



Cyanotoxin Facts: Recreational and Drinking Water

June 9, 2018

Cyanotoxin Advisory Values (AVs) for Drinking Water and Recreational Water (in µg/L or ppb)

Cyanotoxin	Drinking Water AVs		Recreational AVs
	Children < 5 years	Adults	Everyone
Microcystin	0.3	1.6	4
Cylindrospermopsin	0.7	3	8
Anatoxin-a	0.7	3	8
Saxitoxin	0.3	1.6	4

Drinking Water

The U.S EPA's health-based, 10-day health advisory for microcystins is considered protective of non-carcinogenic adverse health effects over a short-term exposure to microcystins in drinking water.

The 10-day health advisory value for microcystins is 0.3 parts per billion (ppb) for vulnerable groups and 1.6 ppb for the general population. EPA typically sets advisory levels with a safety buffer. That way, action can often be taken before people are at risk. To determine these levels, EPA looked at the best studies assessing the toxic effects of microcystin (studies with rats). They used the lowest level at which there were adverse health effects, then divided that by 1,000 to determine their advisory level.

Toxicity data for children and adults are the same. Younger children are included in the group covered by the lower value because, on average, children 5 and younger drink more water per unit body weight, compared to older children and adults.

Recreational Water

The recreational advisory values are based on incidental ingestion of water while people are recreating in waterbodies affected by a cyanobacterial bloom and toxins. Since people are not intentionally drinking water while swimming, water skiing and during other recreational activities, the amount of water incidentally ingested over time is much smaller than the amount ingested by children and adults when drinking tap water.

For this reason, OHA uses the recreational values when determining exposures for children and adults while showering, washing hands, cleaning countertops, washing/rinsing teething rings, and all other activities that could result in incidental ingestion.

Protectiveness of Drinking Water Values

There is a significant safety buffer built into the calculation of health advisory values for drinking water to account for limited data, variability between animals and humans, and also variability between individuals. In the case of microcystins, for example, the values are primarily based on one animal study where rats were exposed to the toxins in drinking water for 28 days.

Pets

Additional information: People should also be cautious when providing water for their pets.

Cyanotoxin Guideline Values (GVs) for Dogs (in $\mu\text{g/L}$ or ppb)

Cyanotoxin	Dog GVs
Microcystin	0.2
Cylindrospermopsin	0.4
Anatoxin-a	0.4
Saxitoxin	0.02