

## Toxoplasmosis

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Toxoplasmosis is an infection caused by a single celled protozoan parasite, *Toxoplasma gondii*. The parasite has a worldwide distribution and can affect a variety of mammals and birds. All humans are at risk of being infected. However, in a healthy adult, clinical symptoms are minimal due to robust immune systems. The people most at risk for serious complications from *Toxoplasma gondii* infection are pregnant women and immunocompromised individuals. The parasite can migrate transplacentally and cause miscarriages, birth defects, and fetal death. Seroprevalence of humans in the United States found that approximately 11% of people between the ages of 6 and 49 years old are infected.

Felids are the only definitive host of *Toxoplasma gondii*. Thus, both wild and domestic cats are the only species capable of transmitting the infectious form of the parasite in feces. All other animals are considered dead-end hosts and cannot pass the organism to other animals or people. Humans can be infected through accidental ingestion of the parasite through cat feces. Cats can only spread *Toxoplasma* in their feces for 1-3 weeks following infection with the parasite. Rarely do cats have symptoms when infected. Thus, it is possible that a cat may clear the parasite without the owner ever knowing they were infected. At any point in time, approximately 1% of cats have infection and will be shedding oocysts for *Toxoplasma gondii*.

### Sources of infection from *Toxoplasma gondii*:

- Consuming contaminated or undercooked meat or shellfish either directly or by accidentally ingestion from not washing hands
- Contaminated utensils and cutlery that have come into contact with raw meat or shellfish
- Drinking water contaminated with *Toxoplasma gondii*
- Accidental swallowing of the parasite through contact with cat feces
- Congenital transmission
- Blood or organ transfusion from infected individuals

Generally, immunocompetent people are asymptomatic when infected with *Toxoplasma gondii*. When people that are immunocompromised are infected, clinical signs usually include:

- Flu like symptoms- swollen lymph nodes or muscle aches
- Eye damage- reduced or blurred vision, pain with bright light, redness, increased tear production
- Brain and other organ damage

## **Testing and Treatment**

A blood test can confirm if someone has been infected with *Toxoplasma gondii*.

Toxoplasmosis is detected through antibodies produced in response to a recent or old infection. During the first one to two weeks after infection, IgM antibodies can be detected in the blood. After about a month, IgM is replaced with IgG antibodies and will remain present for life. IgM can reappear with reactivation or if the infection is chronic.

Individuals who are planning to become pregnant, should talk to their healthcare provider about being tested for *Toxoplasma gondii*

- If the test is positive for IgG, infection has already occurred sometime during that person's life and there is little risk to infect the baby.
- If the test is positive for IgM, an acute infection is present. A healthcare provider should be consulted about how to proceed.
- If the test is negative for IgG and IgM, no immunity is present against Toxoplasmosis. This scenario can be the most serious if a woman becomes infected once they are pregnant. Further precautions are needed to prevent infection.

If someone in the household is immunocompromised, their healthcare provider can test for *Toxoplasma gondii*

- If the test is positive for IgG, infection has already occurred sometime during that person's life and immunity is present. They may need to take medicine to prevent the infection from reactivating.
- If the test is positive for IgM, there is an acute infection. They should consult with their healthcare provider about how to proceed.
- If the test is negative for IgG and IgM, precautions are needed to avoid future infection.

In otherwise healthy people, treatment is usually not necessary. For pregnant women or immunocompromised people, medications are available. Individuals should speak with their healthcare provider to determine what is needed for particular situations.

## **Prevention**

Proper food preparation:

- Cook food to safe temperatures following USDA guidelines.
- Freeze meat for several days at sub-zero temperatures before cooking.
- Peel or wash fruits and vegetables before eating.
- Do not eat raw or undercooked shellfish.
- Do not drink unpasteurized milk.
- Wash utensils, cutting boards, dishes, counters, and hands with soap and warm water.

High risk individuals for *Toxoplasma gondii* infection DO NOT have to get rid of their cats. However, safety precautions should be followed to lower the risk of being infected.

- Ensure the litter box is changed daily. Toxoplasma does not become infectious until 1 to 5 days after it is shed in a cat's feces.
- Wash hands with soap and warm water after cleaning litter boxes.
- Pregnant women or immunocompromised people should NOT clean litter boxes. If no one else is available to help, wear disposable gloves and wash hands afterwards.
- Keep cats indoors, this will decrease the likelihood of a cat becoming infected with Toxoplasma through hunting and eating rodents, birds, or other small animals.
- Do not handle stray cats or kittens.
- Do not get a new cat while pregnant or immunocompromised.
- Cats should only be fed commercial or well-cooked food. Do not feed raw meat diets.
- Keep outdoor sandboxes covered to reduce the risk of fecal contamination.
- Wear gloves when gardening or in contact with soil due to the risk of the soil being infected with feces containing Toxoplasma.

The value of companion animals on the emotional well-being of immunocompromised individuals can outweigh the risk of zoonotic infection. However, it is critical that cats have regular visits to a licensed veterinarian. This is especially important to cats owned by immunosuppressed individuals. Physical examinations, fecal test, and vaccinations against known infectious (Feline Leukemia Virus and Feline Immunodeficiency Virus) and zoonotic (Rabies) diseases is important in keeping both cats and people healthy. While many feline diseases such as FeLV and FIV are not infectious to humans, they do inhibit the immune system and make cats more susceptible to other diseases, such as Toxoplasmosis.

For any other questions regarding the risk of being infected with Toxoplasmosis from a cat, please contact your healthcare provider and a licensed veterinarian.

This document was prepared using the latest information available to the Infectious Disease Epidemiology Section, the State Public Health Veterinarian and the author. Should any of this information be outdated or incorrect, please inform the State Public Health Veterinarian so updates and corrections can be made as soon as possible.

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