

What is toxoplasmosis?

Toxoplasmosis is a disease caused by a microscopic parasite called *Toxoplasma gondii* (*T. gondii*). It is not a new disease, having first been discovered in 1908. Many warm-blooded animals including most pets, livestock, birds, and people can become infected with *T. gondii*. Approximately 11% of the U.S. population ages 6-49 have antibodies to *T. gondii*, meaning they have been infected with the parasite. Although infection with the parasite is relatively common, actual disease is rare. Signs of illness include mild flu-like symptoms such as fever, mild aches and pains, and enlarged lymph nodes for a short period of time.

How do people become infected with *T. gondii* ?

There are 3 principal ways *Toxoplasma gondii* infection is acquired:

1. Ingestion of infectious oocysts (pronounced oh-oh-sists) from the environment — soil or water contaminated with feline feces.
2. Consumption of undercooked or raw meat, or unpasteurized milk from animals that have been infected with *T. gondii*.
3. Transmission directly to an unborn child from the mother when she becomes infected with *T. gondii* during pregnancy.

The consumption of undercooked or raw meat is the most common route of infection in North America. *T. gondii* tissue cysts may be found in meats from sheep, pigs, and goats. They are less frequently found in poultry, cattle, and game meats such as venison. They have also been detected in raw, unpasteurized milk. *T. gondii* in meat can be killed by cooking at appropriate temperatures (for cooking temperatures for meat, go to <http://www.cdc.gov/toxoplasmosis/prevent.html>).

While nearly all warm-blooded animals can have tissue cysts in their meat or milk, cats are the definitive host for *T. gondii*. This means that they are the only animals that pass the infectious oocysts in their feces. These oocysts must spend at least 24 hours in the environment to develop into an infectious stage before they can infect other animals, including people. Oocysts are very hardy and can persist for months or years in the environment. They can survive freezing — even several months of extreme heat and dehydration. Moreover, oocysts can be carried long distances in wind and water.

What are the dangers of toxoplasmosis in people?

There are two populations at high risk for toxoplasmosis—pregnant mothers and immunocompromised individuals. Women exposed to *T. gondii* during pregnancy can pass the infection to the fetus (resulting in congenital infection). Although the majority of infected infants show no symptoms at birth, many are likely to develop signs of infection later in life. Children congenitally infected with *T. gondii* may suffer from loss of vision, mental developmental disability, loss of hearing, and, in severe cases, death. Women can be serologically tested for *T. gondii*. Women infected prior to pregnancy will have antibodies to the parasite, and are not at risk of passing the infection to their unborn child.

Usually, people that develop toxoplasmosis after infection with human immunodeficiency virus (HIV) were exposed to the *T. gondii* parasite earlier in life, and the immunosuppression caused

by the HIV infection simply allowed the parasite to grow unchecked. Toxoplasmosis in these patients can result in severe neurologic disease, convulsions, paralysis, coma, and death despite appropriate treatment.

How do cats become infected with *T. gondii* ?

The most common way that cats become infected with *T. gondii* is from eating infected mice, birds, and other small animals.

For indoor cats, the most likely source is uncooked meat scraps. When a cat eats meat or other tissues from infected animals, it becomes infected with *T. gondii* and can excrete millions of oocysts in its feces each day. This release of oocysts can continue for more than two weeks. After the initial infection and shedding period, most cats will not pass oocysts in their feces again, even if re-infected.

Oocysts in feces become infectious one to five days after being passed in cat feces. Since most healthy cats groom themselves frequently, it is unlikely that feces would remain on their fur long enough for any oocysts to become infectious. Therefore, handling cats is unlikely to pose a risk of *T. gondii* infection for humans.

Can *T. gondii* make my cat sick?



Most infected adult cats appear healthy, with no visible signs of illness. However, some cats may develop pneumonia, liver damage, and other health problems. Signs of illness include lethargy, loss of appetite, coughing, difficulty breathing, diarrhea, jaundice, blindness, personality changes, and other neurologic problems. The reason why some cats get sick and others do not is unknown, but immunocompromised kittens and cats (e.g. those also infected with feline leukemia virus and/or feline immunodeficiency virus [FIV]) appear to have increased risk of illness. There is currently no vaccine available for *T. gondii*, but treatment can be effective if the disease is diagnosed early. A blood test for *T. gondii* antibodies can help in diagnosis of toxoplasmosis in sick cats.

How can exposure to *T. gondii* be prevented?

- Change cat litter daily before *T. gondii* oocysts “ripen” and become infectious. Dispose of used litter safely, preferably in a sealed plastic bag. If pregnant or immunocompromised, avoid changing the litter box or use rubber gloves when doing so and wash hands thoroughly afterwards.
- Wash vegetables thoroughly before eating, especially those grown in backyard gardens. Boil water from ponds and streams when camping/hiking.
- Cover sand boxes when not in use to prevent cats from defecating in them.
- Wash hands with soap and water immediately after working

with soil or after handling raw or undercooked meat, vegetables, or unpasteurized dairy products. Avoid consumption of raw milk or other unpasteurized dairy products.

- Cutting boards, knives, sinks and counters should be washed thoroughly and disinfected immediately after cutting meats.
- When cooking, avoid tasting meat before it is fully cooked.
- Cook meat to appropriate temperatures to destroy the oocysts. For the appropriate temperatures, go to <http://www.cdc.gov/toxoplasmosis/prevent.html>.

To help prevent T. gondii infection in cats,

- Keep pets indoors - Do not allow cats to hunt rodents and birds.
- Feed cats only cooked meat or processed food.

For more information about toxoplasmosis, visit:

Cornell Feline Health Center
<http://www.vet.cornell.edu/fhc/>

Centers for Disease Control & Prevention
<http://www.cdc.gov/toxoplasmosis/>

And Now A Note On Your Pet's *General Good Health*

A healthy pet is a happy companion. Your pet's daily well-being requires regular care and close attention to any hint of ill health. The American Veterinary Medical Association suggests that you consult your veterinarian if your pet shows any of the following signs:

- Lumps or swelling
- Reduced or excessive appetite or water intake
- Marked weight loss or gain
- Limping, stiffness, or difficulty getting up or down
- Difficult, discolored, excessive or uncontrolled waste elimination (urine and feces)
- Abnormal discharges from any body opening
- Head shaking, scratching, licking, or coat irregularities
- Changes in behavior or fatigue
- Foul breath or excessive tartar deposits on teeth

Pets age more rapidly than people and can develop disease conditions that can go unnoticed, even to the most attentive pet owner. Veterinarians are skilled in detecting conditions that have gradual onset and subtle signs. Early detection allows problems to be treated most easily and affordably. Help foster early detection and treatment by scheduling regular examinations.

What you should know about Toxoplasmosis



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