

## Tapeworms (*Dipylidium caninum*) in Dogs and Cats

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### The Common Tapeworm: *Dipylidium caninum*

#### Biology of the Parasite

The adult *Dipylidium caninum* lives in the small intestine of a dog or cat. It does not float around freely or travel about. Instead, it anchors its head to the intestinal wall and holds itself in place using a structure called a rostellum which resembles a hat with hooks on it. The tapeworm lives there without causing too much trouble, absorbing nutrients through its skin and dropping egg sacs off the end of its tail. It is generally regarded as a fairly disgusting creature but causes very little harm to its host.

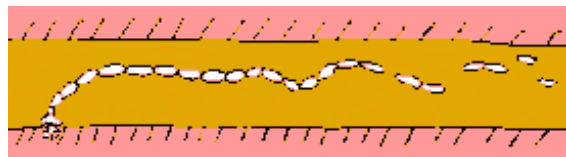
The entire tapeworm is quite long, six inches or more in length, which most people find surprising as all they usually see are the small egg sac segments which are about the size of a sesame seed or grain of rice. The segments are very flat, like a piece of tape, hence the name of the worm.

The dog or cat becomes infected after swallowing a flea that is carrying a larval tapeworm. The body of the flea is digested away releasing the tiny tapeworm, which is at this point mostly a head with hooks and suction cups. The tiny tapeworm looks for a place to latch on to the host's intestine so it can grow a full body. Tapeworms are not spread from pet to pet directly; to get infected, the pet must swallow the infected flea.

Once docked like a boat to the host intestinal wall, the tapeworm begins to grow a long tail, as the tapeworm's body is basically a head segment to hold on with, a neck, and many tail segments. Each segment making up the tail is like a separate independent body, with an independent digestive system and reproductive tract. The tapeworm absorbs nutrients through its skin as the host's digested food flows by. Older segments are pushed toward the tip of the tail as new segments are produced by the neckpiece. By



Adult *Dipylidium*. The segments are easily seen. The thick end is the tail, where segments drop off. Photo by CDC.



Adult tapeworm segment. Graphic by MarVistaVet



the time a segment has reached the end of the tail, only the reproductive tract is left. When the segment drops off, it is basically just a sac of tapeworm eggs.

As a dog sleeps, tapeworm segments are passed.  
Graphic by MarVistaVet

The sac, called a proglottid, is passed from the host's rectum and out into the world, either on the host's stool or on the host's rear end. The segment is the size of a grain of rice and is able to move. Eventually, the segment will dry and look more like a sesame seed. The sac breaks and tapeworm eggs are released. These eggs are not infectious to mammals. The tapeworm must reach a specific stage of development before it can infect a mammal and this stage comes much later.

Meanwhile, fleas living on the pet have been happily drinking the pet's blood, mating, and laying eggs. The eggs drop off the pet and onto the ground wherever the pet goes with the largest number of flea eggs accumulating in areas where the pet tends to frequent. This will also be where tapeworm segments accumulate as well. The flea eggs hatch, releasing hungry flea larvae that eagerly begin to graze on dust, dandruff, and flea dirt. The flea larvae do not pay close attention to what they eat and innocently consume tapeworm eggs.

As the larval flea progresses in its development, the tapeworm inside it is also progressing in development. By the time the flea is an adult, the tapeworm is ready to infect a dog or cat. The young tapeworm is only infectious to its mammal host at this stage of its development. The flea goes about its usual business, namely sucking its host's blood and reproducing when, to its horror, it is licked away by the host and swallowed.

Inside the host's stomach, the flea's body is digested away and the young tapeworm is released. It finds a nice spot to attach and the life cycle begins again. It takes 3 weeks from the time the flea is swallowed to the time tapeworm segments appear on the pet's rear end or stool.

### **Controlling fleas is essential to prevent recurring infections.**

#### **FAQ**

##### ***Why is it Called a Tapeworm?***

This creature gets its name because its segments and body are flat and look like a piece of tape.

##### ***What Do They Look Like?***

The adult tapeworm inside the pet can be half a foot or more long. It is made of small segments, each about the size of a grain of rice. The tapeworm's head hooks onto the pet's intestine with tiny teeth and the worm absorbs nutrients through its skin. Each segment contains a complete set of organs but as new segments grow in at the neck area and older segments progress to the tip of the tail, the organs disintegrate except for the reproductive organs. When the segment drops off from the tail tip, it is only a sac of eggs.

This segment is white and able to move when it is fresh and, at this time, looks like a grain of white rice. As the segment dries, it looks more like a sesame seed.

##### ***Where Do They Come From?***

There is no other way for a pet to get *Dipylidium caninum* except from fleas.

Many people who had thought their pet could not possibly have fleas find out about the infestation this way. The tapeworm segment breaks open, releasing its eggs. A larval flea

consumes the egg along with the flea dirt that it normally eats. As the larval flea matures, so does the baby tapeworm. When a grooming dog or cat licks the flea and swallows it, the dead flea is digested in the pet's stomach and releases the baby tapeworm. The tapeworm is passed to its new home in the dog or cat's small intestine where it attaches and lives its life.

This parasite does not harm the pet in any way as there are plenty of nutrients passing by to serve both the host and its tapeworm (tapeworms require very few nutrients). Still, high-performance dogs who need every calorie working for them may show a decrease in performance because of a tapeworm infection.

Another type of tapeworm may be confused with *Dipylidium caninum*, and that is the *Taenia* genus of tapeworms. This is a different type of tapeworm with a different appearing segment and a different mechanism of infection.

#### ***How Do You Know if Your Pet Has Them? Why Do They Sometimes Fail To Show Up in a Fecal Test?***

Because the eggs are passed by the pet in packets (segments), they often do not show up on the fecal exam; the packet must break open for the eggs to be seen. Consider that the pet has tapeworms if segments are seen under its tail, around its anus, or on its feces. Segments can be passed in small groups connected to each other, leading the owner to describe a worm that sounds larger than a grain of rice. Tapeworm segments are also quite flat.

Some people will mistake maggots in the stool for tapeworms. Maggots are not seen in freshly passed stool and are not flat.

#### ***Can People Get Them?***

Theoretically, yes, people can get them but they must be infected the same way dogs and cats are: by swallowing an infected flea.

#### ***How Do We Get Rid of Them?***

Tapeworms are killed by different medications ([praziquantel](#), which is administered by injection, tablet, or topically, or [epsiprantel](#), which is a pill). [Fenbendazole](#) is effective against several types of tapeworms but not against *Dipylidium caninum*.

#### ***Why Do Some Veterinarians Recommend Two Treatments and Others only Recommend One?***

Only one treatment is needed to kill the tapeworms in the body; however, many clinics recommend a second injection in three weeks. The reason is that if the owner finds out at the time of their office visit that they need to control fleas to control tapeworms, they will need at least a month or so to control the fleas.

After the first treatment is given, there is no reason why the pet cannot immediately reinfect itself. It probably will reinfect itself at some point. By seeing the animal in three weeks and giving another treatment after the fleas are controlled, there is a good chance that the tapeworms will not just be back three weeks later. It takes three weeks from the time tapeworms are swallowed by the pet to the time segments can be seen by the owner.

On the other hand, who knows when the pet will swallow another infected flea? My recommendation is that a single treatment be administered whenever segments are seen.



Flea eggs and flea dirt. Photo by MarVistaVet

### ***If One Pet Has Tapeworm Segments, Can it be Assumed They All Do?***

No, just because one pet in the household has swallowed an infected flea does not mean they all have. My recommendation is to deworm only pets who have obvious tapeworms.

### ***Why Might a Pet Continue to Get Tapeworm Infections?***

While many people would like to blame the medication as ineffective, the truth is that there must be an ongoing flea population in the pet's environment. The key to eradicating *Dipylidium caninum* is flea control.

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