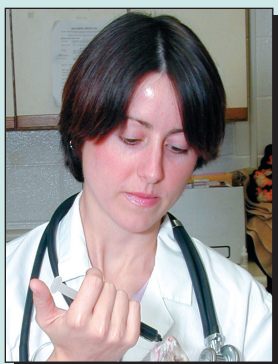




**Jill A. Richardson, DVM, Dipl ACFE**  
ASPCA National Animal Poison  
Control Center  
1717 South Philo Road Suite 36  
Urbana, Illinois 61802  
jar@napcc.asPCA.org



**Rachel A. Balabuszko, CVT**  
ASPCA National Animal Poison  
Control Center

Dr. Jill A. Richardson received her DVM degree from Tuskegee University in 1994. In 1996, following experience in small animal practices in Tennessee and in West Virginia, Dr. Richardson joined the ASPCA National Animal Poison Control Center as a Veterinary Poison Information Specialist.

Rachel Balabuszko, CVT, joined the ASPCA National Animal Poison Control Center as a Certified Veterinary Technician in 1998, after receiving her associate degree in veterinary technology from Parkland College.

**Tom Schaeffges Photography**  
Sidney, Illinois  
tom@tomsphoto.com

# Managing Ferret Toxicoses

**J. RICHARDSON AND R. BALABUSZKO**



FERRETS ARE EXTREMELY CURIOUS and adept at accessing areas where baits, cleaners, chemicals and medications are stored. Ferrets can even pry caps from child-resistant bottles or chew through heavy plastic containers. Products such as antifreeze, flavored medications or pest control baits have an appealing taste. Because the average weight of the adult ferret is less than 2 kg, even small amounts of toxins can be dangerous when ingested. Therefore, prompt treatment of toxicoses is essential.

In cases of oral exposure, ferrets have the ability to vomit. However, the length of time since ingestion of the toxicant, the ferret's age, its previous medical history, and the type of poison ingested all affect the decision to induce emesis.

## PRACTICE TIP



Ferrets can be restrained by scruffing the loose skin on the back of the neck.

## STEPS IN MANAGING FERRET TOXICOSES

### START

#### ASSESS THE SITUATION

- \* Is the ferret seizing?
- \* Is the ferret breathing?
- \* What is the heart rate?
- \* What color are the mucous membranes?
- \* Is the ferret in shock?
- \* What is the body temperature?
- \* Is there evidence of hemorrhage?

#### STABILIZE THE FERRET

- \* Administer oxygen if necessary
- \* Control seizures
- \* Correct any cardiovascular abnormality

#### If stable

**Table 1.  
Potentially Lethal Agents  
Via Oral Exposure**

- \* 5-fluorouracil
- \* isoniazid
- \* metaldehyde
- \* strychnine
- \* tricyclic antidepressants

**Table 2.  
Seizurogenic Toxicants**

- \* 5-FU
- \* aminopyridine
- \* amphetamines
- \* cocaine
- \* metaldehyde
- \* methylxanthine
- \* nicotine
- \* strychnine
- \* tremorgenic mycotoxins

**Table 3.  
Corrosive Agents**

- \* acids
- \* alkali (e.g., sodium or potassium hydroxide found in some drain cleaners)
- \* cationic detergents
- \* phenolics

**Table 4.  
Hydrocarbons**

- \* butane
- \* fuel oil
- \* gasoline
- \* kerosene
- \* mineral spirits
- \* motor oil
- \* propane
- \* tar
- \* transmission fluid



#### Patient Information

- ✓ age
- ✓ sex
- ✓ pregnant or lactating?
- ✓ health problems?
- ✓ recent abdominal surgeries?
- ✓ currently on medication?

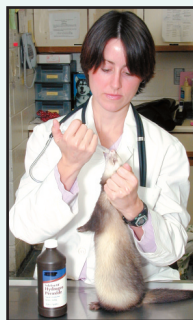
#### Exposure history

- ✓ when was the exposure?
- ✓ how much was ingested?
- ✓ when did clinical signs occur?

#### ■ Emesis

##### Hydrogen Peroxide 3% (1 ml/lb PO)

- ✓ dilute with milk or water in cases of corrosive ingestion (1-3 ml/lb)
- ✓ causes vomiting through mild gastric irritation
- ✓ vomiting occurs usually within 15 minutes
- ✓ can be repeated once
- ✓ most effective shortly after toxin ingestion
- ✓ most productive after small moist meal (e.g., canned cat food)



##### Do not induce emesis if the ferret:

- ✓ has a history of epilepsy or cardiovascular disease
- ✓ is debilitated, severely depressed or in a coma

#### ✓ is hyperactive

- ✓ has recent history of abdominal surgery
- ✓ has already vomited or is exhibiting clinical signs
- ✓ has ingested hydrocarbon-containing materials
- ✓ has ingested cationic detergents, acids, or alkali

#### ■ Gastric Lavage

- ✓ use when emesis is contraindicated but emptying the stomach is essential
- ✓ use cuffed endotracheal tube to prevent aspiration
- ✓ choose anesthetic agent based on type of toxicant
- ✓ isoflurane is optimal anesthetic agent
- ✓ diazepam or a short-acting barbiturate may be appropriate
- ✓ do not perform with ingestion of caustic or petroleum distillate products



## PREVENT ABSORPTION

### ■ Dermal Exposure

- \* bathe the ferret with mild liquid detergent or non-insecticidal pet shampoo
- \* may need to be repeated
- \* rinse well with warm water
- \* towel dry to prevent chilling
- \* monitor skin for redness, swelling or pain

### ■ Ocular Irrigation

- \* flush eyes with tepid tap water or physiological saline for a minimum of 20-30 minutes. After flushing, treat with lubricant ointments
- \* if the substance is corrosive, examine the eyes for corneal ulceration
- \* follow-up examinations

### ■ Oral Exposure

- \* emesis, gastric lavage, and/or treatment with activated charcoal may be required

## CONTROL CLINICAL SIGNS

- \* administer specific "antidote" if applicable
- \* correct acid base balance, hydration and electrolytes if needed
- \* diuresis may be beneficial for exposures to nephrotoxic agents or to enhance elimination of the poison

### ■ Adverse effects of diuresis

- ✓ pulmonary edema
- ✓ cerebral edema
- ✓ metabolic acidosis or alkalosis
- ✓ water intoxication

## ANCILLARY MEASURES

- \* monitor the systems most likely to be affected
- \* chemistry panels, coagulation panels, diagnostic tests
- \* supportive care offered until full recovery

## Oral Exposure

### ■ Activated Charcoal (1-3 g/kg body weight)

- ✓ adsorbs a chemical or toxicant
- ✓ helpful for organic poisons, chemical or bacterial toxins or if enterohepatic recirculation occurs
- ✓ repeated doses of activated charcoal may be indicated
- ✓ administer via large syringe or gastric tube
- ✓ use cuffed endotracheal tube in sedated or clinically depressed ferrets
- ✓ do not use activated charcoal for ingestion of:
  - \* caustic materials
  - \* heavy metals (iron, lead, mercury)
  - \* arsenic



### ■ Cathartics

- ✓ administer to facilitate removal of the activated charcoal-bound substance
- ✓ cathartic classifications
  - \* *saline*: sodium or magnesium sulfate (excess magnesium can cause drowsiness or CNS depression, muscular weakness,

bradycardia, hypotension, and respiratory depression; do not give magnesium sulfate to patients with renal compromise)

- \* *osmotic*: Sorbitol® 3 ml/kg (can be used safely with repeated charcoal administration)
- \* *bulking*: Metamucil® psyllium or vegetable fiber such as canned pumpkin, sweet potato, bran cereal (indicated with ingestion of bulky physical agents)
- ✓ some commercial products contain both activated charcoal and a cathartic
- ✓ do not use cathartics if ferret has diarrhea or is dehydrated

### ■ Enterogastric Lavage

- ✓ may be necessary when potentially lethal oral exposures have occurred
- ✓ possible complications may include intestinal rupture and gastroenteritis

### ■ Enemas

- ✓ eliminate toxicants from the lower GI tract
- ✓ use soapy water, plain water or water mixed with activated charcoal
- ✓ do not use pre-mixed solution for humans

**Table 5.**  
**Toxicants Causing CNS Depression**

- \* barbiturates
- \* benzodiazepines
- \* ethanol
- \* ethylene glycol
- \* ivermectin
- \* marijuana
- \* opioids
- \* phenothiazines
- \* TCAs



**Table 6.  
Nephrotoxic Agents**

- \* cadmium
- \* cantharidin
- \* cholecalciferol
- \* diquat herbicides
- \* ethylene glycol
- \* mercury
- \* nephrotoxic antibacterials: OTC  
bacitracin, polymyxin-B, gentamycin,  
neomycin
- \* nonsteroidal anti-inflammatory drugs
- \* oxalic acid
- \* phenolics
- \* rhubarb
- \* zinc

**Table 7.  
Hepatotoxic Agents**

- \* acetaminophen
- \* amanita mushrooms
- \* arsenic
- \* blue-green algae
- \* copper
- \* *Cycad* species
- \* hepatotoxic mycotoxins
- \* iron
- \* phenolics
- \* pyrrolizidine alkaloid plants
- \* tannic acid
- \* vitamin A

**Table 8.  
Drugs That Have an  
Anti-emetic Effect**

- \* antidepressants
- \* antihistamines
- \* barbiturates
- \* benzodiazepine
- \* codeine
- \* dimenhydrinate
- \* marijuana
- \* phenothiazines

## PRACTICE TIP



Treats can be used as a distraction while procedures such as blood collection are performed.

General supportive care, including fluid therapy and nutritional supplementation, is an important part of treating a toxicosis. Additional treatment may be necessary, such as the use of gastric protectants or antibiotics.

Ingestion of alkali agents can cause corrosive damage to the mouth, tongue and stomach, which may require several days of gastric protectants and antibiotics. Ingestion of estrogen, lead, or anti-neoplastic medications can cause anemia that may require support.

## References

1. Orcutt CJ: Emergency and critical care of ferrets. *Vet Clin No Amer Exotic Animal Practice* 1(1):99-125, 1998.
2. Mason DE: Anesthesia, analgesia, and sedation for small mammals. *In* Hillyer EV, Quesenberry KE (eds): *Ferrets, Rabbits, and Rodents - Clinical Medicine and Surgery*. Philadelphia, WB Saunders Co, 1997, pp 378-391.
3. *Exotic Animal Formulary - A Supplement to AAHA's Practitioner Guides to Exotic Animal Medicine*. Lakewood, CO, The American Animal Hospital Association, 1995, pp 5-11.
4. Beasley VR, et al: Management of toxicoses. *Vet Clin No Amer* 20(2):307-337, 1990.
5. Brown SA: Basic anatomy, physiology, and husbandry. *In* Hillyer EV, Quesenberry KE (eds): *Ferrets, Rabbits, and Rodents - Clinical Medicine and Surgery*. Philadelphia, WB Saunders Co, 1997, pp 3-13.
6. Mullen H: Soft tissue surgery. *In* Hillyer EV, Quesenberry KE (eds): *Ferrets, Rabbits, and Rodents - Clinical Medicine and Surgery*. Philadelphia, WB Saunders Co, 1997, pp 131-144.
7. Quesenberry KE: Basic approach to veterinary care. *In* Hillyer EV, Quesenberry KE (eds): *Ferrets, Rabbits, and Rodents - Clinical Medicine and Surgery*. Philadelphia, WB Saunders Co, 1997, pp 14-25.
8. Plumb DC: *Veterinary Drug Handbook* 3rd ed. Ames, Iowa State University Press, 1999, pp 387-388.
9. Rosenthal KL: Respiratory diseases. *In* Hillyer EV, Quesenberry KE (eds): *Ferrets, Rabbits, and Rodents - Clinical Medicine and Surgery*. Philadelphia, WB Saunders Co, 1997, pp 77-84.

The ASPCA National Animal Poison Control Center, an operating division of the American Society for the Prevention of Cruelty to Animals (ASPCA), is the only animal-oriented poison control center in North America. It is a unique, emergency hotline providing 24-hour-a-day, 7-day-a-week telephone assistance. The Center's hotline veterinarians can quickly answer questions about toxic chemicals, dangerous plants, products or substances found in our everyday surroundings that can prove poisonous or fatal to animals. <[www.napcc.asPCA.org](http://www.napcc.asPCA.org)>