

Toxicology Talk



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Jennifer worked in a small animal practice for 6 years before considering toxicology. She went to Joliet Junior College for her associate's degree in veterinary medical technology, graduated in May 2010, and became a certified veterinary technician by August 2010. She has been with the ASPCA Animal Poison Control Center for a little over 5 years. Jennifer has written several protocols for her workplace and articles for an online veterinary magazine, as well as being an active board moderator on the Veterinary Support Personnel Network (VSPN).

In her spare time, Jennifer likes to garden, craft, and spend time with friends and family. When Halloween season comes around, she is also an actor/makeup artist for a local haunted house. Jennifer and her husband Tom celebrated their first wedding anniversary in June 2016.

Top 10 Toxins That Are Rarely Serious

Each day, the ASPCA Animal Poison Control Center (APCC) receives calls from panicked pet owners asking what they should do after their pets have ingested a potentially dangerous substance. The following are some very common exposures that may sound serious but rarely cause any significant clinical signs. Some recommendations for treatment—if needed—are included.



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ANT AND ROACH BAIT TRAPS

Exposures to bait traps are reported frequently in dogs and occasionally in cats. The baits contain peanut butter, breadcrumbs, sugar, and other sweeteners that act as attractants for roaches and ants. Dogs, cats, ferrets, house rabbits, and pet pigs may also be attracted to the baits. Some common insecticides used in these traps

include boric acid, chlorpyrifos, fipronil, indoxacarb, abamectin, and hydramethylnon.¹⁻³ Bait traps have very low concentrations of insecticides and have a wide margin of safety in dog and cat exposures. Bait traps usually weigh around 0.06 oz, which is less than the weight of a penny. Gastrointestinal (GI) upset is the most common clinical sign seen when these baits are ingested. Life-threatening clinical signs are not expected; however, some dogs may eat the plastic or metal bait casing, which could lead to a foreign body obstruction.



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GLOW STICKS AND JEWELRY

Glow sticks, bracelets, and necklaces are very popular. Cats are especially attracted to glow jewelry, and children may use the jewelry as a toy when playing with their cats. Many pet owners get concerned when their pets bite the jewelry because the liquid that makes it glow, dibutyl phthalate, is very bitter. It can cause an intense taste reaction, and

since pets cannot spit, they drool and foam at the mouth. Some animals display erratic behavior while trying to run away from the taste. In reality, dibutyl phthalate is safer than many common household cleaners. If the pet has been brought to the clinic, the mouth should be gently flushed and the pet given something to eat to mask the bitter taste.

Glow sticks contain dibutyl phthalate, which is very bitter and can cause an intense taste reaction. Since pets cannot spit, they drool and foam at the mouth. However, dibutyl phthalate is safer than many common household cleaners.

Owners can be instructed to treat the pet at home by providing something tasty to eat or drink. Some animals can also develop GI upset when the liquid is ingested. To be sure a pet is not reexposed through grooming (at home or in the clinic), the animal can be placed in a dark room to detect any glowing liquid on the coat. If present, the liquid should be wiped off with a damp cloth or the pet can be bathed. Additionally, if plastic was ingested, the pet should be monitored for foreign body obstruction.



POINSETTIA
(*EUPHORBIA PULCHERRIMA*)

This plant is commonly used as a decoration around the winter holidays, and many people falsely believe it is deadly. The myth of the "deadly" nature of

poinsettia evolved from a single case report in the medical literature from 1919. The article suggested that a toddler died after eating a couple poinsettia leaves, when in fact the child had eaten many other plants as well. When cats and dogs ingest poinsettia, it can irritate their oral mucous membranes. Drooling and GI upset are common clinical signs in dogs and cats. Treatment includes managing vomiting and diarrhea, and all signs are expected to resolve within 24 hours (assuming no repeated exposures). Most pet owners can manage poinsettia ingestions at home.



SILICA GEL

Silica gel packets typically are labeled "do not eat" because silica gel is not a food source; however, ingestion is not expected to cause serious clinical signs. Silica gel packets are found in items such as shoes, purses, and medication bottles. They vary in size and usually contain gel beads. Silica gel is designed to absorb moisture and keep products from developing mold or mildew. When ingested, silica gel is poorly absorbed by the GI tract. These beads can draw moisture into the GI tract, causing some vomiting and/or diarrhea. If the entire packet was ingested, it could cause the same clinical signs as well as foreign body obstruction.

DEOXIDIZERS

While many people think deoxidizers are the same as silica gel packets, they contain different materials. Deoxidizers are placed in packaged food products such as beef jerky and semi-moist dog and cat treats. They can also be found in

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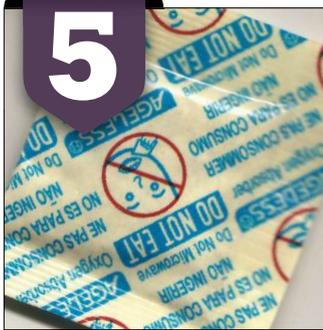
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other items, such as medication bottles. They are used to remove oxygen from the surrounding area to prevent mold, mildew, rust, color change, and staleness.

Deoxidizer packets usually contain iron in addition to activated charcoal and carbon. When the packets are exposed to room air, oxygen oxidizes the iron. Iron oxide is inert, and significant toxicity is not expected.⁴ Mild, self-limiting GI signs may develop after ingestion. The animal's stool may be darker in color from the iron and activated charcoal. Ingestion of packaging can potentially cause foreign body obstruction.

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WOODEN PENCILS

Number 2 pencils, commonly used in elementary school, are what most people associate with the term *pencil*. Despite what most people think, wooden pencils contain graphite, not lead.

During the 20th century, paint used for the outer coating on the pencil contained high amounts of lead. Today, there is no lead in pencils.

GI upset is commonly seen with these exposures. If pieces of wood or the metal ferrule that attaches the eraser were ingested, foreign body obstruction may be a concern as well.

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GLUE TRAPS

Glue traps are made to trap small rodents, insects, and other small pests. The glue traps themselves contain no poison, but some owners may add a rodenticide to the trap, which is a separate concern. If traps

are chewed or ingested, they can cause some mild GI upset and possible foreign body obstruction.

If the trap gets stuck to an animal's fur, using scissors or clippers to remove longer fur also removes the trap. Care must be taken to avoid cutting the pet's skin. An oily substance (e.g., olive oil, mineral oil) can be used to

TECHPOINT

If an animal drinks treated toilet water, colloquially known as *toilet bowl cocktail*, mild GI upset can develop. If the animal ingested the actual toilet tablet or undiluted liquid, more significant signs, such as oral ulcers, may develop.

loosen the trap, and then the animal can be bathed with liquid hand dishwashing soap to remove the oil. Solvents should not be used to dissolve the glue because they are significantly more toxic than the glue.

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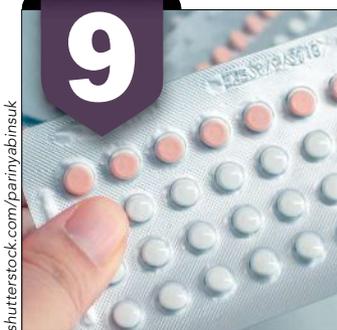
TOILET WATER

Treated toilet water can upset an animal's stomach when ingested. Tablets, clings, and liquids are some products that can be placed into the toilet bowl or tank to treat the water. Some common ingredients

found in these products are calcium hypochlorite, sodium hypochlorite, and anionic and nonionic surfactants. The volume of water in the toilet dilutes the product.

If an animal drinks treated toilet water, colloquially known as *toilet bowl cocktail*, mild GI upset can develop. However, if the animal ingested the actual toilet tablet or undiluted liquid, more significant signs, such as oral ulcers, may develop.

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BIRTH CONTROL PRODUCTS

Exposure to birth control products is very common and rarely results in significant clinical signs. Birth control comes in different forms. Pills are most common; a vaginal ring is also available.

revolution®

(selamectin)

Topical Parasiticide For Dogs and Cats

BRIEF SUMMARY:
See package insert for full Prescribing Information.

CAUTION:
US Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS:
Revolution is recommended for use in dogs six weeks of age or older and cats eight weeks of age or older for the following parasites and indications.

Dogs:
Revolution kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (*Ctenocephalides felis*), prevention of heartworm disease caused by *Dirofilaria immitis*, and the treatment and control of ear mite (*Otodectes cynotis*) infestations. Revolution also is indicated for the treatment and control of sarcoptic mange (*Sarcoptes scabiei*) and for the control of tick infestations due to *Dermacentor variabilis*.

Cats:
Revolution kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (*Ctenocephalides felis*), prevention of heartworm disease caused by *Dirofilaria immitis*, and the treatment and control of ear mite (*Otodectes cynotis*) infestations. Revolution is also indicated for the treatment and control of roundworm (*Toxocara cati*) and intestinal hookworm (*Ancylostoma tubaeforme*) infections in cats.

WARNINGS:
Not for human use. Keep out of the reach of children.

In humans, Revolution may be irritating to skin and eyes. Reactions such as hives, itching and skin redness have been reported in humans in rare instances. Individuals with known hypersensitivity to Revolution should use the product with caution or consult a health care professional. Revolution contains isopropyl alcohol and the preservative butylated hydroxytoluene (BHT). Wash hands after use and wash off any product in contact with the skin immediately with soap and water. If contact with eyes occurs, then flush eyes copiously with water. In case of ingestion by a human, contact a physician immediately. The material safety data sheet (MSDS) provides more detailed occupational safety information. For a copy of the MSDS or to report adverse reactions attributable to exposure to this product, call 1-888-963-8471.

Flammable - Keep away from heat, sparks, open flames or other sources of ignition.
Do not use in sick, debilitated or underweight animals (see SAFETY).

PRECAUTIONS:
Prior to administration of Revolution, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. Revolution is not effective against adult *D. immitis* and, while the number of circulating microfilariae may decrease following treatment, Revolution is not effective for microfilariae clearance.

Hypersensitivity reactions have not been observed in dogs with patent heartworm infections administered three times the recommended dose of Revolution. Higher doses were not tested.

ADVERSE REACTIONS:
Pre-approval clinical trials:
Following treatment with Revolution, transient localized alopecia with or without inflammation at or near the site of application was observed in approximately 1% of 691 treated cats. Other signs observed rarely (<0.5% of 1743 treated cats and dogs) included vomiting, loose stool or diarrhea with or without blood, anorexia, lethargy, salivation, tachypnea, and muscle tremors.

Post-approval experience:
In addition to the aforementioned clinical signs that were reported in pre-approval clinical trials, there have been reports of pruritus, urticaria, erythema, ataxia, fever, and rare reports of death. There have also been rare reports of seizures in dogs (see **WARNINGS**).

SAFETY:
Revolution has been tested safe in over 100 different pure and mixed breeds of healthy dogs and over 15 different pure and mixed breeds of healthy cats, including pregnant and lactating females, breeding males and females, puppies six weeks of age and older, kittens eight weeks of age and older, and avermectin-sensitive collies. A kitten, estimated to be 5-6 weeks old (0.3 kg), died 8 1/2 hours after receiving a single treatment of Revolution at the recommended dosage. The kitten displayed clinical signs which included muscle spasms, salivation and neurological signs. The kitten was a stray with an unknown history and was malnourished and underweight (see **WARNINGS**).

DDGS: In safety studies, Revolution was administered at 1, 3, 5, and 10 times the recommended dose to six-week-old puppies, and no adverse reactions were observed. The safety of Revolution administered orally also was tested in case of accidental oral ingestion. Oral administration of Revolution at the recommended topical dose in 5- to 8-month-old beagles did not cause any adverse reactions. In a pre-clinical study selamectin was dosed orally to ivermectin-sensitive collies. Oral administration of 2.5, 10, and 15 mg/kg in this dose escalating study did not cause any adverse reactions; however, eight hours after receiving 5 mg/kg orally, one avermectin-sensitive collie became ataxic for several hours, but did not show any other adverse reactions after receiving subsequent doses of 10 and 15 mg/kg orally. In a topical safety study conducted with avermectin-sensitive collies at 1, 3 and 5 times the recommended dose of Revolution, salivation was observed in all treatment groups, including the vehicle control. Revolution also was administered at 3 times the recommended dose to heartworm infected dogs, and no adverse effects were observed.

CATS: In safety studies, Revolution was applied at 1, 3, 5, and 10 times the recommended dose to six-week-old kittens. No adverse reactions were observed. The safety of Revolution administered orally also was tested in case of accidental oral ingestion. Oral administration of the recommended topical dose of Revolution to cats caused salivation and intermittent vomiting. Revolution also was applied at 4 times the recommended dose to patent heartworm infected cats, and no adverse reactions were observed.

In well-controlled clinical studies, Revolution was used safely in animals receiving other frequently used veterinary products such as vaccines, anthelmintics, antiparasitics, antibiotics, steroids, collars, shampoos and dips.

STORAGE CONDITIONS: Store below 30°C (86°F).

HOW SUPPLIED: Available in eight separate dose strengths for dogs and cats of different weights (see **DOSEAGE**). Revolution for puppies and kittens is available in cartons containing 3 single dose tubes. Revolution for cats and dogs is available in cartons containing 3 or 6 single dose tubes.

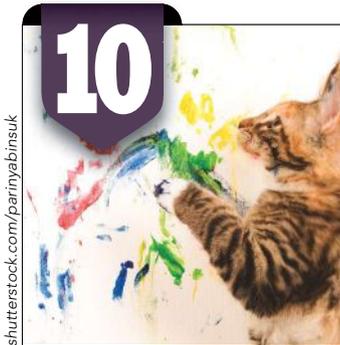
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These products contain estrogens, which dogs actually tolerate very well. Doses less than 1 mg/kg are unlikely to cause significant signs,* but GI upset is possible. If plastic was ingested, foreign body obstruction is a concern.

Birth control pills contain a low enough concentration of estrogen that they usually do not pose a risk of toxicity; however, the risk depends on the number of pills ingested. Clinicians and technicians should be aware that medications used to treat postmenopausal symptoms and other clinical conditions (e.g., patches, creams) may contain higher concentrations of estrogen. If an animal ingests one of these products, veterinary staff should obtain the estrogen concentration because estrogen doses >1 mg/kg may result in bone marrow suppression.^{5,6}



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LATEX PAINT

In most cases, ingestion of latex paint is not expected to cause significant clinical signs. GI upset is the most common sign. Animals may ingest paint by drinking from the paint tray or chewing on the paintbrush. Pet owners may read the label, note that the paint contains ethylene glycol, and call with concerns. Usually, such paint contains <10% ethylene glycol to prevent it from freezing, and animals do not

ingest enough to cause a significant problem. Before 1972, lead was used in paint; thus ingestion of old paint chips can lead to lead intoxication.

Some modern artist oil paints and agricultural-use paints may still contain lead. If lead is present, it should be listed on the label. Artist paints that have the AP seal are considered nontoxic. Paints with a CL seal can contain metals like cadmium, which can cause toxicity. ■

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*This dose has been established based on APCC experience. No specific publications reference this dose.

Toxicology Talk is written and reviewed by members of the American Society for the Prevention of Cruelty to Animals (ASPCA) Animal Poison Control Center (APCC). The mission of the APCC is to help animals exposed to potentially hazardous substances, which it does by providing 24-hour veterinary and diagnostic treatment recommendations from specially trained veterinary toxicologists. It also protects and improves animal lives by providing clinical toxicology training to veterinary toxicology residents, consulting services, and case data review.

The ASPCA APCC includes a full staff of veterinarians, including board-certified toxicologists, certified veterinary technicians, and veterinary assistants, and its state-of-the-art emergency call center routinely fields requests for help from all over the world, including South America, Europe, Asia, and the Pacific Islands.

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