



Project Title

Eliminative and marking behaviors of dogs

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Abstract

Most mammals scent-mark, and a variety of hypotheses have been put forward to explain this behavior. Most of our knowledge about scent marking in domestic dogs comes from studies carried out on laboratory or companion dogs, while few studies have been carried out on free-ranging dogs. Here, we explored the functional significance of different scent marking behavioral patterns in a pack of free-ranging domestic dogs by testing two non-exclusive hypotheses: the indirect territorial defense and the dominance/threat hypotheses. Through direct observation, we recorded the locations of dog scent marks (urination, defecation, and ground scratching) and information regarding the identity and posture of the marking animal. We found evidence that markings are used by dogs to form a 'property line' and to threaten rivals during agonistic conflicts. Both males and females utilized scent marking to assert dominance and probably to relocate food or maintain possession over it. Raised-leg urination and ground scratching probably play a role in olfactory and visual communication in both males and females. Urinations released by females, especially through flexed-leg posture, may also convey information about their reproductive state. Finally, our observations suggest that defecation does not play an essential role in olfactory communication among free-ranging dogs and that standing and squat postures are associated with normal excretion. Our results suggest that many of the proposed functions of



marking behaviors are not mutually exclusive, and all should be explored through detailed field and laboratory studies

Introduction

Scent marking may be defined as the deposition of odor by urination, defecation or the release of glandular secretions. Scent marking may communicate detailed information about the scent source, including social status, age, sex and reproductive state, group composition and individuality. Most of our knowledge about scent marking in domestic dogs (*Canis lupus familiaris*) comes from studies carried out on laboratory or companion dogs. Urinary behavior in domestic dogs is sexually dimorphic. Adult males urinate more frequently than do females and are more likely than females to direct their urine at specific targets. In addition, adult males typically raise a hind leg to urinate, while adult females usually squat. While urination clearly has the physiological function to empty the bladder in both sexes, its role in scent marking is thought to be more important in male dogs than in female dogs that female dogs mark with urine only around the time they are in oestrus.

observed that, outside of oestrus, both high status males and females urinated, investigated urine and countermarked more than same-sex dogs with lower status. Moreover, males and females were equally likely to countermark and investigate urine.

Project Aim and Outline

1. Urination in dogs
2. What is marking behavior
3. Behavioral causes of dog marking
4. Benefits of dog marking
5. Sex and marking behavior



Results

Some dogs scent mark by urinating small amounts on vertical surfaces, usually while raising a leg. Both female and male dogs can urine mark. Dogs who urine mark might do so in a number of situations, including while on walks, when in their own homes and yards, and during visits to other locations. A dog must be at least three months of age to urine mark.

Why Do Dogs Urine Mark?

Reproductively Intact Dog

Dogs who are reproductively intact (unspayed females and unneutered males) are more likely to urine mark than spayed or neutered dogs. In unspayed females, urine marking usually happens more frequently just before and while they're in heat.

Something New in the Environment

Some dogs urine mark when they encounter nonresident dogs in their environments or smell urine left in their environments by other dogs. A dog's environment may encompass his home, his yard, the route he usually takes when on walks, friends' homes he regularly visits, and parks or other locations he frequents.

Social Triggers

Exciting social situations can trigger urine marking. Some male dogs only urine mark when in the presence of female dogs (especially if they're in heat), and some urine mark only when interacting with other male dogs. Some dogs only urine mark when visiting homes where other dogs have urine marked before. Other dogs only urine mark when they become highly aroused and overstimulated in social situations. These dogs often mark nearby objects, people or other dogs.

Anxiety

Some dogs urine mark when they experience anxiety. Anxious dogs might deposit greater amounts of urine than dogs marking for other reasons. They might also urine mark on spots that aren't vertical surfaces. A number of events can cause anxiety and trigger urine marking, including the presence of new objects, furniture or luggage in a dog's environment, the departure of a resident from a dog's home, a new person moving into the home, and conflict between a dog and people or other animals in the home.

Medical Causes to Rule Out

Spay/Urinary Incontinence

Some dogs' house soiling is caused by incontinence, a medical condition in which a dog "leaks" or completely voids the bladder. Dogs with incontinence problems usually seem unaware that they've soiled. Sometimes they void urine while asleep.



Urinary Tract Infection

A urinary tract infection (UTI) can cause a dog to void small amounts of urine frequently. In addition, a dog who has a UTI might engage in excessive licking of his genitalia.

Miscellaneous Medical Causes

Other medical reasons for house soiling are abnormalities of the genitalia that cause incontinence, diseases that cause frequent urination, and medications that cause frequent urination. These and all other medical causes should be ruled out before evaluating or treating a dog for urine marking problems.

Other Types of Urination Problems to Rule Out

Submissive/Excitement Urination

Your dog might have a submissive or excitement urination problem if he only urinates during greetings, play, physical contact, scolding or punishment. If this is the case, you might notice him displaying submissive postures during interactions. He might cringe or cower, roll over on his belly, duck his head, avert his eyes, flatten his ears or all of the above. For more information about submissive or excitement urination, please see our article, Submissive Urination.

Lack of House Training

If a dog has always soiled in the home, has lived outside or in a kennel, or has an unknown history, it's likely that she simply has never been house trained. To learn more about house training problems and how to solve them, please see our article, House Training Your Adult Dog.

Separation Anxiety

If your dog only soils when left alone in your home, even for short periods of time, she may have separation anxiety. If this is the case, you may notice that she appears nervous or upset right before you leave her by herself or after you've left (if you can observe her while she's alone). For more information about separation anxiety, please see our article, Separation Anxiety.

What to Do About Urine Marking

Urine marking is a normal form of communication among dogs. Dogs are drawn to urine marks left by other dogs and are apparently able to get information by sniffing the urine, such as the identity, the sex and the reproductive status (whether a dog is neutered or spayed) of the marker. Males are more likely than females to urine mark, and reproductively intact males are more likely to mark than neutered males, especially in the presence of females or rival males. Reproductively intact females will mark, especially prior to coming into and during estrous (before and while they're in heat) to advertise their availability. However, even spayed females sometimes urine mark. A study of urine marking in dogs revealed that 10 percent of the dogs who urine marked started the behavior at 3 months of age, 20 percent by 6 months, 40 percent by 12 months, 70 percent by 1½ years, and 90 percent before 2 years.



Both male and female dogs usually lift a rear leg to urine mark. Females can also do a handstand to raise both rear legs! A dog engaging in urine marking behavior typically deposits only a small amount of urine. Dogs of either sex often engage in “overmark-ing”—urinating in the same spots where other dogs have already urinated. In many can-id species, more dominant individuals overmark the urine deposits of more subordinate individuals. Many dogs will only overmark the urine of other animals or people. Other dogs will mark a few specific areas or things, such as prominent vertical objects, new objects, or areas around exit doors or windows. Some dogs seem to mark indiscriminately.

Many dogs will urine mark during walks but never mark inside their homes. What prompts a dog to urine mark in the home? It might be a territorial response, especially if the marking occurs when a dog encounters a nonresident dog or smells another dog’s urine on his property or in his house. For example, a dog might mark on his pet par-ent’s shoes, presumably because the person walked through and picked up the odor of urine from another dog.

Other causes for urine marking involve exposure to social triggers, such as encounter-ing a female dog in estrous (in heat). In this kind of situation, a male dog might be prompted to mark to impress the female, while a female dog might be prompted to mark as a form of competition. Male dogs might also urine mark when they find them-selves in the presence of rival males. Some dogs never mark in their own homes but will mark when they visit others’ homes. A dog is especially likely to urine mark when vis-iting a home if another dog has previously marked in that home. Dogs who become highly aroused and stimulated in the presence of other dogs, especially in large, gregari-ous groups, sometimes “zone out” and urine mark any object in the area, including oth-er dogs and people’s legs. On rare oc-casions, dogs who mark frequently during walks become highly aroused and continue marking when they return to their homes.

Treatment for Reproductively Intact Dogs

The easiest solution for urine marking in a reproductively intact dog is to neuter a male dog or spay a female dog. Neutering male dogs successfully eliminates or greatly reduc-es household urine marking in 50 to 60 percent of cases.

If you plan to breed your dog and you’re resistant to spaying or neutering, you can fol-low many of the suggestions that follow for dogs who appear to urine mark in response to specific social or environmental triggers. Be aware, however, that the likelihood of success-fully eliminating or reducing urine marking is lower if your dog is still intact.

Treatment for New Things in the Environment or Social Triggers

The following tips might help reduce urine marking in your dog if he performs the be-havior when encountering new things in his environment or experiencing certain social situations:

- Restrict your dog’s access to things he’s likely to mark. Don’t allow other dogs to visit your home or yard. You can also try blocking your dog’s visual access to other dogs.



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- If you have a male dog, have him wear a jock strap or bellyband (also known as a male dog wrap). You can purchase a bellyband made for dogs from a pet supply company. This option is especially appropriate if your dog only urine marks when visiting others' homes.
- If your dog predictably marks certain objects (bags, suitcases or shoes, for example), or if he only marks in certain locations, place treats around those objects or in those areas. Your dog might start to regard objects he used to mark and places where he used to mark as sources of food rather than triggers for marking.
- Clean previously marked locations with an enzymatic cleaner, such as Nature's Miracle® Stain and Odor Remover, to minimize smells that can attract your dog and cause him to mark again. You can find cleaners made for eliminating pet odors at most pet supply stores and some grocery stores.
- Try to make marked areas unpleasant to discourage your dog from returning. Try using double-sided sticky tape, vinyl carpet runner turned upside-down to expose the knobby surface, or other types of humane, harmless booby traps. Keep in mind, however, that your dog might simply select another place to urine mark.
- Provide your dog with an acceptable target for marking, such as a tree trunk or artificial fire hydrant. Expose him to something that prompts his marking, such as the urine of another dog, and then immediately take him to your chosen target. Wait until he marks, and then reward him with praise and a few tasty treats for marking in the correct place.
- Scolding or physically punishing your dog probably won't work, but it's possible that a remotely delivered punishment will interrupt or discourage marking. When you see your dog start to mark, you can try clapping loudly, spraying him with water, or tossing a noisy chain on the floor next to him. It's very important to deliver these punishments while your dog is caught in the act of urine marking. (If you don't make your startling noise right when your dog starts to mark, he won't understand why you're punishing him.) Keep in mind that your dog might be very strongly motivated by the urge to urine mark—so much so that he might not even be aware of what he's doing. If this is the case, punishing or startling him won't work. Another reason that using punishment to discourage urine marking might not work well is that your dog might simply learn that your presence is linked with punishment. If he does, he'll continue to mark, but only when out of your sight.
- Try using a synthetic hormone diffuser (DAP™; Dog Appeasement Pheromone). In some cases, it can have a calming effect on dogs.
- As a last resort, consult with your veterinarian about using medication in addition to behavior training. Scientific studies show that some medications can help reduce urine marking.

Treatment for Anxiety-Induced Urine Marking

A small number of dogs urine mark when distressed or anxious. Typically, this kind of marking is prompted by some perceived threat, such as an unfamiliar person or dog in the



home, or the introduction of something new, such as a pet, a baby, new furniture, suitcases, grocery bags, etc. Other events and situations that cause stress and trigger urine marking include the absence of a family member, whether human or animal, or conflict between pets or family members within the home. If a dog's urine marking is caused by conflict, he might mark unusual objects, such as beds and clothing—items that smell strongly of a person or another pet.

To reduce your dog's anxiety-induced marking, try the following suggestions:

- Restrict your dog's access to things that he's likely to mark.
- Try to resolve conflicts between family pets. If one of your pets is new, you can reintroduce him to your other animals by following the instructions found in our article, *Introducing Your Dog to a New Dog*, *Introducing Your Dog to a New Cat* and *Introducing Your Cat to a New Dog*. If your pets have lived together for some time and are now not getting along, please consult a qualified professional for help, such as a Certified Applied Animal Behaviorist (CAAB), a Diplomate of the American College of Veterinary Behavior (Dip ACVB), or a Certified Professional Dog Trainer (CPDT) with specialized training and experience treating this kind of problem. Please see our article, *Finding Professional Help*, to locate one of these professionals in your area.
- If a new resident has joined your household, try to resolve conflicts between your dog and the new person. Make the new person a source of things your dog really enjoys, such as food, treats, chewies, walks, play and exciting outings. If conflict continues, please consult a qualified professional for help, such as a Certified Applied Animal Behaviorist (CAAB), a Diplomate of the American College of Veterinary Behavior (Dip ACVB), or a Certified Professional Dog Trainer (CPDT) with specialized training and experience treating this kind of problem. Please see our article, *Finding Professional Help*, to locate one of these professionals in your area.
- If you have a male dog, have him wear a jock strap or bellyband (also known as a male dog wrap). You can purchase a bellyband made for dogs from a pet supply company.
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- Try using a synthetic hormone diffuser (DAP™; Dog Appeasement Pheromone). In some cases, it can have a calming effect on dogs.
- Consult with your veterinarian about the use of medications to supplement behavior modification. Some medications work well to diminish anxiety in dogs, and if your dog feels less anxious, he'll be less likely to urine mark.

What NOT to Do

- Do not scold your dog. Yelling at dogs when they urine mark rarely works, even when they're caught in the act.
- Do not prevent your dog from urine marking during walks. If anything, this can frustrate your dog and increase the likelihood of marking at home.
- Do not clean with an ammonia-based cleanser. Urine contains ammonia. Cleaning up your dog's urine with ammonia can attract him back to the same spot to mark again.

Conclusions

Dogs "mark" by urinating on upright objects. Leaving a scent mark with urine is a normal dog communicative behavior. Leaving a scent mark with urine is a normal dog communicative behavior. Marking is most likely to occur on or near new or novel odors, especially the urine left by other dogs. The volume of urine used for marking is usually small. The problem is much more common in intact males, but many neutered males and spayed females also mark their territory. If your dog marks where other dogs have urinated, when exposed to new odors, or when entering a strange environment, it may be a form of territorial marking. This may be more likely to occur if you visit or move into a new home or if you redecorate or get new furniture. Supervising introductions or accessibility until your dog gets used to the new smells may be all that is required in these cases. Dogs that begin to mark in their home environment may be responding to stress or anxiety. Hormonal influences and sexual arousal, especially in intact male dogs, may also lead to an increase in marking behavior.



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