

***Baylisascaris* -- Raccoon Roundworm**

This disease is caused by a parasite, a roundworm called *Baylisascaris procyonis*. It can infect a variety of animals, including people. The worms develop to maturity in the raccoon intestine, where they produce millions of eggs that are passed in the feces. Released eggs take 2-4 weeks to become infective to other animals and people.

The roundworm larvae cause problems as they travel through the person's muscles and various organs, including the liver, brain, lungs, and eyes. The severity of the infection depends on how many of the parasite's eggs were ingested, and where the larvae migrate. Although serious infections are rare, raccoon roundworm can be fatal in people.

Raccoons are the primary host of this roundworm but the parasite has also been found in mice, squirrels, rabbits, birds, woodchucks, and dogs. The eggs are resistant to most environmental conditions and with adequate moisture, can survive for years.

From the individual animal standpoint the parasite may be significant to some wildlife species (other than raccoons) susceptible to the disease. But from the total wildlife population perspective, the parasite has a minimal impact.

Who is at risk for infection?

Anyone who is exposed to environments where raccoons live is potentially at risk. Young children or developmentally disabled persons are at highest risk for infection when they spend time outdoors and may put contaminated fingers, soil, or objects into their mouths. Hunters, trappers, taxidermists, and wildlife enthusiasts may also be at increased risk if they have direct or indirect contact with raccoons or their feces.

Raccoon roundworm is a health concern because it can infect people, causing skin irritations and eye and brain damage due to the random migration of the larvae. There have been human fatalities associated with this disease.

Because of the possibility of infection with *Baylisascaris* by raccoons, people should not raise raccoons as pets. If a licensed wildlife rehabilitator is caring for raccoons they should take precautions (wear rubber gloves and practice good personal hygiene) when handling raccoon feces, and dispose of the feces quickly (it takes 30 days for the eggs to embryonate) and properly.

How do people become infected?

People become infected when they accidentally ingest infective eggs in soil, water, or on objects that have been contaminated with raccoon feces. When a person ingests the eggs, they hatch into larvae in the person's intestine and travel throughout the body, affecting the organs and muscles.

Raccoons shed millions of the microscopic roundworm eggs in their feces. It takes about a month for newly deposited eggs to develop to the infective stage. The eggs can only develop into worms when they're in an animal's body, but the eggs are hardy and may survive for years in soil, sand, or water.

People may encounter the eggs through direct contact with raccoon droppings or by touching a contaminated area or object. If they don't wash their hands, they may later transfer the eggs to their mouths. Small children are particularly vulnerable because they tend to put their hands, and other objects such as bark, wood chips, toys, soil, or even droppings, into their mouths.

How common is the roundworm *Baylisascaris* infection in raccoons?

Infection in raccoons is fairly common. Raccoons have been found with the parasite throughout the United States, mainly in the Midwest, Northeast, middle Atlantic, and West coast.

What are the symptoms of raccoon roundworm (*Baylisascaris*) infection?

Symptoms of infection depend on how many eggs are ingested and where in the body the larvae migrate (travel to). Once inside the body, eggs hatch into larvae and cause disease when they travel through the liver, brain, spinal cord, or other organs. Ingesting a few eggs may cause few or no symptoms, while ingesting large numbers of eggs may lead to serious symptoms. Symptoms of infection may take a week or so to develop and include:

- Nausea
- Tiredness
- Liver enlargement
- Loss of coordination
- Lack of attention to people and surroundings
- Loss of muscle control
- Blindness
- Coma

Raccoons rarely show symptoms of the disease but the species that don't usually play host to this worm (such as woodchucks, squirrels, birds) tend to show abnormal behaviors when infested. These include tilting their head and having difficulty walking or climbing. They may lose their fear of people, circle, roll on the ground, fall over, lie on their sides and paddle their feet, or fall into a coma.

Other animals may become infected by eating an infected animal or through contact with the feces of an infected animal.

What should I do if I think I have ingested raccoon roundworm eggs?

If you suspect you have been infected, consult your health care provider immediately. Be sure to report that you have recently been exposed to raccoons or their feces.

How should I clean up raccoon feces?

You should clean up raccoon feces very carefully. To eliminate eggs, feces and material contaminated with raccoon feces they should be removed and burned, buried, or sent to a landfill. Care should be taken to avoid contaminating hands and clothes. The use of gloves and facemask will help prevent cross contamination. Always wash hands well with soap and running water, to help further reduce possible infection.

How can I prevent infection?

- Avoid direct contact with raccoons — especially their feces. Do not keep, feed, or adopt raccoons as pets! Raccoons are wild animals.
- Discourage raccoons from living in and around your home by preventing access to food (human or pet), closing off access to attics and basements, keeping sand boxes covered at all times, and keeping trash containers tightly closed.
- Stay away from areas and materials that might be contaminated by raccoon feces. Raccoons typically defecate at the base of or in raised forks of trees, or on raised horizontal surfaces such as fallen logs, stumps, or large rocks. Raccoon feces also can be found on woodpiles, decks, rooftops, and in attics, garages, and haylofts. Feces usually are dark and tubular, have a pungent odor (usually worse than dog or cat feces), and often contain undigested seeds or other food items.
- **To eliminate eggs, raccoon feces and material contaminated with raccoon feces should be removed carefully and burned, buried, or sent to a landfill.** Care should be taken to avoid contaminating hands and clothes. Newly deposited eggs take at least 2-4 weeks to become infective. Prompt removal and disposal of raccoon feces will reduce risk for exposure and possible infection.

For more information about raccoon roundworm visit:

www.cdc.gov/ncidod/dpd/parasites/baylisascaris/default.htm