

# Ivermectin Toxicity in Dogs and Cats

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## Toxin

Ivermectin and avermectin.

## Source

Anthelmintics and heartworm preventives such as [Heartgard](#), [Heartgard Plus](#), [Ivomec](#), [Milbemycin](#), and Zimectrin.

## General Information

Ivermectin is a combination of avermectins. These medications increase the activity of certain types of receptor cells in the CNS in mammals (and in the peripheral nervous system in nematodes and arthropods). This alteration of the CNS is the cause of the symptoms seen in overdose cases. Avermectins are found in the body after oral or parenteral exposure. Signs may appear within hours or may take up to 24 hours. Several breeds are more likely to be affected by avermectins including collies and collie crosses. The Old English Sheepdog, Australian Shepherds, and Shetland Sheepdogs have also been mentioned as susceptible breeds. This increased susceptibility is due to a difference in the blood-brain barrier in these breeds. Younger animals also appear more susceptible to intoxication.

The most important aspect of intoxication with avermectins is the prolonged recovery time (weeks to months).

## Toxic Dose

Varies depending on age and breed.

## Signs

Dogs: Ataxia, abnormal behavior, depression, vomiting, dilated pupils, and drooling. Other signs include disorientation, hyperesthesia, restlessness, stiffness, sleepiness, whining, groaning, head pressing or bobbing, aggression, chewing fits, apprehension, decrease in heart rate, [seizures](#), [hyperthermia](#), weakness, breathing difficulties, and cyanosis. Severe intoxication results in signs of shock, pulmonary edema, breathing difficulties, increase in heart rate, muscle tremors, coma, and death. In dogs, where ivermectin has caused death of microfilarias (immature heartworms), anaphylactic reactions may be the cause of the signs noted.

Cats: Ataxia, vocalization, disorientation, dementia, whole body tremors, dilated pupils, apparent blindness, circling, head pressing, slowed heart rate, [hypothermia](#), coma, and death.

## Immediate Action

Seek veterinary attention.

## Veterinary Care

General treatment: For oral exposures, the induction of vomiting may be continued, gastric lavage is performed, and [activated charcoal](#) is administered.

Supportive treatment: IV fluids and parenteral nutrition (feeding tube or IV nutrition) are given to maintain hydration and meet caloric needs. To prevent decubital ulcers (bed sores), soft bedding (mattress) is provided, the pet is turned every few hours, and any sores that form are treated. If anaphylaxis occurs, appropriate treatment is given. Seizures and hyperthermia are controlled as necessary.

Specific treatment: Physostigmine may be administered in severe poisoning cases.

## Prognosis

Guarded and variable.