



Algae Poisoning

Does the water in your local lake look different? Is the water's surface colored blue or green? If so, that pond water may be covered with a floating layer of blue-green algae that can be deadly.

Blue-green algae, also called cyanobacteria, is found in fresh and brackish water of ponds and lakes. This microscopic bacteria can also grow in backyard fountains, garden pots, birdbaths, and anywhere water is stagnant. Regardless of where it's found, blue-green algae is dangerous.



Source of Algae

Blue-green algae is present across North America. The bacteria grow readily in hot, humid climates where water is warm. Although the largest algae bloom occurs in late summer and early fall, it has a longer growing season in temperate climates.

Algae grow aggressively in nutrient rich water and fertilizer that runs off into ponds from adjacent fields helps the bacteria to thrive. Algae float and are blown by the wind to form thick mats next to the shoreline. This accumulation of algae at the water's edge is easily accessible to thirsty livestock and pets.

Affected Species

The toxin enters the body when the animal drinks affected water putting hunting and athletic dogs that swim in ponds at high risk. But other animals that commonly drink from lakes such as cows, sheep, goats, llamas, and horses can get sick too. Pastured livestock that drink stagnant water from troughs may also ingest toxic algae. Cats are susceptible to poisoning, but their risk is lower since they rarely swim and are pretty picky about the water they drink.

While adult humans are unlikely to enter pond water, unsuspecting children might and should be monitored closely. In addition to poisoning, humans may develop contact dermatitis from exposure to blue-green algae. If you notice red or

irritated skin after swimming, call your doctor. People should also be careful when handling or cleaning animals that swim in contaminated water to avoid contact with algae.

Toxic Symptoms

Blue-green algae can produce two types of toxins, microcystins and anatoxins. The clinical signs of poisoning depend on which toxin is involved. Microcystins affect the liver and anatoxins target the nervous system.

Microcystins can severely damage the liver causing organ failure. Many body systems depend on a functioning liver so a broad list of symptoms arise when the liver fails to do its' job. For example, the gastrointestinal tract is affected resulting in vomiting, diarrhea, and tarry stool. When the liver fails, the animal becomes jaundiced, blood sugar and protein levels drop, and bleeding occurs.

The liver filters toxins and metabolic by-products from the body. Failure to do so results in a build-up of toxins that cause neurologic signs such as disorientation and seizures. The animal may develop symptoms of shock or become comatose. As the liver continues to fail and liver enzymes rise, death is imminent within days; however, some fatalities occur within 12–24 hours of algae ingestion.

The outcome with anatoxins is even bleaker. Signs of poisoning occur within 30–60 minutes of exposure and target the nervous system. The animals develop overactive secretions producing excess saliva (drooling) and tears. Muscle tremors occur and while some muscles become very rigid others are paralyzed. Decreased oxygen delivery causes mucus membranes and skin to take on a blue tint. Paralysis of the diaphragm (also a muscle) results in respiratory failure and death.

With anatoxin exposure, death is quick, often within minutes to hours post exposure. In fact, livestock that drink from contaminated ponds are often found dead right by the water's edge.

Here are symptoms resulting from the two types of toxins:

Microcystins:

- Weakness
- Lethargy
- Lack of appetite
- Vomiting
- Diarrhea (dark, tarry stool)
- Bleeding
- Pale gums
- Jaundice (yellow tint to gums and skin)
- Shock
- Seizures
- Collapse and coma
- Death

Treatment

Prompt treatment is important in all cases of poisoning, but since blue–green algae attacks so fast, speedy intervention is critical. If you know your dog consumed algae, seek immediate medical care.

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If caught before symptoms occur, therapy can be directed at ridding the body of the toxin. For example, your pet's doctor may induce vomiting to remove the algae from the stomach. He may also give oral activated charcoal to absorb the toxin. Or your veterinarian may perform gastric lavage on your dog or cat (pump the stomach).

The intestinal tracts of large animals are built differently than cats and dogs so the induction of vomiting is usually not appropriate therapy for cows and horses. But they may be given activated charcoal to absorb some of the toxin.

Regardless of species, the toxins enter the system so quickly that the animal is usually sick before reaching medical care. It is often too late to remove the toxin. Worse still, there is no specific antidote for blue–green algae poisoning. Treatment is limited to supportive care focused on affected organ systems.

Aggressive therapy including intravenous fluids and plasma may replenish electrolytes, regulate blood glucose, support organ function, and prevent shock. Muscle relaxers may help animals with muscle tremors. Anti–seizure drugs are administered if convulsions occur. Atropine may reduce excess salivation and tearing. Nutraceuticals may be needed to support waning liver function.

Prognosis

Despite aggressive treatment, the prognosis with blue–green algae toxicity is very poor. Some animals actually pass away before reaching a veterinarian. If you suspect that your animal was exposed, seek immediate emergency care.

Prevention

First and foremost: Block access to blue–green algae

Fence off contaminated ponds and lakes to prevent livestock from drinking affected water. Provide fresh water sources in clean troughs for all animals.

Do not let dogs swim in contaminated water. Simply licking the water off the coat could be fatal. Remove standing water from plant containers, birdbaths, fish ponds, and fountains.

Not all types of algae are deadly, but it is difficult to tell which are poisonous without specific analysis. It is safest to consider all algae blooms to be dangerous and avoid them altogether.

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