



# PET POISON HELPLINE

SAVING PETS' LIVES, 24 HOURS A DAY, 7 DAYS A WEEK



## Know When to Feast and When to Fret: Foods Toxic to Pets October 7, 2014

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&

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Dept. Veterinary Biomedical Sciences

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# Did you know?

- The incidence rate of our top three toxicities in small animals
- In 2013 VPI Pet Insurance received

## Methyxanthine toxicity (chocolate, caffeine)

- # of Pets = 1018
- Avg. Cost per Pet = \$356
- Total Fees Submitted=\$362,662

## Poisoning of plant origin (incl nuts, grapes, onions, garlic, avocado)

- # of Pets = 950
- Avg. Cost per Pet = \$565
- Total Fees Submitted=\$536,741



## VPI<sup>®</sup> and Pet Poison Helpline<sup>®</sup> working together

- Shared mission in highlighting the importance of preparing for accidents and poisonings in small animals
- Addressing the cost of veterinary care
  - VPI covers the \$39 Pet Poison Helpline fee when a pet is brought in to your hospital for care
- Enabling best medicine
  - Pet owners with VPI pet insurance spend 60% more on veterinary care than those without pet insurance



# VPI® and Pet Poison Helpline® working together

➤ Providing veterinary reviewed pet health information online

- [www.petpoisonhelpline.com/owners](http://www.petpoisonhelpline.com/owners)
- [www.petinsurance.com/healthzone.aspx](http://www.petinsurance.com/healthzone.aspx)

➤ Providing complimentary pet owner educational materials for your practice – available for ordering

- First Aid for Your Pet brochure
- Poisoning Emergencies brochure
- Toxins in the Kitchen stickers
- Toxic Human Meds stickers
- Emergency Numbers stickers

**VPI PET INSURANCE**  
A Nationwide Insurance® company

1-855-228-5201

**Toxic Food Guide for Pets**  
What Not to Feed Dogs and Cats

Dogs and cats are curious by nature, particularly when it comes to food. They're also very good at learning a taste of whatever it may be eating or drinking. As cute as they may be, though, our pets can't always stomach the same foods as us — some food can be toxic and even deadly to their health.

Use this toxic food list as a guide to preventing accidental toxic exposure to your four-legged companion.

**Alcohol**  
Alcohol is rapidly absorbed into the bloodstream and affects pets quickly. Ingestion of alcohol can cause dangerous drops in blood sugar, blood pressure and body temperature. Intoxicated animals can experience seizures and respiratory failure. Desserts containing alcohol or yeast-containing dough are often the unlikeliest culprits.

**Caffeine**  
Coffee, tea, energy drinks, dietary pills or anything containing caffeine should never be given to your pet, as they can affect the heart, stomach, intestines and nervous system. Symptoms include restlessness, hyperactivity, muscle twitching, increased urination, excessive panting, increased heart rate and blood pressure levels and seizures.

**Chocolate**  
Different types of chocolate contain various levels of fat, caffeine and the substances methylxanthines. In general, the darker and richer the chocolate (i.e., baker's chocolate), the higher the risk of toxicity. Depending on the type and amount of chocolate ingested, dogs may experience vomiting, diarrhea, urination, hyperactivity, heart arrhythmias, tremors and seizures. Learn about [chocolate toxicity](#).

**Fatty Foods**  
Foods that are high in fat can cause vomiting and diarrhea. Pancreatitis often follows the ingestion of fatty meal in dogs. Certain breeds like miniature schnauzers, Shetland sheepdogs, and Yorkshire terriers appear to be more susceptible to a bout of pancreatitis than other breeds. Fight the temptation to share fat food leftovers, junk food or foods cooked in grease with your dog.

**Fat Trimmings and Bones**  
Table scraps often contain meat fat that a human didn't eat and bones. Both are dangerous for dogs. Fat trimmed from meat, both cooked and uncooked, may cause pancreatitis in dogs. And, although it seems natural to give a dog a bone, a dog can choke on it. Bones can also splinter and cause an obstruction or lacerations of your dog's digestive system. Watch this vet video about [pops and bones](#).

**Fruit Toxins**  
The specific problem with persimmons, peaches, and plums are the seeds or pits. The seeds from persimmons can cause inflammation of the small intestine in dogs. They can also cause intestinal obstruction, a good possibility if a dog eats the pit from a peach or plum. Plus, peach and plum pits contain cyanide, which is poisonous to both humans and dogs should the pit be broken open and consumed.

**Top Human Meds Toxic to Pets**

1. Pain relievers (e.g. Advil®, Aleve®, Motrin®, Tylenol®)
2. Antidepressants (e.g. Zoloft®, Cymbalta®, Effexor®)
3. ADD/ADHD medications (e.g. Ritalin®, Vyvanse®)
4. Sleep aids (e.g. Xanax®, Ambien®, Lunesta®)
5. Muscle relaxants (e.g. Lioresal®, Flexeril®)
6. Heart medications (e.g. Carislo®, Cardizem®)

Saving pets' lives... 24 hours a day, 7 days a week  
A \$10 fee is added to the Poison Helpline. PetPoisonHelpline.com

866-VET-PETS (666-838-7387)  
petinsurance.com  
The #1 Veterinarian Recommended Pet Health Insurer

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**PET POISON HELPLINE**  
800.213.6680

www.petpoisonhelpline.com

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**TOP 10 TOXINS in the kitchen**

1. Chocolate
2. Grapes, raisins, & currants
3. Xylitol/sugar-free gum/sticky
4. Fatty table scraps
5. Onions & garlic
6. Compost
7. Human medications
8. Macadamia nuts
9. Household cleaners
10. Unbaked bread dough/alcohol

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A \$10 fee is added to the Poison Helpline. PetPoisonHelpline.com

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# Introduction



Ahna G. Brutlag, DVM,  
MS, DABT, DABVT

Associate Director

Pet Poison Helpline  
Minneapolis, Minnesota

# Pet Poison Helpline

- Animal poison control
  - 24/7 availability
  - \$39 one-time fee/case
  - Unlimited case follow-up
  - Access to multiple specialists (DVM and others)
    - Board-certified veterinary toxicologists (DABVT, DABT)
    - Emergency/Critical Care (2 DACVECCs)
    - Internal Medicine (DACVIM)
    - Herpetology
    - PharmDs/clinical pharmacologists

# Who are we?

- Pet Poison Helpline (PPH)
  - Staffed by veterinary specialists, veterinarians and veterinary professionals
  
- SafetyCall International (SCI)
  - 24/7 human and animal poison control center
  - World's largest industry poison control
  - Staffed by human medical staff and veterinary professionals
  
- Call volumes
  - Over 1 million cases managed!





# Goal of this webinar

- Review the most common toxic human foods:
  - Chocolate
  - Grapes/raisins/currants (*dogs*)
  - Unbaked bread dough
  - Xylitol (*dogs*)
  - Avocado (*birds*)
  - Macadamia nuts (*dogs*)
  - Onions/garlic
  - Spicy surprises!





# Soy sauce overdose sends man into coma



By Tia Ghose · Published June 07, 2013



A young man who drank a quart of soy sauce went into a coma and nearly died from an excess of salt in his body, according to a recent case report.

<http://www.foxnews.com/health/2013/06/07/soy-sauce-overdose-sends-man-into-coma/>



# If you only learn one thing today...

- It's OK to induce vomiting hours out with certain food toxicants (e.g., grapes, raisins, chocolate, xylitol)
- Don't give activated charcoal unless indicated (not with xylitol or alcohol poisoning!)
- Look for xylitol in ANY commercial human food/vitamin/oral care product

**ALCOHOL!**

# Alcohol

- Sources:
  - Alcoholic drinks!
  - Bread dough with yeast
  - Rum raisin bread! Desserts with alcohol (uncooked)
  - Rarely, household items
    - Hand sanitizers, cleaners, etc.



# Alcohol

- Rapidly absorbed!
- Clinical signs:
  - Lethargy
  - Ataxia/weakness
  - Hyper- or hypo-thermia
  - Hypoglycemia
  - Hypotension
  - Seizures (r/o hypoglycemia)
  - Respiratory failure
- Ingestion of dough: GI obstruction, bloat, GDV
  - Vomiting, diarrhea, non-productive retching



# Alcohol

- Treatment:
  - Supportive
  - Temperature and blood glucose regulation
  - IV fluids + dextrose CRI
  - Neurologic and respiratory support
  - Treatment for bloat/GDV
    - Emesis induction?
    - Cold water gastric lavage vs. surgery

# AMUSE BOUCHE



# Macadamia nuts

- *Macadamia integrifolia* and *Macadamia tetraphylla*
- Madagascar, Australia, Hawaii, California
- Macadamia nuts contain up to 80% oil and 4% sugar.



# Macadamia nuts



- Toxic dose: > 2 grams/kg
  - 1 nut = 2-3 grams
- The toxic mechanism is unknown but the proposed effect may involve motor neurons, neuromuscular junctions, muscle fibers or neurotransmitters.
- Clinical signs:
  - 3-6 hours: Lethargy, vomiting, and hyperthermia
  - 6-12 hours: Hind limb weakness, ataxia, tremors, recumbency
  - May also see signs of abdominal pain, lameness, joint stiffness, pale mucus membranes.

# Macadamia nuts

- Time to onset of symptoms: <12 hours
- Duration of symptoms : Generally < 48 hours
- Treatment:
  - Supportive! No antidote.
  - Monitor temperature, hydration
  - Risk for pancreatitis
    - ↑ lipase, WBC



# FRUIT PLATE

# Grapes and raisins

- Idiosyncratic?
  - Seedless, seeded, & organic problematic!
  - Cooked raisins less problematic?
  - Raisin paste?
  - Raisin juice? Grape juice?
  - Grape seed extract non-toxic
- **NO KNOWN TOXIC DOSE!**
  - Speculations on VIN



## It's Not Just Grapes and Raisins

***Vitis* spp.** (grape family,  
nephrotoxic)



***Ribes* spp.** (NOT related to  
grapes)





# *Vitis* spp.- Treatment

- Appropriate monitoring
  - Blood pressure
  - Urine output
    - Measuring ins and outs
    - Normal: 1-2 ml/kg/hour
    - Oliguria (0.5-1.0 ml/kg/hour) or anuria (<0 .5 ml/kg/hour)
- Monitoring baseline blood work
  - Presentation: CBC, chemistry, UA, USG
  - Recheck PCV/TS (goal: 35%/5), renal panel q. 24 X 2-3 days; repeat 2-3 days post-discharge
- If no signs or lab abnormalities by 48 hrs, wean and send home! Recheck renal panel in 2 days.



# Grapes/Raisins/Currants

- Clinical signs:
  - Vomiting 1-3 hours post-ingestion
    - Negative prognostic indicator?
  - Diarrhea (intact fruit!)
  - CNS depression
  - ARF
- Diagnosis:
  - History
  - Grapes/raisins in stool/vomit
  - ↑BUN, creatinine, Ca, P
  - Oliguria (0.5-1.0 ml/kg/hour) or anuria (<0.5 ml/kg/hour)
  - Must get USG *prior* to any fluids!

# Vitis spp. - Treatment

- Aggressive decontamination
  - Delayed emesis is OK
  - Activated charcoal with cathartic X 1
- Fluid therapy
  - Vasodilate renal vessels
    - Appropriate hemodilution is PCV/TS: 35%/5
  - Flush renal tubules
  - 24-48 hours
- Gastrointestinal support:
  - Anti-emetics (e.g., maropitant, ondansetron, metoclopramide)
  - Phosphate binders (e.g., aluminum hydroxide)
  - H<sub>2</sub> blockers (if azotemic)
  - Sucralfate (if azotemic)

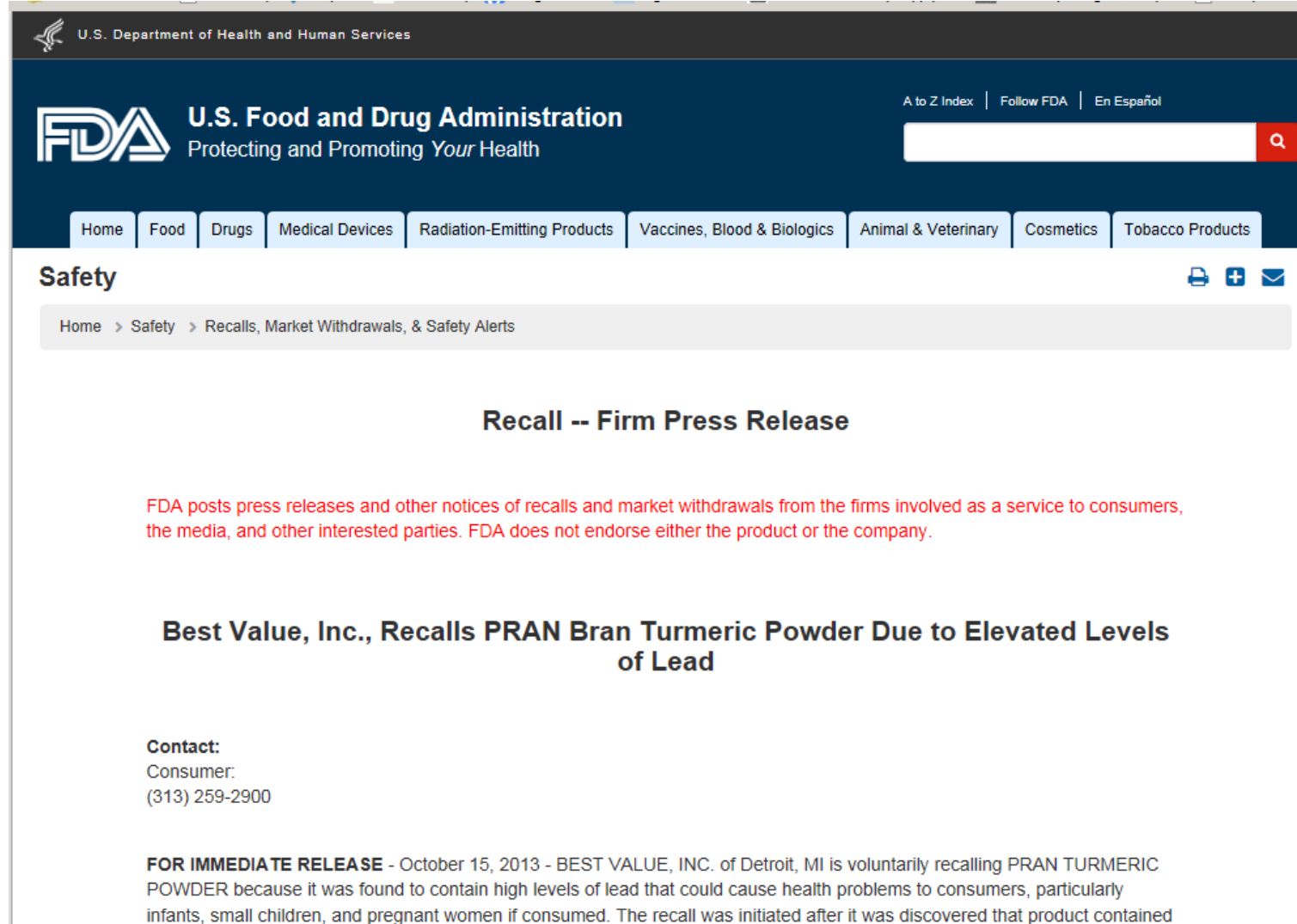
# Avocado (*Persea americana*)

- This one's for the **birds!**
- Toxin = persin
  - Hydropericardium, SQ edema, generalized congestion
- **1 mL is fatal to a budgie in 1-2 days**
- Limited risk to cats/dogs
  - Pancreatitis from high fat content
  - Obstruction from pit (seed)
- Nonseptic mastitis: Rabbits, horses, cattle, sheep, goats
  - Large doses lethal in goats



**ENTRÉE**

# Oct, 2013: FDA Spice Recall



U.S. Department of Health and Human Services

**FDA** U.S. Food and Drug Administration  
Protecting and Promoting *Your* Health

A to Z Index | Follow FDA | En Español

Home | Food | Drugs | Medical Devices | Radiation-Emitting Products | Vaccines, Blood & Biologics | Animal & Veterinary | Cosmetics | Tobacco Products

## Safety

Home > Safety > Recalls, Market Withdrawals, & Safety Alerts

### Recall -- Firm Press Release

FDA posts press releases and other notices of recalls and market withdrawals from the firms involved as a service to consumers, the media, and other interested parties. FDA does not endorse either the product or the company.

#### Best Value, Inc., Recalls PRAN Bran Turmeric Powder Due to Elevated Levels of Lead

**Contact:**  
Consumer:  
(313) 259-2900

**FOR IMMEDIATE RELEASE** - October 15, 2013 - BEST VALUE, INC. of Detroit, MI is voluntarily recalling PRAN TURMERIC POWDER because it was found to contain high levels of lead that could cause health problems to consumers, particularly infants, small children, and pregnant women if consumed. The recall was initiated after it was discovered that product contained

# CASE OF THE DOPEY DOG

# Gummy Vitamins

- 4 yo, 7 kg, MN, Jack Russell Terrier
- Ingested up to 50 gummy multivitamins
- Problem?
  
- Owner tells you dog is “**comatose**”
  
- Now is it a problem?!



# Gummy Vitamins

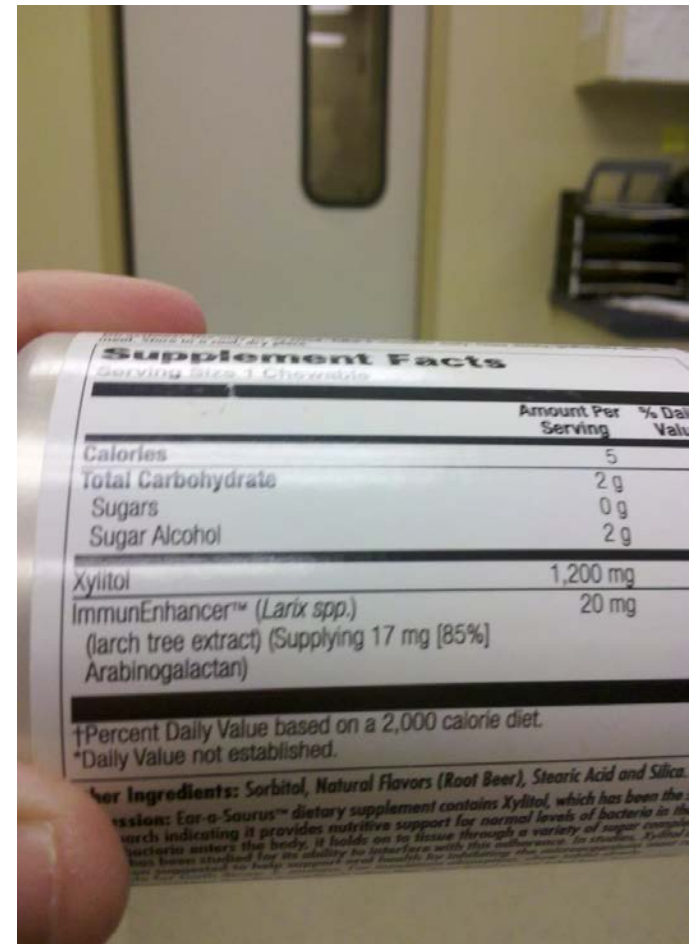
- Presentation
  - Ataxic, weak, mild hypothermia
  - Labs
    - Blood glucose = 43!
    - Remainder WNL
- Thoughts?

# Gummy Vitamins

- Hospitalized on 5% dextrose CRI
- 24 hrs after admission
  - PT = 100+ sec (7-17 sec)
  - ALT = 4,000 U/L



1,200 mg xylitol per chew!



# Gummy Vitamins

- 1,200 mg x 50 vitamins = 60 **grams**
- Dosage = 8.5 **grams**/kg
- Level of concern in *healthy* dogs
  - 0.075 to 0.1 **grams**/kg for hypoglycemia
  - 0.5 **grams**/kg for liver failure (idiosyncratic reaction possible)
- 5 days post: Doing well!
  - Coags WNL, ALT 500 U/L

# Xylitol

- Naturally occurring, 5-carbon sugar
- Uses:
  - Sugar substitute in food, chewing gum, breath mints
  - Aids in dental plaque prevention
  - Sold in bulk form for baking
- Is not the same as Equal<sup>®</sup>, Splenda<sup>®</sup>, NutraSweet<sup>®</sup>
- Warning words:
  - 100% xylitol, “all xylitol”
  - Sugar free, “natural sweeteners”
  - Hint: If xylitol is in the first 5 ingredients, use caution!

# What do all these products have in common?



# MOA / Species sensitivity

- MOA: metabolized intracellularly to D-xylulose which is metabolized via pentose-phosphate pathway. The PPP is thought to control insulin release
- Xylitol stimulates insulin release from pancreas. Dogs are a sensitive species (as are goats, cows, rabbits and baboons)
- Xylitol's effect on insulin release and BG in cats and ferrets is unknown

# Xylitol MOA

- In dogs peak concentrations occur in about 30 minutes – absorbed rapidly and almost completely
- MOA for liver necrosis is not known. Possibly related to depletion of ATP during metabolism and/or production of reactive oxygen species



# Xylitol - Clinical signs

- Profound hypoglycemia within 10-15 minutes ( $\pm$  delayed 6-8 hrs)
  - **> 0.1 g/kg xylitol**
  - Ataxia, vomiting, weakness, twitching
- Potential liver failure (acute hepatic necrosis)
  - **> 0.5 g/kg xylitol**
  - Anorexic, icterus, vomiting, diarrhea, melena
  - Hypoglycemia, increased LFT, hypocholesterolemia, decreased BUN

# Xyitol: Treatment

- Emesis only if patient is asymptomatic / has normal blood glucose
- Obtain baseline BG, potassium, and liver enzymes
- Monitor BG q 1-2 hours for at least 12 hours. Recheck in 24 hours.
- Recheck liver enzymes in 1-2 days

# Xylitol: Treatment

- If **hypoglycemia** occurs give 1 ml/kg 50% dextrose diluted 1:3 given over one minute, followed by 2.5% or 5% dextrose CRI in maintenance fluids
- If **hepatotoxic** dose is ingested:
  - Give dextrose *immediately* (may be beneficial if ATP depletion is MOA for liver toxicity)
  - Give liver protectants and antioxidants such as NAC, SAM-e, Marin, Nutramax and/or vitamin E and vitamin C
  - Plasma transfusions, blood transfusion or both may be need if a coagulopathy develops, vitamin K1, fluids (**0.45%** saline with 2.5% dextrose), symptomatic and supportive care

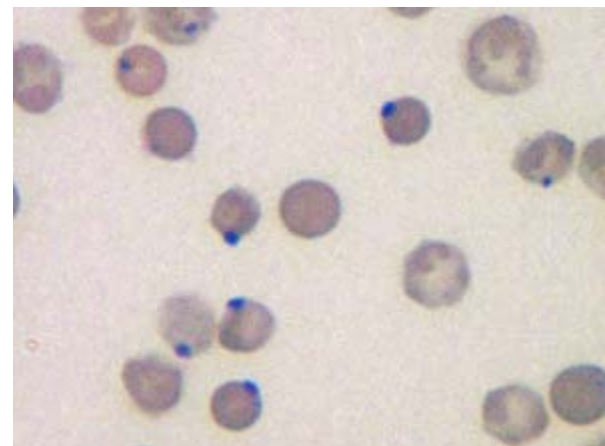
# VEGGIE PLATTER

# Onions/garlic/leek/chives

- *Allium* spp.
- Toxins: Disulfides and thiosulfates
- Ingestions > 5 g/kg onions in cats and 15-30 g/kg in dogs results in clinical hematological changes
  - Cats more susceptible as they have 8 sulfhydryl groups on RBC (dog has 4)
  - Breed sensitivity: Akita, Shiba Inu, Jindo
- MOA: results in oxidative hemolysis → hemoglobinuria, hemoglobinemia, urinary casts, methemoglobinemia, and Heinz body anemia

# Onions/garlic/leek/chives

- Clinical signs:
  - Abdominal pain/vomiting/diarrhea (<12 hrs)
  - Pallor
  - Tachycardia
  - Tachypnea (hypoxia)
  - Icterus (rare)
  - Hemoglobinemia, hemoglobinuria, eccentrocytosis (RBC that lack central pallor)
  - Heinz body anemia (1-5 days)
  - Methemoglobinemia
- Treatment:
  - Decontamination (e.g., emesis + charcoal 1X)
  - Anti-emetics
  - Fluid therapy (e.g., SQ or IV)
  - PCV & blood smear, monitor q 1-3 days
  - Transfusion (PCV <20%)



# DESSERT

# Chocolate

- 50% of all food calls to PPH!
- Contains naturally occurring methylated xanthine alkaloids (methylxanthines)
  - Theobromine
  - Caffeine
  - **MOA: Adenosine antagonist**
- Found in cacao beans, the seeds of the *Theobroma cacao* plant





# Chocolate

- Stays in the stomach for a long time!
  - Slows gastric emptying (up to 12 hours)
- Delayed emesis = OK
  - 4-6 hrs post-ingestion have been successful
- Long  $T_{1/2}$ : 17 hours (theobromine)
- May need to treat/observe for 72-96 hours

# Chocolate

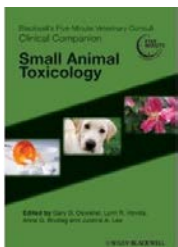
- When do you see signs? (theobromine)
  - Mild signs (agitation, GI, PU/PD): 20 mg/kg
  - Moderate signs (cardiotoxicity): 40-50 mg/kg
  - Severe signs (neurotoxicity): 60 mg/kg
  
- Clinical signs:
  - *Chocolate* vomiting
  - *Chocolate* diarrhea
  - Polyuria
  - Agitation/hyperactivity
  - Hyperthermia
  - Cardiac arrhythmias (tachycardia, VPCs)
  - Tremors
  - Seizures

# Chocolate

- Methylxanthines (theobromine and caffeine) = toxic component:

Product	Theobromine	Caffeine
White chocolate	0.25 mg/oz	0.85 mg/oz
Milk chocolate	44-60 mg/oz	6 mg/oz
Dark semisweet	135 mg/oz	20 mg/oz
Unsweetened baker's chocolate	390-450 mg/oz	47 mg/oz
Dry cocoa powder	400-737 mg/oz	70 mg/oz
Cocoa beans	300-1500 mg/oz	
Cocoa bean mulch	56-900 mg/oz	

**Source:** Blackwell's Five-Minute Vet Consult, Clinical Companion: Small Animal Toxicology, 2011



# Chocolate: Treatment

- Supportive
- IV fluids + frequent walks to keep bladder empty
- Temperature monitoring
- Anti-emetics/pro-kinetics
  - Maropitant: 1 mg/kg SQ q. 24
  - **Metoclopramide**: 0.1-0.4 mg/kg q. 6 SQ, IM or 1-2 mg/kg/day as CRI IV
    - Prokinetic effect!
  - Ondansetron/dolasetron

# Chocolate: Treatment

- ECG monitoring
- If agitated, tachycardic → sedation:
  - Acepromazine: 0.05 mg/kg IV PRN, titrate up
    - #1 side effect is hypotension
  - Torbugesic: 0.1-0.4 mg/kg IV PRN
- Beta-blocker therapy
  - Esmolol: 0.25-0.5 mg/kg IV bolus, followed by CRI of 10-200 mcg/kg/min
    - Tip: Give acepromazine first as this often brings down heart rate
- Anti-convulsant therapy
  - Diazepam: 0.25-0.5 mg/kg IV PRN
  - Phenobarbital: 4-16 mg/kg IV PRN

# DIGESTIVE

# Can you eat too much cream of tartar?

- Cream of tartar = potassium bitartrate
- 2 males: 16 & 32 yrs old
- Want to “clean themselves out”
  - 6 tablespoons ingested
- 4 hrs later, severe nausea & vomiting
  - Labs: K = 8-9 mmol/L
  - ECG: Flattened P waves, peaked T waves
- Treatment: Ca, dextrose, insulin, NaHCO<sub>3</sub>, sodium polystyrene sulfonate (PO)



# If you only learn one thing today...

- Don't believe a 16 yr old's instructions for "cleaning yourself out"!
- It's OK to induce vomiting hours out with certain food toxicants (e.g., grapes, raisins, chocolate, xylitol)
- Don't give activated charcoal unless indicated (not with xylitol or alcohol poisoning!)
- Look for xylitol in ANY commercial human food/vitamin/oral care product



# When in doubt, call for the bad ones

- Something you're not familiar or comfortable with!
  - Oliguric or anuric
  - Severe clinical signs
  - Animals with preexisting disease
  - Multiple food/drug ingestions



SAVING PET'S LIVE 24 HOURS A DAY, 7 DAYS A WEEK

PET POISON HELPLINE

# 2014 PPH Free Webinars



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### PLANTS POISONOUS TO SMALL ANIMALS

 Date: April 1, 2014

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### FOODS TOXIC TO PETS

 Date: October 7, 2014

### TEACHING MOMENTS IN TOXICOLOGY

 Date: December 2, 2014

ALL WEBINARS WILL BE GIVEN AT AND PRESENTED BY:

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# Tox goodies!



**WHEEL OF VOMIT**

For assistance with a patient, call Pet Poison Helpline at **800-213-6680** 866-VET-4VPI (866-838-4374)

Hydrogen peroxide, 3% (Dose: 1 mL/kg PO)  
Dose listed in mL (FOR DOGS ONLY)

Apomorphine (Dose: 0.02 mg/kg IV)  
Dose listed in mg (FOR DOGS ONLY)

**WHEEL OF VOMIT**

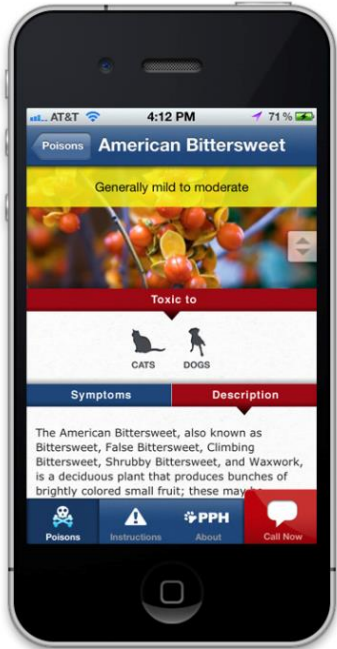
Aspirated charcoal dose (Dose: 1 g/kg PO)  
Dose listed in grams (FOR DOG)

Activated charcoal (Dose: 5 grams/kg PO)  
Dose listed in grams (FOR DOG)

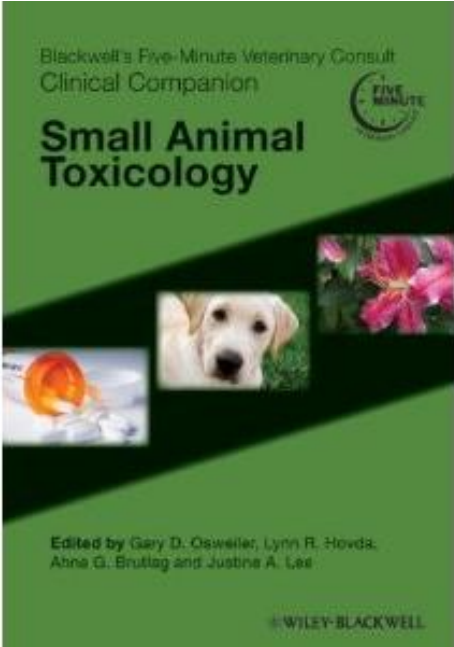
**WEIGHT OF DOG IN POUNDS**

©2010 Veterinary Poison Control Services, National Poison Control System, National Animal Poison Control Center, 1107 58th Street, Decontamination should only be performed when appropriate. When in doubt, Pet Poison Helpline should be consulted. This calculator should be used as a guideline only. Doses should be based on lean body weight. Please be aware there are ranges in dosing and additional dosing may be necessary. Dosing for hydrogen peroxide, 3% in dogs: Give 1 mL/kg PO. If necessary in 5-10 minutes give 2 mL/kg PO. Do not exceed 6 mL/kg PO total. When you should not induce emesis: asymptomatic patient, risk of aspiration pneumonia, certain toxicants (e.g. hydrocarbons, corrosives, etc). Emetics that are no longer recommended: syrup of ipecac, salt, mustard. Activated charcoal is not recommended following ingestion of specific toxicants such as corrosives, ethylene glycol, heavy metals, hydrocarbons, xylitol, paint balls, salt, etc.

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## CE credit FAQs

1. **When will I get my CE certificate?** We'll email it to you within 24 hrs.
2. **I attended the webinar but wasn't the person who logged in. Can I still get interactive CE credit?** Yes. Send your name and email address to [info@petpoisonhelpline.com](mailto:info@petpoisonhelpline.com) by 1pm central time, Oct 8, 2014 (strict deadline).
3. **Can I watch the recorded webinar online for CE credit?** Yes. You can receive non-interactive CE credit. Go to the "For Vets" page on our website, [www.petpoisonhelpline.com](http://www.petpoisonhelpline.com) for more info.

Comments? Questions? Email us! [info@petpoisonhelpline.com](mailto:info@petpoisonhelpline.com)

