy to infest the puppies and kittens.

Worming the mother has no effect on the encysted larvae in the body tissues and cannot prevent the worms from infecting the newborn. Almost all wormers work only on the adult parasites *in* the intestinal tract.

WHIPWORMS

This parasite is more often seen in dogs than cats. Adult whipworms, although seldom seen in the stool, look like tiny pieces of thread, with one end enlarged. They live in the cecum, the first section of the dog's large intestine. Infestations are usually difficult to prove since the whipworms shed comparatively few eggs; so an examination of even several stool samples may not reveal the presence of whipworms.

If a dog is presented with chronic weight loss and passes stool that seems to have a covering of mucous (especially the last portion of stool the dog passes), and lives in a kennel situation or an area where whipworms are prevalent, the veterinarian may prescribe a whipworm medication based upon circumstantial evidence.

Although they seldom cause a dog's death, whipworms are a real nuisance for the dog and can be a problem for the veterinarian to diagnose.

HOOKWORMS

These are also much more common in dogs than in cats. They are very small, thin worms that fasten to the wall of the small intestine and suck blood. Dogs get hookworms from larval migration in the uterus, from contact with the larvae in stool-contaminated soil, or from ingesting the eggs after birth. As with roundworms, the hookworm larvae can also be transferred to the nursing pup from the mother's milk.

A severe hookworm infestation can kill puppies, often making them severely anemic from the loss of blood to the hookworms' vampire-like activities! Chronic hookworm infestation is a common cause of illness in older dogs, often demonstrated as poor stamina, feed efficiency and weight maintenance. Other signs include bloody diarrhea, weight loss, anemia, and progressive weakness. Diagnosis is made by examining the feces for eggs under a microscope.

TAPEWORMS

The tapeworm is transmitted to dogs (and cats) that ingest fleas -- as apparently fleas think tapeworm eggs are real tasty -- or hunt and eat wildlife or rodents infested with tapeworms or fleas. If you were to see an entire tapeworm you would notice that they are arranged with a small head at one end and many tiny brick-like repeating segments making up the rest of the worm.

Tapeworms can reach 4 to 6 inches in length within the intestine. Each tapeworm may have as many as 90 segments (!), though it is the last segments in the chain that are released from the worm that can be seen in the stool or, as seen in the photo on the right, attached to the fur under the pet's tail.



Many cases are diagnosed simply by seeing these tiny terminal segments attached to the pet's fur around the anus or under the tail; they even move around a bit shortly after they are passed and before they dry up and look like little grains of rice or confetti. It also these segments of the tapeworm which contain the eggs.

Tapeworms cannot be killed by the typical generic, over-the-counter wormers. So don't waste your time and money on non-prescription medication, see a veterinarian for a treatment that actually works.

WHY SHOULD THE VETERINARIAN CHECK A STOOL SAMPLE?

Early diagnosis for the presence and type of intestinal parasite is vital. To do this the stool (only about a teaspoonful is needed) is mixed with a special solution, which makes the microscopic eggs more visible. Many veterinarians include the stool check as part of the annual health examination. (Note: Tapeworm eggs do NOT show up well in routine fecal analyses! Tell your veterinarian if you spot these rice-like segments in the stool or caught in the fur under the tail.)

WHAT IS A DEWORMER SOLUTION?

A dewormer solution is used to rid your pet of worms. The type of dewormer solution will depend on the type of worm present. Not all worms respond to the same treatment and no single wormer works against all kinds of parasites.

Additionally, some non-prescription wormers are quite ineffective in removing worms from the dog or cat. Your veterinarian will have available for you the best kinds of wormers for the particular type of parasite your pet has.

PREVENTION

If you allow the dog to eliminate in the backyard, remove feces at least once a week. It also important you watch where your dog goes in the neighborhood dog park; these are often infested with intestinal worm larvae.

Use the correct wormer under veterinary supervision, and have the dog's feces checked frequently in persistent cases. Do not mix wormers and do not use any wormer if your dog is currently taking any other medication, including heartworm preventative, without consulting the veterinarian.

In the case of persistent re-infestations, some veterinarians will prescribe worming treatments on a routine basis all year long. Generally, prescription wormers will be safer and more effective (although often more expensive) than over-the-counter worm medications.

DO WORMS AFFECT HUMANS?

CAUTION! Intestinal parasites of dogs and cats are potential health hazards for humans, too. If hookworm larvae penetrate the skin they can cause "cutaneous larval migrans", a potentially serious and scarring inflammation results.

For example, ascarid (roundworm) eggs, if ingested, can cause a disease called "visceral larval migrans" where tiny worm larvae migrate through the person's intestinal wall and into the body tissues. They then grow to larger size almost anywhere in the body. Ocular disease is a common sequel "visceral larval migrans".

Children are at most serious risk especially if play behavior is in an environment where dog, cat, or raccoon feces may be present... such as in a sandbox. A single adult *Toxicara canis* female can shed up to 100,000 eggs a day which pass into the dog (or cat's) environment with the stool.

Please take the worming advice of your veterinarian seriously and adhere to strict sanitation principles whenever pets and children are in close contact.