

Chocolate poisoning

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Readers may be intrigued to know that “man's best friend” may be at risk from one of our favourite treats—chocolate. The potential hazards to humans of eating too much chocolate are well known (obesity and dental caries to name but two), but you may be unaware that chocolate is potentially lethal to dogs.

Chocolate is derived from the roasted seeds of the plant *Theobroma cacao*, and the main toxic components are the methylxanthine alkaloids theobromine and caffeine. Humans can easily digest and excrete methylxanthines, the half life of theobromine being 2-3 hours. However absorption in dogs is slow, with metabolism in the liver and extrahepatic recirculation before excretion in the urine. The half life of theobromine in dogs is about 18 hours.

Theobromine primarily affects the central nervous system, cardiovascular system, and respiratory system, as well as having a diuretic effect. The first signs of poisoning in dogs include vomiting, haematemesis, and polydipsia. Other signs may include hyperexcitability, hyperirritability, tachycardia, excessive panting, ataxia, and muscle twitching. Effects may progress to cardiac arrhythmias, seizures, and death. Most symptoms will begin to appear within two hours of ingestion, but, as theobromine is metabolised slowly, it can take as long as 24 hours for them to appear and up to three days for recovery. Although there is no specific antidote, supportive management includes induction of vomiting and administration of activated charcoal, oxygen, and intravenous fluids.

The lethal dose of theobromine is reported to be 100-500 mg/kg of body weight in dogs. However, not all types of chocolate contain the same amount of theobromine: cocoa powder and plain chocolate contain the highest concentrations (20 mg/g and 15 mg/g), milk chocolate has much less (2 mg/g), and white chocolate has the lowest concentration (0.1 mg/g). Thus, less than 100 g of plain chocolate may be fatal for a 10 kg dog.

Although it is relatively safe to give your pet a small chocolate treat occasionally, all dogs are potentially at risk from chocolate, and the safer alternative is to give special “pet chocolate” that does not contain theobromine (but can still cause obesity).

As a final thought, keen gardeners who like to spread mulch on their garden in the spring and summer months should be aware that cocoa shell mulch also contains very high levels of theobromine (25 mg/g). As it has the characteristic chocolate smell it may be attractive to dogs but is potentially lethal.

Remember, dogs love chocolate as much as we do—keep boxes of chocolates, Easter eggs, and tins of cocoa out of paws' reach.
