

Blue-Green Algae: A Veterinarian Reference

IDENTIFYING ILLNESS DUE TO BLUE-GREEN ALGAE

✓ Exposure History ✓ Clinical Signs ✓ Diagnosis ✓ Treatment ✓ Reporting

DESCRIPTION OF THE PROBLEM

Blue-green algae (also known as cyanobacteria) are non-pathogenic photosynthetic bacteria that grow in outdoor water bodies and produce toxins such as microcystins, cylindrospermopsin and anatoxin-a. They can grow quickly and form large blooms, especially in warm weather.

Scope of the problem in California:

- Toxic blooms occur throughout California and are increasing in number, frequency and severity.
- Dog and livestock deaths in California have been linked to blue-green algal toxins.

EXPOSURE

Animals can be exposed to blue-green algae and its toxins by:

- Contacting any infected water body including lakes, rivers, ponds, etc. Because animals are attracted to blue-green algae, they drink the water and eat algal material. Dogs in particular lick algae caught in their fur after being in the water.
- Consuming water and algae from residential pools or decorative ponds.
- Ingesting blue-green algae health supplements.

CLINICAL SIGNS, DIAGNOSIS and TREATMENT: See page 2 and

https://mywaterquality.ca.gov/habs/resources/domestic_animals.html#res_vets. For additional assistance contact the ASPCA Animal Poison Control Center: (888) 426-4435. Available 24 hours/day, 365 days/year. *Limited funding may be available to cover physical examination of ill dogs with suspected poisoning.*

REPORTING: Reporting confirmed or suspected cases will help prevent other animal and human exposures to blue-green algal toxins. Please complete the Illness Information Section on the Report Form available at <https://mywaterquality.ca.gov/habs/do/bloomreport.html>. For questions, call the State Water Resources Control Board at (844) 729-6466.



From the California Cyanobacteria and Harmful Algal Blooms Network. For more information see: www.mywaterquality.ca.gov/habs/

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Blue-Green Algae Poisoning Veterinary Reference

EXPOSURE HISTORY	CLINICAL SIGNS	DIFFERENTIAL DIAGNOSIS	LABORATORY DIAGNOSTICS	TREATMENT OPTIONS
<p>Access to any outdoor water body up to 48 hours prior to onset of symptoms. Includes bays, lakes, rivers, streams, ponds, etc. Also includes residential pools and ponds containing algae.</p> <p>Potential for ingestion of water or algal material (including dried material near shore or on land). Includes cleaning algae off fur.</p> <p>Ingestion of blue-green algae health supplements.</p>	<p>Hepatotoxin (microcystin) <i>Onset within minutes to days:</i></p> <ul style="list-style-type: none"> • Vomiting, diarrhea • Lethargy, depression, anorexia • Jaundice, abdominal tenderness • Dark urine, tarry stools 	<p>Acetaminophen overdose; rodenticide, mushroom toxin, aflatoxin and other hepatotoxin poisonings, other hepatopathy</p>	<p>Elevated ALP, AST, ALT, GGT, bile acids, bilirubin</p> <p>Coagulopathy</p> <p>Hypoglycemia</p> <p>Hypoproteinemia</p> <p>Toxin present in clinical specimens[†]</p>	<p>Remove access to contaminated water, clean fur</p> <p>Emesis induction and oral activated charcoal slurry may be helpful</p> <p>Oral cholestyramine has been effective up to 7 days post exposure[‡]</p> <p>Cyclosporin A, rifampin and intravenous silibinin may be helpful*</p> <p>Supportive therapy</p>
	<p>Nephrotoxin, hepatotoxin (cylindrospermopsin) <i>Onset within minutes to days:</i></p> <ul style="list-style-type: none"> • Similar to microcystin and • Excessive thirst • Increased urination • Ataxia 	<p>NSAID overdose, ethylene glycol, grape/raisin ingestion, other nephrotoxin poisonings, other nephropathy or hepatopathy</p>	<p><i>Similar to microcystin and</i></p> <p>Proteinuria, glycosuria, hematuria</p> <p>Elevated BUN and creatinine</p> <p>Hypokalemia</p> <p>Toxin present in clinical specimens[†]</p>	<p>Remove access to contaminated water, clean fur</p> <p>Emesis induction and oral activated charcoal slurry may be helpful</p> <p>Supportive therapy</p>
	<p>Neurotoxin (anatoxin-a) <i>Within minutes to hours:</i></p> <ul style="list-style-type: none"> • Ataxia • Seizures, paralysis • Respiratory arrest, sudden death 	<p>Pesticide poisoning, mycotoxins penitrem A and roquefortine, other toxin poisoning, myasthenia gravis</p>	<p>Toxin present in clinical specimens[†] (Anatoxin-a can be measured in serum and urine)</p>	<p>Remove access to contaminated water, clean fur</p> <p>Emesis induction and oral activated charcoal slurry may be helpful</p> <p>Supportive therapy</p> <p>Artificial ventilation</p>
<p>Skin contact with water bodies containing blue-green algae or toxins.</p>	<p>Dermal toxins <i>Within minutes to hours:</i></p> <ul style="list-style-type: none"> • Rash, hives • Allergic reaction 	<p>Other dermal allergens</p>		<p>Remove algae and clean fur</p>

[†]Stomach, rumen or GI contents, water and, for anatoxin-a only, serum and urine. See the following pages for details. Necropsy is encouraged when applicable.

[‡]Rankin et al., 2013, *Toxins*, 5, 1051-63 (78.4 mg/lb, mixed with water, PO, q 24 h).

*Merck Veterinary Manual

Technical information in this fact sheet was reviewed by veterinarians from the California Department of Public Health Veterinary Public Health Section, California Department of Food and Agriculture Animal Health Branch, and CAHFS Toxicology Laboratory.