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Health Effects from Cyanotoxins

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Human Health Effects Caused by the Most Common Toxin-producing Cyanobacteria

When people are exposed to cyanotoxins, adverse health effects may range from a mild skin rash to serious illness or in rare circumstances, death. Acute illnesses caused by short-term exposure to cyanobacteria and cyanotoxins during recreational activities include hay fever-like symptoms, skin rashes, respiratory and gastrointestinal distress. Exposure to drinking water contaminated with elevated concentrations of microcystin and cylindrospermopsin could cause liver and kidney damage. The table below summarizes the health effects caused by the most common toxin-producing cyanobacteria.

Cyanotoxins	Acute Health Effects in Humans	Most Common Cyanobacteria Producing Toxin

Cyanotoxins	Acute Health Effects in Humans	Most Common Cyanobacteria Producing Toxin
Microcystin-LR	Abdominal pain, headache, sore throat, vomiting and nausea, dry cough, diarrhea, blistering around the mouth, and pneumonia	<i>Microcystis</i> , <i>Dolichospermum</i> (previously <i>Anabaena</i>), <i>Nodularia</i> , <i>Planktothrix</i> , <i>Fischerella</i> , <i>Nostoc</i> , <i>Oscillatoria</i> , and <i>Gloeotrichia</i>
Cylindrospermopsin	Fever, headache, vomiting, bloody diarrhea	<i>Raphidiopsis</i> (previously <i>Cylindrospermopsis</i>) <i>raciborskii</i> , <i>Aphanizomenon flos-aquae</i> , <i>Aphanizomenon gracile</i> , <i>Aphanizomenon ovalisporum</i> , <i>Umezakia natans</i> , <i>Dolichospermum bergii</i> , <i>Dolichospermum lapponica</i> , <i>Dolichospermum planctonica</i> , <i>Lyngbya wollei</i> , <i>Raphidiopsis curvata</i> , and <i>Raphidiopsis mediterranea</i>
Anatoxin-a group	Tingling, burning, numbness, drowsiness, incoherent speech, salivation, respiratory paralysis leading to death (experimental animals)	<i>Chrysochlorum</i> (<i>Aphanizomenon</i>) <i>ovalisporum</i> , <i>Cuspidothrix</i> , <i>Raphidiopsis</i> , <i>Cylindrospermum</i> , <i>Dolichospermum</i> , <i>Microcystis</i> , <i>Oscillatoria</i> , <i>Planktothrix</i> , <i>Phormidium</i> , <i>Dolichospermum flos-aquae</i> , <i>A. lemmermannii</i> , <i>Raphidiopsis mediterranea</i> (strain of <i>Raphidiopsis raciborskii</i>), <i>Tychonema</i> and <i>Woronichinia</i>

Treatment for People Who Have Been Exposed to Cyanotoxins

If you do come into contact with water that is known to be contaminated with cyanobacteria and/or cyanotoxins, the Centers for Disease Control (CDC) recommends that you rinse off with clean, fresh water as soon as possible. Seek medical treatment right away if you think you or someone you know might have been poisoned by cyanobacterial toxins, especially when any of the symptoms mentioned above are recognized.

Aquatic Life and Animal Health Effects

High biomass blooms, whether of toxic or nontoxic species, can lead to very low oxygen levels in the water column (hypoxia), resulting in higher mortality rates in local fish, shellfish, invertebrate, and plant populations. The blooms may also affect benthic flora and fauna due to decreased light penetration. Toxic blooms from some cyanobacteria genera may lead to inhibition of other phytoplankton and suppression of zooplankton grazing, leading to reduced growth and reproductive rates and changes in community structure and composition.

CyanoHABs can also harm pets, wildlife and livestock. Pets and other animals can be poisoned through drinking toxin-contaminated water or by swimming in waters with a cyanoHAB. Several dogs and livestock deaths have been reported after exposure to cyanotoxins in water. Symptoms of exposure to HABs in pets can include excessive salivation, fatigue, difficulty breathing, vomiting, diarrhea, and seizures. Death can occur within hours to days of exposure.

- Learn more about [How to Protect Your Dog](#)

For more information on the health effects from exposure to cyanotoxins refer to:

- [US EPA Health Effects Support Document for the Cyanobacterial Toxin Anatoxin-a](#)
- [US EPA Health Effects Support Document for the Cyanobacterial Microcystins Toxins](#)
- [US EPA Health Effects Support Document for the Cyanobacterial Toxin Cylindrospermopsin](#)
- [US EPA Drinking Water Health Advisory for the Cyanobacterial Toxin Cylindrospermopsin](#)
- [US EPA Drinking Water Health Advisory for the Cyanobacterial Microcystins Toxins](#)

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