

Feline House Soiling

Ellen Lindell, VMD, DACVB
Veterinary Behavior Consultations
 Bethel, New York



House soiling refers to indoor urination and/or defecation outside the litter box and includes urine and fecal marking. House soiling can cost many cats their home or life despite treatment being largely successful.¹

Cats may house soil for multiple reasons (eg, medical conditions, undesirable litter box locations, environmental stressors), and the cause may be simple or complex. As with most behavior problems, prevention and early intervention play an important role in resolution. Accurate diagnosis and identification of factors that cause and maintain the behavior are crucial for a successful outcome.

Prevention: Kittens & Newly Adopted Cats

Recommendations for optimal litter box management should be provided to clients at the first visit with a new kitten or cat. Clients should be advised

to place the litter box in an easily accessible area frequented by the cat. Large homes or homes with multiple cats may need multiple litter boxes. An anecdotally determined rule is a single box per cat, plus an additional box. All litter boxes should be scooped at least once daily and cleaned thoroughly once per week.

It is important to obtain a behavior baseline at each wellness appointment to confirm the litter box is used consistently and the cat lives harmoniously with other household humans and pets.

Diagnosis & Treatment

All cats presented for house soiling should be evaluated medically and treated appropriately (*Table 1*, next page).

Medically Based House Soiling

Underlying medical conditions can contribute

to feline house soiling. For example, orthopedic or neurologic pain may prevent a cat from negotiating stairs to access a litter box. A painful cat may be reluctant to posture comfortably in a relatively small traditional litter box or may have difficulty entering a high-sided box. Cats that exhibit dysuria or are painful secondary to GI disease may develop an aversion to the litter box.

Diseases that create an increased urgency to eliminate may contribute to house soiling as cats select a more readily available location. Cats with conditions in which urine volume may be increased (eg, chronic renal disease, diabetes mellitus) may develop an aversion to the litter box because of urine saturation. Disorientation secondary to cognitive decline in senior cats also can contribute to house soiling.

Feline Idiopathic Cystitis
Feline idiopathic cystitis is a painful condition of the bladder and can be difficult to diagnose. A classic sign of feline idiopathic cystitis is urination

outside the litter box. Cats typically are presented with recurrent episodes of pain associated with urinary tract inflammation. Multimodal therapy should include pain management, stress reduction, and adequate access to clean litter boxes.²

Primary House Soiling
In primary house soiling, some or all of a cat's daily urination and/or defecation occurs outside the litter box and total daily elimination frequency remains unchanged. The target location is often a socially insignificant area (eg, corner of a room). Absorbent substrates such as potting soil or comforters are commonly selected; cats may also urinate in sink drains and bathtubs. Successful treatment involves creating an accessible, appealing litter box by identifying and removing the underlying trigger for the behavior, which may include a location preference or aversion, substrate preference or aversion, and/or litter box aversion.

Boxes should be an appropriate size for the cat, scooped at least once daily, and cleaned with mild soap and water at least once weekly.

If the house is large or the cat has pain, a litter box should be placed on each floor of the house. The route to the litter box should be safe and quiet. In multi-cat homes, clients should be advised to maintain at least one box for each cat. Boxes should be placed in several areas, as some cats may be reluctant to cross the path of another cat. Boxes should not be placed in a closed area that could be perceived as a trap.

A litter box preference test can help determine the cause of house soiling. The

TABLE 1

TREATMENT AT A GLANCE

Differential Diagnosis	Treatment
Medically based house soiling	Identify and treat the primary condition
Feline idiopathic cystitis	Identify and treat with multimodal therapy
Primary house soiling	Provide a clean, accessible litter box Determine the cat's litter box preference
Urine and fecal marking	Address social stressors Manage anxiety and aggression

client should place 3 to 4 litter boxes in a single location, each filled with a different litter. Clay clumping litter should be offered as a choice, as it appears to be preferred by many cats (author experience). Once a substrate has been selected, other variables (eg, litter depth, litter box size, litter box style [hooded vs open]) can be tested.

A cat that exhibits a location preference often benefits from having a litter box in that area. Once that litter box is used regularly, it may gradually be moved to a location more desirable for the client. If a litter box in the cat's preferred location is not feasible, a bowl of food may be placed in the area to encourage a behavior other than elimination.

A cat also can be deterred from soiling in certain locations by placing foil or citrus rind in those areas. Caution should be exercised when attempting to create an aversion to a location; if an appealing litter box is not readily available, the cat may eliminate in another undesirable location.

Clients should not attempt to punish the cat by scolding or spraying the cat with water. Punishment is associated with fear, which can ultimately disrupt the cat's bond with the client.

Unless there is a concurrent diagnosis of anxiety, psychotropic medication usually is not indicated for cats with primary house soiling, as these cases typically are associated with litter box environment issues.³

Urine & Fecal Marking

Marking serves a communicative function among cats, and socially significant areas are usually targeted. Urine typically

but not always is deposited on vertical surfaces. The cat may be seen backing up to a surface with a quivering tail. The volume of urine may be small. Cats may mark with urine or feces, and marking occurs in addition to the cat's normal daily elimination.

The location of marking may be used to identify the trigger. Marking near windows or doors may suggest the presence of a nonhousehold cat outdoors or frustration about inability to access the outdoors. When marking occurs on interior surfaces, particularly when personal items are targeted, the cat's relationship with household humans and pets should be assessed for evidence of anxiety or aggression.

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Marking may be associated with anxiety in response to a routine or event. The timing of the behavior—coincident with the occurrence of the trigger—is used to make a diagnosis. Examples of context-specific marking include separation-related anxiety, inadequate access to food, lack of attention from the clients, storm phobia, and/or noise phobia.

Marking is, in fact, a normal communicative behavior for cats, and its occurrence does not always reflect behavioral pathology. Clients often are not aware that although neutering or spaying may

reduce a cat's motivation to mark, both neutered male cats and spayed cats may exhibit marking behavior.

Treatment includes environmental and behavior modification. Psychotropic medications (**Table 2**) may be indicated, particularly in cases in which social stressors or other triggers cannot be controlled. Clients should be advised to identify and remove triggers when possible. For example, if marking is triggered by free-roaming outdoor cats, nontoxic cat repellents can be applied to the appropriate outdoor areas and/or the cat's view of the outdoors should be blocked via an opaque cover on windows or doors or restricting the cat from the room with the view.

When social relationships in the home trigger marking, the indoor living space may need to be redesigned. Intercat aggression may be subtle but must be

identified and treated. All cats need ample access to resources, including food and water, safe resting places, and litter boxes. Placing a litter box or bowl of food in frequently marked locations may help discourage marking in those areas. Pheromone diffusers also have been used to encourage facial marking, which may reduce or eliminate urine marking.^{4,5} Marked surfaces should be cleaned with a product designed to neutralize urine and feces stains and odors and discourage cats from reusing these areas.

Desensitization and counterconditioning can help reduce anxiety and arousal in response to known triggers. A cat that is afraid of another pet can be introduced to that animal gradually; a cat stimulated by certain sounds can be exposed to those sounds systematically. For example, the cats can be placed on either side of a barrier (eg, baby gate, screen door); favored food or treats should be provided to each cat, starting far from the barrier and gradually moving closer to the barrier as the cats appear more comfortable.³ There should be no hissing or lunging and both cats should eat calmly. Between sessions, the cats should be separated so there is no opportunity for one cat to chase and frighten the other. Pharmacologic intervention may be recommended when triggers are difficult to control. Clients should be aware of common undesirable adverse events and consent to using extra-label medication.

Some nutraceutical products (eg, L-theanine,⁶ α -casozepine⁷) and diets have been formulated to reduce stress.⁸

Conclusion

A detailed history should be obtained for any cat eliminating outside the litter box. Identifying the cause of house soil-

TABLE 2

MEDICATIONS TO REDUCE MARKING

Medication	Category	Dosage	Potential Side Effects
Fluoxetine	Selective serotonin reuptake inhibitor	0.5-1 mg/kg PO q24h	Agitation, sedation, inappetence
Paroxetine	Selective serotonin reuptake inhibitor	0.5-1 mg/kg PO q24h	Agitation, sedation, inappetence, urinary retention
Clomipramine	Tricyclic antidepressant	0.25-0.5 mg/kg PO q24h	Inappetence, cardiac arrhythmia, sedation

ing is crucial to diagnosis and implementation of an effective treatment strategy. If the cat has pain and/or difficulty posturing, pain management should be considered, and clients should be advised to provide a large, low-sided, nontraditional litter box. Providing individually tailored environmental enrichment can help prevent or eliminate house soiling and increase the overall well-being of any indoor cat. ■■■

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Suggested Reading

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Caution

Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

Indications

SENTINEL[®] SPECTRUM[®] (milbemycin oxime/lufenuron/praziquantel) is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*; for the prevention and control of flea populations (*Ctenocephalides felis*); and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis* and *Echinococcus granulosus*) infections in dogs and puppies two pounds of body weight or greater and six weeks of age and older.

Dosage and Administration

SENTINEL SPECTRUM should be administered orally, once every month, at the minimum dosage of 0.23 mg/lb (0.5 mg/kg) milbemycin oxime, 4.55 mg/lb (10 mg/kg) lufenuron, and 2.28 mg/lb (5 mg/kg) praziquantel. For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

Dosage Schedule				
Body Weight	Milbemycin Oxime per chewable	Lufenuron per chewable	Praziquantel per chewable	Number of chewables
2 to 8 lbs.	2.3 mg	46 mg	22.8 mg	One
8.1 to 25 lbs.	5.75 mg	115 mg	57 mg	One
25.1 to 50 lbs.	11.5 mg	230 mg	114 mg	One
50.1 to 100 lbs.	23.0 mg	460 mg	228 mg	One
Over 100 lbs.	Administer the appropriate combination of chewables			

To ensure adequate absorption, always administer SENTINEL SPECTRUM to dogs immediately after or in conjunction with a normal meal.

SENTINEL SPECTRUM may be offered to the dog by hand or added to a small amount of dog food. The chewables should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole. Care should be taken that the dog consumes the complete dose, and treated animals should be observed a few minutes after administration to ensure that no part of the dose is lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

Contraindications

There are no known contraindications to the use of SENTINEL SPECTRUM.

Warnings

Not for use in humans. Keep this and all drugs out of the reach of children.

Precautions

Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention.

Prior to administration of SENTINEL SPECTRUM, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM is not effective against adult *D. immitis*.

Mild, transient hypersensitivity reactions, such as labored breathing, vomiting, hypersalivation, and lethargy, have been noted in some dogs treated with milbemycin oxime carrying a high number of circulating microfilariae. These reactions are presumably caused by release of protein from dead or dying microfilariae.

Do not use in puppies less than six weeks of age.

Do not use in dogs or puppies less than two pounds of body weight.

The safety of SENTINEL SPECTRUM has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone.

Adverse Reactions

The following adverse reactions have been reported in dogs after administration of milbemycin oxime, lufenuron, or praziquantel: vomiting, depression/lethargy, pruritus, urticaria, diarrhea, anorexia, skin congestion, ataxia, convulsions, salivation, and weakness.

To report suspected adverse drug events, contact Virbac at 1-800-338-3659 or the FDA at 1-888-FDA-VETS.

Information for Owner or Person Treating Animal

Echinococcus multilocularis and *Echinococcus granulosus* are tapeworms found in wild canids and domestic dogs. *E. multilocularis* and *E. granulosus* can infect humans and cause serious disease (alveolar hydatid disease and hydatid disease, respectively). Owners of dogs living in areas where *E. multilocularis* or *E. granulosus* are endemic should be instructed on how to minimize their risk of exposure to these parasites, as well as their dog's risk of exposure. Although SENTINEL SPECTRUM was 100% effective in laboratory studies in dogs against *E. multilocularis* and *E. granulosus*, no studies have been conducted to show that the use of this product will decrease the incidence of alveolar hydatid disease or hydatid disease in humans. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfected and shed eggs between treatments.

Manufactured for: Virbac AH, Inc.

P.O. Box 162059, Ft. Worth, TX 76161

NADA #141-333, Approved by FDA

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