**Giardia**

*Giardia* is the genus of a protozoan parasite that is infectious to both humans and pets all over the world. *Giardia* consists of flagellates, which mean they move by means of several whip-like structures called flagella. They live as a form called a trophozoite, or “troph” for short, in the intestine where they cause diarrhea. In fresh fecal samples, trophozoites can sometimes be captured. They swim around in a motion described as a falling leaf and appear as a funny face (see picture below – the two nuclei form the eyes and median bodies form the mouth).

After a short period of time outside the host’s intestine, the trophozoites round up and form cysts that enable them to survive environmental conditions without a host to protect them. The cyst can live for many months with two incompletely formed trophozoites inside, ready to infect a new host. Contaminated water is the classical source of a *Giardia* infection.

After it has been swallowed, the cyst shell is digested away, freeing the two trophozoites that go forth and attach on the intestinal lining. The troph has a structure called a ventral disc, which is sort of like a suction cup and is used to attach the organism's body to the intestine. If the troph wants to move to another spot, it lifts itself up and swims to a new spot via its flagella (trophs tend to live in different intestinal areas in different host species depending the host’s diet). The troph may round itself up and form a cyst while still inside the host's body. If the host has diarrhea, both trophs and cysts may be shed in the diarrhea; either form can be found in fresh stool.

After infection, it takes 5 to 12 days in dogs or 5 to 16 days in cats for *Giardia* to be found in the host’s stool. Diarrhea can precede the shedding of *Giardia*. Infection is more common in kennel situations where animals are housed in groups.

**How Does *Giardia* Cause Diarrhea?**

No one is completely sure but infection seems to cause problems with normal intestinal absorption of vitamins and other nutrients. Diarrhea is generally not bloody. Immune-suppressive medications such as corticosteroids can re-activate an old *Giardia* infection.

**Diagnosis**

In the past, diagnosis was difficult. The stool sample being examined needed to be fresh, plus *Giardia* rarely show up on the usual fecal flotation testing methods used to detect other parasites. Traditionally, a fecal sample is mixed in a salt or sugar solution such that any parasite eggs present will float to the top within 10 to15 minutes. Some tricks that have been used to facilitate finding *Giardia* include:

* Being sure to examine a direct smear of the fecal sample in hope of finding swimming trophs.
* Floating the sample in zinc sulfate, a solution that has been found superior in getting *Giardia* cysts to float.
* Staining the sample with some sort of iodine under the microscope to make the *Giardia* show up easier.

What has made *Giardia* testing infinitely easier is the development of a commercial ELISA test kit, which is similar in format to home pregnancy test kits. A fecal sample is tested immunologically for *Giardia* proteins. This method has dramatically improved the ability to detect *Giardia* infections and the test can be completed in just a few minutes while the owner waits.

*Giardia* shed organisms intermittently and may be difficult to detect. Sometimes pets must be retested in order to find an infection.

**Treatment**

A broad spectrum dewormer called [fenbendazole](http://www.veterinarypartner.com/Content.plx?P=A&A=1596&S=0&EVetID=0) (Panacur®) seems to be the most reliable treatment at this time. [Metronidazole](http://www.veterinarypartner.com/Content.plx?P=A&A=532&S=0&EVetID=0) (Flagyl®) in relatively high doses has been a classical treatment for *Giardia* but studies show it to only be effective in 67% of cases. The high doses required to treat *Giardia* also have been known to result in temporary neurologic side effects or upset stomach. For some resistant cases, both medications are used concurrently. Febantel is also commonly used for *Giardia* as it is converted to fenbendazole in the body.

Because cysts can stick to the fur of the infected patient and be a source for re-infection, the positive animal should be bathed at least once in the course of treatment.

Not all patients with *Giardia* actually have diarrhea but because *Giardia* is the most common intestinal parasite affecting humans in North America, treatment is generally recommended for the pet who tests positive even if no symptoms are seen. The idea is to reduce human exposure.

**Environmental Decontamination**

The most readily available effective disinfectant is probably bleach diluted 1:32 in water, which in one study required less than one minute of contact to kill *Giardia* cysts. Organic matter such as dirt or stool is protective to the cyst, so on a concrete surface basic cleaning should be done prior to disinfection. Animals should be thoroughly bathed before being reintroduced into a “clean” area. A properly chlorinated swimming pool should not be able to become contaminated. As for areas with lawn or plants, decontamination will not be possible without killing the plants and allowing the area to dry out in direct sunlight.

**A Footnote on Vaccination**

A vaccine against *Giardia* was previously available not to prevent infection in the vaccinated animal but to reduce the shedding of cysts by the vaccinated patient. In other words, the vaccine was designed to reduce the contamination of a kennel where *Giardia* was expected to be a problem. This would be helpful during an outbreak, in a shelter or rescue situation but is not particularly helpful to the average dog whose owner wants to prevent infection. Because of limited usefulness of the vaccine, its manufacture was discontinued in 2009.

*Date Published: 9/15/2006 11:12:00 AM*

*Date Reviewed/Revised: 03/19/2013*