

I've heard that chocolate is toxic to dogs? Is this true?

Yes, chocolate is toxic to dogs. While rarely fatal, chocolate ingestion often results in significant illness. Chocolate is toxic because it contains the methylxanthine *theobromine*. Theobromine is similar to caffeine and is used medicinally as a diuretic, heart stimulant, blood vessel dilator, and a smooth muscle relaxant. Theobromine can be poisonous and result in severe clinical signs, especially if untreated.

How much chocolate is poisonous to a dog?

Toxic doses of theobromine are reported to be as low as 20 mg/kg, where agitation, hyperactivity and gastrointestinal signs (such as drooling, vomiting, and diarrhea - all which may smell like chocolate) can be seen. At doses > 40 mg/kg, cardiac signs can be seen, and include a racing heart rate, high blood pressure, or even heart arrhythmias. At doses > 60 mg/kg, neurologic signs can be seen, and include tremors, twitching, and even seizures. Fatalities have been seen at around 200 mg/kg (approximately 100 mg/lb), or when complications occur.



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"The amount of toxic theobromine varies with the type of chocolate."

The amount of toxic theobromine varies with the type of chocolate. The darker and the more bitter the chocolate, the more dangerous it is to your pets. Cooking or baking chocolate and high quality dark chocolate contains between 130-450 mg of theobromine per ounce of the product, while common milk chocolate only contains about 44-58 mg/ounce. White chocolate barely poses any threat of chocolate poisoning, with only 0.25 mg of theobromine per ounce of chocolate (that said, dogs can still get sick from all that fat and sugar, resulting in pancreatitis!). This means that for a medium size dog, weighing 50 pounds it would take only 1 ounce of baker's chocolate or 8 ounces of milk chocolate to potentially show signs of poisoning.

What are the clinical signs of chocolate poisoning?

Clinical signs depend on the amount and type of chocolate ingested. For many dogs, the most common clinical signs are vomiting and diarrhea, increased thirst, panting or restlessness, excessive urination, a racing heart rate, muscle spasms (tremors), and occasionally seizures. In older pets that eat a large amount of high quality dark or baking chocolate, sudden death from cardiac arrest may occur, especially in dogs with preexisting heart disease. Complications (such as developing aspiration pneumonia from vomiting) can make the prognosis for chocolate poisoning worse. When in doubt, immediate treatment by your veterinarian is warranted if a poisonous amount of chocolate is ingested.

"Clinical signs of chocolate poisoning can take hours to develop and last for days."

Clinical signs of chocolate poisoning can take several hours to develop, and even longer to go away. Clinical signs of chocolate poisoning can last for days, due to the long half-life of theobromine. The theobromine can even be re-absorbed from the bladder, so aggressive IV

fluids and frequent walks may be necessary. It is important to seek medical attention by calling your veterinarian or Pet Poison Helpline* as soon as you suspect that your dog has eaten chocolate.

What should I do if my dog eats chocolate?

When in doubt, contact your veterinarian or Pet Poison Helpline to see if a poisonous amount of chocolate was ingested to begin with. If so, your veterinarian may want to induce vomiting, provided your dog isn't showing any clinical signs. If a toxic amount is ingested, you should have your pet examined by a veterinarian immediately. The sooner the theobromine is removed from the body or the pet is stabilized, the better your dog's prognosis.

What is the treatment for chocolate poisoning?

Treatment depends on the amount and type of chocolate eaten. If treated early, removal of the chocolate from the stomach by administering medications to induce vomiting and administration of activated charcoal to block absorption of theobromine into the body may be all that is necessary. Activated charcoal may be administered every four to six hours for the first twenty-four hours to reduce the continued resorption and recirculation of theobromine.

It is very common to provide supportive treatments such as intravenous fluid therapy to help dilute the toxin and promote its excretion. All dogs ingesting chocolate should be closely monitored for any signs of agitation, vomiting, diarrhea, nervousness, irregular heart rhythm, and high blood pressure. Often, medications to slow the heart rate (e.g., beta-blockers) may be necessary to treat the elevated heart rate and arrhythmia.

I saw a treat made for dogs that contained chocolate. Isn't that dangerous?

Many gourmet dog treats use *carob* as a chocolate substitute.

"Carob looks similar to chocolate and the two are often confused."

Carob looks similar to chocolate and the two are often confused. Some specialty dog bakeries will use a small amount of milk chocolate in their treats. Since the amount of theobromine is typically low, this may be safe for most dogs. However, most veterinarians recommend that you avoid giving your dog chocolate in any form. Remember, ingredients are listed in order as they appear in the product, so hopefully carob is lower on the list!

*Pet Poison Helpline, is an animal poison control service based out of Minneapolis available 24 hours, seven days a week for pet owners and veterinary professionals who require assistance treating a potentially poisoned pet. Pet Poison Helpline is available in North America by calling 800-213-6680. Additional information can be found online at www.petpoisonhelpline.com.



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