

+ EMERGENCY ACTION GUIDELINES

FACTS

- Chocolate contains methylxanthines (theobromine and caffeine) which are toxic to dogs and cats
- Theobromine is the predominant toxin and the amount varies depending on the type of chocolate

Toxic doses of theobromine¹:

- 20mg/kg = mild signs (vomiting, diarrhoea, polydipsia)
- 40-50mg/kg = severe signs (cardiovascular)
- ≥60mg/kg = seizures
- LD₅₀ = 100-200mg/kg

LD50 (median lethal dose) is the amount of a substance that causes mortality in 50% of a group of animals.

TYPE OF CHOCOLATE	THEOBROMINE CONTENT ²
White chocolate	Insignificant (note: high sugar and fat content can cause GI upset +/- pancreatitis)
Milk chocolate	Very variable. Typically, 100-210 mg/100g. Refer to theobromine formula.
Dark or semi-sweet chocolate	530mg/100g
Unsweetened baking chocolate	1360-1600 mg/100g
Dry cocoa powder	2600mg/100g

FORMULA FOR THEOBROMINE CONTENT

1600 x % cocoa = theobromine in mg/100g
e.g. 65% chocolate is 1600 x 0.65 = 1040mg/100g

CLINICAL SIGNS

Clinical signs typically occur within 2-4 hours^{3,4} following ingestion, but may occur after 6-12 hours¹ and have been reported <1hr following ingestion⁵.

Initially:

- Vomiting, diarrhoea, abdominal discomfort +/- distention, restlessness, PUPD

Progression:

- Tremors, hyperactivity, ataxia, seizures, agitation, rigidity, tachycardia, arrhythmias (VPCs), tachypnoea, cyanosis, hypertension, hyperthermia, AKI, coma
- Occasionally bradycardia and hypotension

Death may occur as a consequence of hyperthermia, respiratory failure or cardiac arrhythmias.

SYMPTOMATIC

- Stabilize patient as required (see box below)
- Establish minimum database: PCV, TS, urea, creatinine, electrolytes, urinalysis (USG).
- Blood pressure and ECG

When possible, start gastrointestinal decontamination.

ASYMPTOMATIC

If a toxic dose has been consumed, gastrointestinal decontamination is indicated.

INDUCE EMESIS

Dogs: Emedog @ 0.1mg/kg SC

Cats: Alpha 2 agonist⁶

(Unless contraindicated or already vomited. Where emesis is contraindicated, such as patients who are sedated following anticonvulsant medication, consider gastric lavage)

ADMINISTER ACTIVATED CHARCOAL (AC)

Carbodote Prime: (AC + sodium sulphate), single administration. Methylxanthines undergo enterohepatic recirculation therefore this should be followed by...

Carbodote Repeat: (AC only), every 4-6 hours for up to 72 hours. (Refer to packaging for instructions on how much to administer)

CONSIDER THE BELOW AND TREAT AS NECESSARY

TREMORS/MILD SEIZURES	CARDIAC ARRHYTHMIAS	FLUIDS	SUPPORTIVE CARE
Tremors Ziepam (diazepam) 0.5-2mg/kg IV OR Methocarbamol 55-220 mg/kg, slow IV ⁷ (no more than 2ml/min) or 20-45mg/kg PO q8h (do not exceed 330mg/kg/day) ⁸ .	Monitor closely (including ECG) and treat cardiac dysrhythmias appropriately.	IV crystalloids should be given to reduce renal damage secondary to rhabdomyolysis.	Urinary catheterisation - may be useful to increase clearance of methylxanthines as reabsorption can occur across the bladder wall ¹ .
Seizures Ziepam (diazepam) @ 0.5mg/kg slowly IV (up to 3 times, at least 10 minutes apart).	Tachycardia - β blockers e.g., metoprolol (0.5-1mg/kg PO q8h in dogs or 0.2-0.4 mg/kg slow IV) or propranolol (0.02-0.08 mg/kg, slow IV).	Fluid diuresis may assist in stabilizing cardiovascular function and hastening urinary excretion of methylxanthines.	Hyperthermia - check temperature and treat aggressively. - Rapid resolution expected once tremors/seizures are under control and IV fluids administered. - Monitor for subsequent hypothermia in a sedated or inactive patient.
	Bradycardia - Atropine (0.01-0.03mg/kg IV).	Correct any acid-base and electrolyte abnormalities.	Advanced - haemoperfusion or haemodialysis can also increase methylxanthine clearance.
	Premature ventricular contractions should be treated with lidocaine (initially slow IV) bolus of 2-8mg/kg in dogs followed by a CRI of 0.025-0.1mg/kg/min ⁸		

+ USEFUL CONTACTS

DÔMES PHARMA

Your partner in poisoning.

www.domespharma.co.uk | T 0800 0385868 | E help@domespharma.com

VETERINARY PATHOLOGY GROUP

Toxicology testing.

www.thevpg.co.uk | T 0113 2870175

VETERINARY POISONS INFORMATION SERVICE (VPIS)

Dedicated poisoning information service.

www.vpisglobal.com | T 0207 30 55 055

TOX BOX/ELIXIR SERVICE

Immediate access to emergency poisoning products.

www.vpisglobal.com | T 0207 30 55 055

+ PRODUCTS

EMEDOG

- Veterinary licensed apomorphine for dogs
- Packs of 5 or 20x 1ml vials, with a 4-year, unopened shelf life

ZIAPAM

- The first veterinary licensed injectable diazepam for dogs and cats
- Packs contain 6 x 2ml vials of 5mg/ml



+ DON'T FORGET ACTIVATED CHARCOAL!

- Activated charcoal helps in the adsorption of multiple undesirable substances⁹
- Available as liquid or gel
- Repeated administrations will be required for substances that are enterohepatically recycled
- Take a look at our range of activated charcoals

THE
CARBODOTE
RANGE

Carbodote is a complementary feed.