

## Companion Animal Hospital Exotic Animal Care



### Coccidiosis in Reptiles and Amphibians

Coccidia are a common finding in the fecal exam of reptiles and amphibians. They are protozoans (single-celled organisms), and most parasitic species live in the gastrointestinal tract. While most parasitic species do not cause problems in small numbers, they have the potential to grow in number quite significantly in pet reptiles and amphibians and become pathogenic (disease-causing). An infection with coccidia is termed coccidiosis.

Coccidian species that infect reptiles include *Isospora sp.*, *Eimeria sp.*, *Sarcocystis sp.*, and others. *Cryptosporidium sp.*, commonly called “crypto,” is also a coccidian parasite that often causes a fatal infection, and is not detectable on a routine fecal exam (other tests are needed).

#### What do coccidia do to reptiles/amphibians?

In wild reptiles and amphibians, coccidia likely cause very little disease and in some species they may actually have a commensal<sup>1</sup> or mutualistic<sup>2</sup> relationship. However, captivity is not the wild. Most coccidia that infect reptiles and amphibians have a direct life cycle: They only need one host species, and may keep re-infecting the same host in captivity. This results in significant infections that may cause disease.

Infection with coccidian, termed coccidiosis, may cause a number of health problems. These single-celled parasites invade the host’s cells lining the gastrointestinal tract wall and destroy the cells. This may contribute to weight loss or failure to gain weight, diarrhea, mucoid stool, and prolapse of digestive tract tissue out of the cloaca (common opening of the digestive, urinary, and reproductive tracts) are all possible complications of coccidiosis. If an animal has a “small” infection then becomes otherwise ill, the stress that coccidia put on the animal’s system may exacerbate other conditions.

#### How did my pet catch coccidia?

These parasites are very common in captive reptiles and amphibians, often due to poor hygienic measures in breeding facilities and/or the pet store. They are spread through the fecal-oral route: Infected animals pass infective units that are eaten by other animals. Because of their direct life cycle, self re-infection occurs in cages are not cleaned frequently.

Many species of coccidian will reproduce in the digestive tract asexually, as well as shed infective oocysts (the “egg-like” life stage) into the environment through the stool. This dual

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<sup>1</sup> Commensal: A symbiotic parasitic relationship where one species benefits while the other is unharmed.

<sup>2</sup> Mutualistic: A symbiotic relationship where both species benefit.

source of infection can result in serious “superinfections” rather quickly.

Coccidia are spread between different enclosures either directly by the keeper (not washing hands or utensils used in an enclosure, recycling uneaten prey between enclosures), or indirectly by aerosol or even air currents.

Some coccidia are very resistant to many cleaners and disinfectants, and may survive for long periods of time in the enclosure.

### **How is coccidiosis diagnosed?**

We typically diagnose coccidiosis using a laboratory technique called fecal centrifugation. This technique uses a small amount of stool added to a solution that aids in separating oocysts from the bulk of the stool. This technique is more sensitive than fecal floatation, making it more suitable for smaller species like many companion reptiles and amphibians. Coccidia are microscopic and cannot be seen with the naked eye.

### **How is coccidiosis treated?**

Coccidia are treated using specific antiparasitic medication; however medication is of little use if there is no environmental control implemented. Because of their direct life cycle, the environment can become a constant source of re-infection if it is not adequately cleaned and disinfected. Please take into consideration the following guidelines for environmental control:

1. Animals that have been identified as coccidia-positive should be quarantined from the rest of the reptiles/amphibians in the home to prevent cross-contamination. These animals should be tended to last during the day. Thorough hand-washing between cages is required, although wearing personal protective gear such as disposable gloves is preferred.
2. The enclosure should be cleaned thoroughly and regularly. Non-porous cage materials like plastic, glass, acrylic glass, or screen are ideal for reptiles and amphibians as they are easy to clean and disinfect; you do not want cage walls and floor to potentially hold onto microscopic pathogens like with wood, melamine, and tile.
3. Many coccidian species are resistant to most disinfectants. Cleaning cages surfaces with hot, soapy water will dislodge the oocysts. Cage materials and decorations that cannot be cleaned effectively should be discarded.
4. All animals in the collection should be treated concurrently for coccidia, as animals that are not displaying symptoms of infection may be carriers.
5. As parasites can shed intermittently, it is strongly recommended to have two to three fecal exams test “negative” before considering an animal to be parasite-free.