

Raccoon Roundworm – *Baylisascaris procyonis* **(*Baylisascariasis*)**

What is *Baylisascariasis* infection?

Baylisascariasis, an intestinal raccoon roundworm, can infect a variety of other animals, including humans. 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 humans. The eggs are resistant to most environmental conditions and with adequate moisture, can survive for years. The worm does not harm the raccoon, but can cause serious illness in humans.

How do humans become infected with *Baylisascariasis*?

People become infected with *Baylisascariasis* when they ingest eggs in soil, water, or on objects that have been contaminated with raccoon feces.

These eggs are resistant to most environmental conditions, and with adequate water, can survive from months to years. When humans ingest these eggs, they hatch into larvae in the person's intestine and travel throughout the body, affecting the organs and muscles.

Anyone who is exposed to environments where raccoons live is potentially at risk for getting infected with *Baylisascariasis*. Those at higher risk of exposure can include children, particularly toddlers as they may put contaminated fingers, soil, or objects in their mouth. Hunters, trappers, taxidermists, and wildlife handlers may also be at increased risk if they have contact with raccoons or raccoon habitats.

How common is *Baylisascariasis* infection in humans?

Human infection with *Baylisascariasis* is very rare. However, it is believed that cases are mistakenly diagnosed as other infections or go undiagnosed. Cases have been reported in Oregon, California, Minnesota, Illinois, Michigan, New York, and Pennsylvania. Five of the infected persons died.

How common is *Baylisascariasis* infection in raccoons?

Baylisascariasis in raccoons is fairly common. Infected raccoons have been found throughout the United States, mainly in the Midwest, Northeast, middle Atlantic, and West coast. Infection rarely causes symptoms in raccoons. Predator animals, including dogs, may also become infected by eating a smaller animal that has been infected with *Baylisascariasis*.

Raccoons become infected with *Baylisascariasis* in two ways:

- Young raccoons become infected by eating *Baylisascaris procyonis* eggs during foraging, feeding, and grooming.

- Adult raccoons acquire the infection by eating rodents, rabbits, and birds infected with the larvae of *Baylisascariasis*.

What are the symptoms of *Baylisascariasis* infection in humans?

Symptoms of infection depend on how many eggs are ingested and where in the body the larvae travel. 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 one to three weeks to appear.

Symptoms include:

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

Other animals (except raccoons) infected with *Baylisascariasis* can develop similar symptoms, or may die as a result of infection.

What should you do if you think you have ingested *Baylisascaris procyonis* eggs?

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

How is infection diagnosed?

Infection is difficult to diagnose and often is made by ruling out other infections that cause similar symptoms. Information on diagnosis and testing can be obtained through CDC's [DPDx](http://www.dpd.cdc.gov/dpdx/HTML/Baylisascariasis.htm) website (<http://www.dpd.cdc.gov/dpdx/HTML/Baylisascariasis.htm>) or your [Local Health Department](http://www.ualhd.org/Department/Department.htm) (<http://www.ualhd.org/Department/Department.htm>).

What is the treatment for *Baylisascariasis* infection?

Early medical attention might reduce serious damage caused by the infection, but currently there are no drugs that can effectively kill the migrating larvae in the body. Laser surgery has been successful in killing larvae present in the retina of the eye but the damage caused by the migrating larvae is irreversible.

How can *Baylisascariasis* be prevented?

- Avoid direct contact with raccoons — especially their feces.
- Do not keep, feed, or adopt raccoons as pets.
- Discourage raccoons from living in and around your home or parks by:
 - Preventing access to food (including pet food).

- Eliminating access to attics and basements.
- Keeping sand boxes covered at all times (a sandbox can become a latrine for a raccoon).
- 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 *Baylisascaris procyonis* 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. Treat decks, patios, and other surfaces with boiling water or a propane flame-gun. (Exercise proper precautions!) Newly deposited eggs take at least 2-4 weeks to become infective. Prompt removal and destruction of raccoon feces will reduce risk for exposure and possible infection.
- Contact your local animal control office for further assistance.

For more information contact:

- Your healthcare provider.
- Your Local Health Department (<http://www.ualhd.org/Department/Department.htm>).
- The Utah Department of Health, Bureau of Epidemiology (801) 538-6191.

Information Resources:

http://www.cdc.gov/ncidod/dpd/parasites/baylisascaris/factsht_baylisascaris.htm
<http://www.dpd.cdc.gov/dpdx/HTML/Baylisascariasis.htm>
http://www.dpd.cdc.gov/dpdx/HTML/PDF_Files/MedLetter/Baylisascariasis.pdf