# The Hidden Dangers of HOME REPAIR

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Home repairs can expose indiscriminate eaters to numerous hazards, including nails and glue.

H. Guay

*Whether it is repainting the powder room or adding a second floor, home repair and remodeling projects can expose pets to potentially hazardous substances. Pet owners may become so involved with the tasks at hand that they forget to consider the risk to their pets. Veterinary technicians should be aware of these potential hazards so they can educate pet owners. Ideally, pets should be removed from areas being repaired or remodeled. Because this is not always possible, veterinary technicians should be able to recognize when a presenting complaint may be the result of exposure to construction materials. Therefore, when taking a history, it is important to ask whether any home-improvement projects are under way.*

## LEAD

Lead exposure can be a significant threat to pets. Lead paint may be a hazard in some older homes. Although legislation passed in 1978 banned the use of lead-based paints in residences, homes built before this time are likely to have surfaces painted with lead-based paint. Exposure to lead can occur through the ingestion of paint chips or inhalation of the dust produced when surfaces are scraped or sanded. The Environmental Protection Agency offers advice to help determine whether a remodeling project will pose a risk.[1] Linoleum, plumbing supplies, putty, solder lubricants, rug pads, and drapery weights are all potential sources of lead that could be present during remodeling projects.[2]

Cats and dogs that have been exposed to lead may exhibit gastrointestinal (GI) signs, behavior changes, signs of anemia, and/or neurologic effects. A blood lead test is helpful in making a diagnosis, but blood lead levels may not indicate the total body burden of lead. Nucleated erythrocytes may be found. Basophilic stippling, anisocytosis, poikilocytosis, polychromasia, echinocytosis, target cells, and leukocytosis are sometimes observed on a differential smear. Elevated liver enzymes may also be present.[3–6]

In cases of recent ingestion of lead-based paint chips, emesis is indicated. Hydrogen peroxide or apomorphine may be used as directed by the attending veterinarian. Other methods of decontamination may include cathartics, enemas, whole bowel irrigation, or surgical removal from the GI tract. Magnesium sulfate, used as a cathartic, may precipitate lead in the GI tract and decrease absorption. When animals present with a history of acute lead poisoning and signs indicative of lead poisoning (e.g., central nervous system and GI problems), symptomatic and supportive treatment should be initiated as needed. Radiographs can be obtained to look for lead in the GI tract. Chelation therapy (i.e., administration of a drug that will form a soluble complex with the lead, thereby making it excretable in urine) may be indicated. Chelation therapy should not be performed if lead is present in the GI tract, as chelators can increase the absorption of lead from the GI tract.[5,6]

## MOLD

Mold can be found in some unexpected places, such as behind walls or under carpeting, during remodeling or



Toxicology Brief is contributed by veterinary technicians at the American Society for the Prevention of Cruelty to Animals–Animal Poison Control Center, 1717 S. Philo Rd., Suite 36, Urbana, IL 61802; hotline: 888-4ANI-HELP (888-426-4435) or 900-443-0000 (a $45 consultation fee is charged to the caller's telephone bill); email: sharont@napcc.aspca.org (for nonemergency information only); Web site: **www.apcc.aspca.org**.

**Baytril®**
(enrofloxacin)
Antibacterial Tablets For Dogs and Cats

BRIEF SUMMARY:
Before using Baytril Tablets, please consult the product insert, a summary of which follows.

CAUTION:
Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.
Federal law prohibits the extralabel use of this drug in food-producing animals.

INDICATIONS:
Baytril® (brand of enrofloxacin) Antibacterial Tablets are indicated for the management of diseases associated with bacteria susceptible to enrofloxacin. Baytril Antibacterial Tablets are indicated for use in dogs and cats.

CONTRAINDICATIONS:
Enrofloxacin is contraindicated in dogs and cats known to be hypersensitive to quinolones.
**Dogs:** Based on the studies discussed under the caution on Animal Safety Summary, the use of enrofloxacin is contraindicated in small and medium breeds of dogs during the rapid growth phase (between 3 and 8 months of age). Use safe use of enrofloxacin has not been established in large and giant breeds during the rapid growth phase. Large breeds may be in this phase for up to one year of age and the giant breeds for up to 18 months. In clinical field trials utilizing a daily oral dose of 5.0 mg/kg, there were no reports of dysplasia in joint cartilages or any breed. However, synthetic studies with histological examination of the articular cartilage have not been conducted in the large or giant breeds.

ADVERSE REACTIONS:
**Dogs:** Two of the 330 (0.7%) dogs treated with Baytril® (brand of enrofloxacin) Tablets at 5.0 mg/kg per day in the clinical field studies exhibited side effects, which were apparently drug related. These two cases of vomiting were self-limiting.
**Post Approval Experience:** The following adverse experiences, although rare, are based on voluntary post-approval adverse drug experience reporting. The categories of reactions are listed in decreasing order of frequency by body system.
Gastrointestinal: anorexia, diarrhea, vomiting, elevated liver enzymes
Neurologic: ataxia, seizures
Behavioral: Depression, lethargy, nervousness
**Cats:** No drug-related side effects were reported in 124 cats treated with Baytril® (brand of enrofloxacin) Tablets at 5.0 mg/kg per day for 10 days, in clinical field studies.
**Post Approval Experience:** The following adverse experiences, although rare, are based on voluntary post-approval adverse drug experience reporting. The categories of reactions are listed in decreasing order of frequency by body system.
Ocular: Mydriasis, retinal degeneration, retinal atrophy, attenuated retinal vessels, and hyperreflective tapetal lesions have been reported; loss of vision. Mydriasis may be an indication of impending or existing retinal changes.
Gastrointestinal: vomiting, anorexia, elevated liver enzymes, diarrhea
Neurologic: ataxia, seizures
Behavioral: Depression, lethargy, vocalizations, aggression
For medical emergencies or to report adverse reactions, call 1-800-422-9874.

ANIMAL SAFETY SUMMARY:
**Dogs:** Adult dogs receiving enrofloxacin orally at a daily dosage rate of 52 mg/kg for 13 weeks had only isolated incidences of vomition and inappetence. Adult dogs receiving the tablet formulation for 30 consecutive days at a daily treatment of 20 mg/kg did not exhibit significant clinical signs nor were there effects upon the clinical chemistry, hematological or histological parameters. Daily doses of 125 mg/kg for up to 11 days induced vomition, inappetence, depression, difficult locomotion and death while adult dogs receiving 50 mg/kg/day for 14 days had clinical signs of vomition and inappetence.
Adult dogs dosed intramuscularly for three treatments at 12.5 mg/kg, followed by 12 oral treatments at 12.5 mg/kg, all at 12 hour intervals, did not exhibit either significant clinical signs or effects upon the clinical chemistry, hematological or histological parameters.
Oral treatment of 10 to 28 week old growing puppies with daily dosage rate of 25 mg/kg has induced abnormal carriage of the carpus/tarsi and weakness in the hindquarters. Significant improvement of clinical signs is observed following drug withdrawal. Microscopic studies have identified lesions of the articular cartilage following 30 day treatments at either 5, 15 or 25 mg/kg in the age group. Clinical signs of difficult ambulation or associated cartilage lesions have not been observed in 24 to 34 week old puppies following daily treatments of 25 mg/kg for 30 consecutive days (not to) week old puppies with the same treatment schedule.
Tests dedicated to effect on circulating macrophage or adult lymphocytes (Blastogenic stimulation) when dogs were treated at a daily dosage rate of 16 mg/kg for 30 days. No effect on circulating cell values was observed.
No adverse effects were observed on reproductive parameters when male dogs received 10 consecutive daily treatments of 15 mg/kg/day at 3 intervals (90, 45 and 14 days) prior to breeding or when female dogs received 10 consecutive daily treatments of 15 mg/kg/day at 4 intervals between 28 and 0 days prior to breeding, early pregnancy (between 10th & 30th days), late pregnancy (between 40th & 60th days), and during lactation (the first 28 days).
**Cats:** Cats in age ranges of 2 to 4 months and 7 to 10 months received daily treatments of 25 mg/kg for 30 consecutive days with no adverse effects upon the clinical chemistry, hematological or histological parameters. In cats 7–10 months of age treated daily for 30 consecutive days, 3 of 4 receiving 5 mg/kg, 3 of 4 receiving 15 mg/kg, 2 of 4 receiving 25 mg/kg and 1 of 4 nontreated controls experienced occasional vomition. Over to 7 month old cats had no side effects with daily treatments of 15 mg/kg for 30 days, but 2 of 4 animals had articular cartilage lesions when administered 25 mg/kg/day for 30 days.
Doses of 125 mg/kg for 5 consecutive days to adult cats induced vomition, depression, incoordination and death while those receiving 50 mg/kg for 6 days had clinical signs of vomition, inappetence, incoordination and convulsions, but they returned to normal.
Enrofloxacin was administered to thirty-two (8 per group), six- to eight-month-old cats at doses of 0, 5, 20, and 80 mg/kg of body weight once a day for 21 consecutive days. There were no adverse effects observed in cats that received 5 mg/kg body weight of enrofloxacin. The administration of enrofloxacin at 20 mg/kg body weight or greater caused salivation, vomition, and depression. Additionally, dosing at 80 mg/kg body weight or greater resulted in mild to severe fundic lesions on ophthalmologic examination (change in color of the fundus, central or generalized retinal degeneration), abnormal electroretinograms (including blindness), and diffuse light microscopic changes in the retina.

DRUG INTERACTIONS:
Compounds that contain metal cations (e.g., aluminum, calcium, iron, magnesium) may reduce the absorption of some quinolone-class drugs from the intestinal tract. Concomitant therapy with other drugs that are metabolized in the liver may reduce the clearance rates of the quinolone and the other drug.
**Dogs:** Enrofloxacin has been administered to dogs at a daily dosage rate of 10 mg/kg concurrently with a wide variety of other health products including anthelmintics (praziquantel, febantel), insecticides (pyrethrins), heartworm preventatives (diethylcarbamazine) and other antibiotics (ampicillin, gentamicin sulfate, penicillin, dihydrostreptomycin). No incompatibilities with other drugs are known at this time.
**Cats:** Enrofloxacin was administered at a daily dosage rate of 5 mg/kg concurrently with anthelmintics (praziquantel, febantel), an insecticide (pyrethrin) and another antibacterial (ampicillin). No incompatibilities with other drugs are known at this time.

WARNINGS:
**For Use in Animals Only. In Rare Instances, Use of this Product in Cats has been associated with Retinal Toxicity. Do not exceed 5 mg/kg of body weight per day in cats. Safety in Breeding or Pregnant Cats has not Been Established. Keep Out of Reach of Children.**
Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. In case of dermal contact, wash skin with soap and water. Consult a physician if irritation persists following ocular or dermal exposure. Individuals with a history of hypersensitivity to quinolones should avoid this product. In humans, there is a risk of user photosensitization within a few hours after excessive exposure to quinolones. If excessive accidental exposure occurs, avoid direct sunlight.
For customer service or to obtain product information, including Material Safety Data Sheet, call 1-800-633-3796.

PRECAUTION:
Quinolone-class drugs should be used with caution in animals with known or suspected Central Nervous System (CNS) disorders. In such animals, quinolones have, in rare instances, been associated with CNS stimulation which may lead to convulsive seizures.
Quinolone-class drugs have been associated with cartilage erosions in weight-bearing joints and other forms of arthropathy in immature animals of various species.
The use of fluoroquinolones in cats has been reported to adversely affect the retina. Such products should be used with caution in cats.

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## Glossary

**Anisocytosis —** Considerable variation in the size of cells that are normally uniform, especially red blood cells

**Basophilic stippling —** Granular pattern in red blood cells that occurs when they are exposed to basic staining due to the presence of free basophil granules in the cell protoplasm

**Echinocytosis —** Presence of spiculated cells with numerous short evenly spaced blunt to sharp surface projections of uniform size and shape

**Leukocytosis —** Increased numbers of leukocytes in the peripheral blood

**Nucleated erythrocytes —** Immature red blood cells that still contain the nucleus

**Poikilocytosis —** Presence of red blood cells with irregular shapes

**Polychromasia —** Presence of many red blood cells that have an affinity for acid, basic, or neutral stains

**Target cells —** Red blood cells with a dark center surrounded by a light band that again is encircled by a darker ring

repair projects. Some molds have been shown to produce mycotoxins. The EPA has reported that several species of molds are potentially hazardous (e.g., *Stachybotrys chartarum*, *Aspergillus versicolor,* toxigenic species of *Penicillium*).[7] However, the discovery of mold in a residence does not necessarily mean that people or pets in the home have been exposed. If mold is discovered, it is important for pet owners to contact the EPA for more information regarding appropriate cleanup.[a] Although anecdotal accounts of presumed mold-induced illness in humans exist, the scientific community has not confirmed that inhalant exposure to molds can cause building-related illness. Pets may be exposed to residential molds in the home. Because pets, primarily dogs, can be indiscriminate eaters, there is potential for mycotoxin ingestion when an animal licks, chews, or otherwise ingests a mold-covered object.[7,8]

Mycotoxins ingested from moldy food have been known to cause GI, cardiac, and neurologic effects in pets.[5,9] The most serious risk in these cases arises from prolonged tremors or seizures.[9] Whether similar signs occur through the ingestion of residential mold is unknown, but it is prudent to prevent this type of exposure in pets.

Decontamination, including gastric lavage and administration of activated charcoal, may be indicated for animals exposed to mold. Other symptomatic and supportive care should be initiated as needed. Stomach contents, vomitus, or a sample of the original mold may be chilled or frozen until it can be sent to a laboratory for evaluation.[5]

## PAINTS

Paints have a wide range of safety levels in terms of being ingested by pets. When ingested in relatively small quantities, most latex paints are considered nontoxic; however, GI upset may still occur. Specialty paints and artists' paints may contain heavy metals and should be regarded as potentially hazardous; oil-based paints are potentially toxic as well. Oral exposure may occur when the animal directly licks wet paint or when it rubs against or walks in wet paint and later grooms the paint from its coat or paws. Dried paint may be shaved or clipped from the pet's coat. Paint thinner and similar substances should never be used to remove paint from a pet's coat or skin because of the risk of chemical burns.[5]

[a]Information about mold cleanup is available at http://www.epa.gov/iaq/molds/moldguide.html; accessed June 2004.

When animals have been exposed to paint, it is important for veterinary technicians to obtain an accurate history, including the type of paint as well as its ingredients and their concentrations. This information can often be found on the product label.

## SOLVENTS

Solvents, paint thinners, and mineral spirits are sometimes left uncovered by pet owners, providing an opportunity for pets to lick the substances. Alternatively, pet owners may inappropriately use these substances to remove paint or other material from the pet's fur or skin. Ingestion of these substances can affect the GI, respiratory, and central nervous systems. Dermal exposure may cause irritation or chemical burns.

In most cases, induction of emesis is contraindicated in cases of oral exposures: Emesis may increase the likelihood for respiratory aspiration of the substance, potentially leading to respiratory distress and pneumonia. Careful observation and laboratory monitoring combined with symptomatic and supportive care are indicated for these types of exposures. Dermal exposures may require a decontaminating bath using a liquid dishwashing detergent. Symptomatic dermal care for irritation or burns may be required.[5]

## CONSTRUCTION GLUE

A large variation of signs may occur following exposure to glues and adhesives.[5] Some construction glues are nontoxic and may cause only mild GI upset. Others can be significantly irritating, and some expanding wood glues can cause a serious foreign body obstruction in the GI tract.[10,11] Each incidence of exposure should be evaluated based on the type of glue and clinical observations.

## PHYSICAL HAZARDS

Any number of physical hazards may be present in a home that is being repaired or remodeled. Indiscriminate eaters have been known to consume items ranging from insulation to nails. The damage from ingestion of an item may be obvious. In some cases, bulking the diet with a high-fiber food may help move the foreign material through the GI tract. In other cases, surgical intervention may be warranted.[5]

## PREVENTION IS KEY

Veterinary technicians should advise pet owners to keep pets completely out of areas being repaired or remodeled in their homes. In some cases, placing animals in pet day care or a boarding facility may be advisable to prevent detrimental exposure to potentially dangerous substances.

When exposure does occur, owners should be instructed to bring the original product container with them to the veterinary facility. The label may contain important information on how to treat accidental ingestion or otherwise harmful exposure to the product. Further assistance and evaluation may be provided on a case-by-case basis by calling the ASPCA Animal Poison Control Center.

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