

The importance of chocolate...

Valentine's Day and Easter are big "chocolate holidays". I require chocolate year round, and always have some stashed somewhere! Care must be taken when animals are around, though. Chocolate can be toxic, and sometimes even fatal, for animals. Dogs are most commonly affected, due to their ability to find it and the common 'sweet tooth' they seem to have. It is important to remember that cats and other species are susceptible to the toxic effects of chocolate, too.

What makes chocolate toxic, anyway?

Chocolate is made from the fruit (beans) of the cacao tree.

Theobromine, a component of chocolate, is the toxic compound in chocolate. (Caffeine is also present in chocolate, but in much smaller amounts than Theobromine.)

Theobromine's effect on the body:

- Central Nervous System (CNS) stimulant
- Cardiovascular stimulant
- Increase blood pressure (mild)
- Nausea and vomiting

Are some chocolates more toxic than others?

Yes. Unsweetened (baker's) chocolate contains 8-10 times the amount of Theobromine as milk chocolate. Semi-sweet chocolate falls roughly in between the two for Theobromine content. White chocolate contains Theobromine, but in such small amounts that Theobromine poisoning is unlikely. Caffeine is present in chocolate, but less than Theobromine.

Quick Guide for Theobromine levels in different types of chocolate:

From The Merck Veterinary Manual, 8th ed

- Unsweetened (Baker's) chocolate = 390-450 mg Theobromine per oz chocolate
- Milk chocolate = 44-60 mg Theobromine per oz chocolate
- Semi-sweet is a bit less than half of the Theobromine content as Baker's chocolate.

How much is too much?

The toxic dose of Theobromine (and caffeine) for pets is 100-200mg/kg. (1 kilogram = 2.2 pounds). However, various [reports](#) by the ASPCA (American Society for the Prevention of Cruelty to Animals) have noted problems at doses much lower than this - i.e. 20mg/kg. Translated to a "typical" scenario, and using the 20mg/kg as a measure of "problems can be seen at this level of ingestion", a 50 pound dog would have to consume 9 ounces (+/-) of milk

chocolate to consume the 20mg/kg amount of Theobromine. Some dogs won't see problems at this rate. Some may.

What are the signs of toxicity?

Signs are most commonly seen within 12 hours (or less) of chocolate ingestion.

- Excitement / nervousness / trembling
- Vomiting / diarrhea
- Excessive thirst / sometimes excessive urination
- Muscle spasms
- Seizures
- Coma (rare)
- Death (rare) -- likely due to heart rhythm abnormalities.

How is chocolate toxicity treated?

If you suspect that your pet has eaten chocolate (more than the stray chocolate chip that fell on the floor), call your veterinarian for advice. The toxicity of Theobromine is [dose dependent](#). This means that the size of your pet, the type of chocolate, and quantity of chocolate determine if or how toxic it is for your pet.

There is no specific antidote for Theobromine toxicity. Medical treatment is supportive, and may include all or some of the following:

- IV fluids - to prevent dehydration from vomiting, diarrhea, and /or increased urination, and to "flush" the Theobromine out of the system.
- Emetics - medications that induce vomiting. Used when the ingestion of chocolate is within 4 hours. Up to 6-8 hours post chocolate ingestion may be effective.
- Activated charcoal - for ingestion greater than 4 hours prior to treatment, or for patients that show continued signs of toxicity.
- Anti-seizure medications - for patients having seizures and/or muscle tremors.
- Cardiac medications - for patients exhibiting irregular heart rates or rhythms.