


CONSULT THE EXPERT

FELINE AGGRESSION

Amy L. Pike, DVM, DACVB
Animal Behavior Wellness Center
Fairfax, Virginia



More than 30 million families have pet cats, and most own more than one.¹ Feline aggression is a common behavior concern that can occur between housemates or be directed at humans.²⁻⁵ Aggression and house soiling are the signs seen most often by both general clinicians and veterinary behaviorists²⁻⁵ and are typically listed as the reason for relinquishment.⁶

Background

Human-Directed Aggression

Feline aggression toward humans can be directed at owners, unfamiliar household visitors, and/or those with whom the cat comes in contact outside the home (eg, veterinary staff, groomers) and may be due to fear, a medical condition (result of a disorder [eg, pain]), petting, play (result of inadequate enrichment), redirection, or territoriality.

Feline-Directed Aggression

Cats in the same household that have a mostly harmonious relationship can still engage in conflict (*Figure*) that may be based on fear, a medical condition (result of a disorder [eg, pain]), redirection, resource guarding, status-related aggression, or territoriality.⁷

Signs of intercat aggression can range from obvious (eg, witnessed fights, hissing or chasing, wounds) to subtle (eg, physically blocking access to resources [eg, food, water, litter boxes, resting

spots, human attention]), avoidance [eg, leaving the room when a particular cat enters, hiding under furniture, perching on high shelves or counters]).⁸ Subtle signs are often missed by pet owners and clinicians.

Identifying which cat is the aggressor and which is the victim can be difficult for owners; differentiation is based on body language and vocalizations. The aggressor will stare directly at the victim, the ears will often be pointed forward, and the tail may be twitching quickly side to side and held at or above the topline of the body. The victim may try to avoid eye contact, crouch, attempt to slink, hold the ears pinned back, and tuck the tail into the body. Hissing is a fear-based vocalization that most often comes from the victim.

Aggression among household cats can be a root cause of other behavior or associated conditions, including psychogenic alopecia, inappropriate elimination, urine marking, excessive or inappropriate



▲ **FIGURE** Schrodinger and Fibonacci, 2-year-old spayed Devon rex cats, are highly bonded (**A**) but occasionally fight over access to resources and territory (eg, familiar humans, toys, favored resting spots; **B**). Fibonacci (**B**; cat on left) is shown blocking Schrodinger's access to the bed and/or toy. Schrodinger is showing avoidance behavior by attempting to make herself smaller and leaning away from Fibonacci.

scratching, weight loss or gain, physical signs of stress (eg, disparate body condition), chronic vomiting with no medical cause, and decreased elimination frequency.⁸

Indoor (ie, resident) cats can also show aggression toward unfamiliar cats (eg, strays, neighborhood cats with outdoor access). Resident cats that see an outdoor cat through a door or window may become aggressively aroused and, although physical altercations are only likely if the resident cat is allowed outside, it may take out this aggression on a human or animal housemate, especially one in close physical proximity.⁹ Aggression directed

toward another cat in the household can cause the victim to become fearful of the aggressor, and subsequent conflicts can last past the inciting event.

History & Clinical Signs

A thorough history of aggressive episodes should be taken; the **SOCRATES Mnemonic for Pain Assessment** was originally developed for assessing pain but can be modified to assess a history of aggression.¹⁰

A primary medical etiology that may contribute to or cause aggression should also be ruled out, as physical disorders that increase discomfort can

SOCRATES MNEMONIC FOR PAIN ASSESSMENT

The following has been modified to assess for a history of aggression.

SITE

- ▶ Where does aggression occur (eg, on the bed, on the couch, in the kitchen, near windows or doors the cat uses to look outside)?
- ▶ Who or what is aggression directed toward?

ONSET

- ▶ When did aggression begin?
- ▶ Was the onset sudden or gradual?
- ▶ Were early warning signs (eg, fear) observed in certain situations?
- ▶ Did a traumatic event precede the onset of aggression?

CHARACTER

- ▶ How does aggression manifest (eg, hissing, swatting, yowling, biting)?
- ▶ What type of injuries (if any) have been sustained?
- ▶ How does the cat appear during the aggression episode? Body position and posture of the ears, eyes, mouth, whiskers, and tail can help determine whether aggression is offensive or defensive in nature.
- ▶ Does the cat separate itself or is owner intervention necessary?
 - If owners must intervene, what type of injuries have been sustained (if any)?

RADIATION

- ▶ Does aggression extend to other circumstances?
- ▶ Does aggression continue after the trigger or stimulus has been removed?
- ▶ Does the cat redirect its behavior to a human or another cat when aggressively aroused?

ASSOCIATIONS

- ▶ Is aggression associated with any events (eg, a food bowl is present, an outdoor cat approaches the yard, visitors are present)?

TIME COURSE/PATTERN

- ▶ Does aggression follow a pattern (eg, only at night, after a prolonged absence of the owner, when visitors are present)?

EXACERBATING OR RELIEVING FACTORS

- ▶ What measures have been taken to mitigate aggression?
- ▶ Have other training methods been previously used?
- ▶ Have any medications, supplements, nutraceuticals, pheromones, or over-the-counter products been used?
- ▶ Which interventions have helped or exacerbated aggression?

SEVERITY

- ▶ According to the owner, how severe is the cat's aggression on a scale of 1 to 10? (This scale can help gauge the severity of aggression and determine the likelihood the owner will euthanize or rehome the cat.)

lead to or increase the likelihood of behavior disorders.¹¹ A physical examination (including orthopedic and neurologic evaluation), CBC, serum chemistry profile, measurement of total thyroxine and free thyroxine levels by equilibrium dialysis, and urinalysis should be performed. Further testing, including imaging, may be needed depending on the diagnostic results.

Pain is a key differential to rule out for aggression¹¹ but can be difficult to assess in the clinic. Owners should take pictures and video of their cat's activity at home (eg, walking, running, climbing up and down stairs, jumping on and off surfaces) to allow the clinician to look for mobility concerns. Photos, videos, and physical examination can be compared to the Feline Grimace Scale, which can help identify pain.¹² A study looking at 5 key facial expressions as markers for acute pain in cats identified ear position, orbital tightening, muzzle tension, whisker changes, and head position¹²; cats can be scored on these 5 points to determine if appropriate analgesia is being achieved. After medical disorders have been ruled out or appropriately treated, the behavior disorder can be addressed with a comprehensive treatment plan.

Diagnosis

Diagnosis is made by assessing body language of the aggressor cat as defensive (ie, fearful) or offensive (ie, confident), determining the actual target of the aggression (ie, the victim or redirected from something else), and identifying the underlying

trigger (eg, being petted, being lifted, seeing a cat outside the home).

Treatment & Management

Management

Management is the first step in a comprehensive treatment plan for aggression, regardless of the target or motivation, and begins with avoidance of triggering situations.

For aggression directed toward owners, verbal and physical punishment and physical interaction with the cat (ie, picking the cat up) should be avoided, as these can trigger fear-based aggression. Because cats groom each other around the whiskers and under the chin, petting should be brief and focused on these places, as it is less likely that aggression will be triggered because the cat is comfortable being touched in these areas. Interaction with the cat when it is highly aroused from another stimulus (eg, seeing another cat outside, returning home from the veterinary clinic) should be avoided; the cat may need to be lured into a closed room until it sufficiently calms down. Play with interactive and feeding/hunting toys should be increased. Each play session should only last ≈5 to 10 minutes, as cats often lose interest in toys that do not satisfy the entire predatory sequence. Switching toys midway through play sessions can help increase interest in continued play. Engaging in play and hunting opportunities with feeding/hunting toys that dispense food or treats can help the cat's innate need to stalk, capture, kill, and eat, making the cat less likely to take out aggression on a human or pet in the household.

Aggression toward visitors entering the home can be avoided by confining the cat in a room or floor of the house in which there is no access to the visitor.

Aggression toward other cats in the household can be avoided by setting up separate areas for each cat, feeding them in separate rooms, and potentially physically separating them with baby gates (2 stacked vertically on top of the other), partitions, and/or closed doors.

Pain is a key differential to rule out for aggression¹¹ but can be difficult to assess in the clinic.

When aggression stems from seeing outdoor cats, owners can make the outdoor environment less hospitable by not placing food or water outside, not using bird feeders, and potentially using a motion-activated sprinkler system that will spray the cat when detected; these actions can discourage cats from returning to the yard. Owners can also reduce visibility by covering windows and/or doors, using opaque or frosted privacy film on windows, and/or blocking access to rooms with windows.

Medication

Use of products (eg, nutraceuticals, pheromones, commercial diets) and medications to decrease fear, anxiety, stress, and overall arousal is the second step in a comprehensive treatment plan for aggression. It is important to reduce stress and anxiety because aggression is a behavioral strategy a cat may employ when scared. There are no FDA-approved medications for treatment of behavior problems in cats. Commonly used products and anxiolytics include pheromones, which have been shown to decrease intercat conflict in multicat households over 28 days¹³; these products should be placed where the cat spends most of its resting time.

Studies on nutraceuticals and prescription diets used to reduce fear, anxiety, and stress in cats have been conducted, but their clinical significance for fear-induced aggression may be limited due to lack of placebo controls and limited number of enrolled patients in each study. L-theanine, an amino acid found in green tea, has been shown to decrease signs of fear and anxiety in cats.^{14,15} α -casozepine,¹⁶ a naturally occurring protein in cow's milk, and prescription diets¹⁷ containing α -casozepine and tryptophan, a precursor for serotonin, have also been shown to help decrease fear, anxiety, and stress in cats.

Medications, such as selective serotonin reuptake inhibitors (SSRIs; eg, fluoxetine, paroxetine), tricyclic antidepressants (TCA; eg, clomipramine, amitriptyline), serotonin antagonist and reuptake

inhibitors (eg, trazodone¹⁸), and $\alpha_2\delta$ ligands (eg, gabapentin^{19,20}) can also be used. SSRIs increase the amount of serotonin available in the synaptic cleft by blocking its reuptake into the presynaptic neuron. TCAs also block reuptake of serotonin but additionally block norepinephrine reuptake. TCAs have anticholinergic effects and, thus, have a higher number of adverse effects than SSRIs. Because TCAs have shown similar efficacy as SSRIs in the treatment of certain anxiety disorders in cats,²¹ TCAs are no longer as commonly used. Unfortunately, there are no studies on the use of psychotropic medications to specifically treat aggression in cats; therefore, all use is anecdotal and extrapolated from studies on use for other anxiety disorders,²² including inappropriate elimination²³ and urine spraying.^{24,25}

Patients should be individually evaluated to determine the suitability of these products in reducing both daily and event-associated anxiety. If the aggression is either unpredictable or frequent in nature, a daily medication (eg, SSRI, TCA) should be chosen. If the aggression is predictable and infrequent, an event medication (eg, trazodone, gabapentin) alone may be suitable. Some patients with multiple diagnoses may need a daily medication plus an event medication for higher stress events (eg, veterinary clinic visits). Consultation with a board-certified veterinary behaviorist or resident in clinical behavior medicine may be needed.

Behavior Modification

Behavior modification is the third step in a comprehensive treatment plan for aggression. Multimodal environmental modifications in the form of increasing territory, structured play sessions, and feeder and hunting toys are the easiest changes that can be made and have been shown to help prevent behavior problems, as well as treat the underlying fear, anxiety, and stress.^{26,27} In addition, training cats to target an object or go to a location on cue can help safely redirect the cat.

Prognosis & Prevention

Prognosis depends on the owner's ability to keep all members of the household safe with management,

which can be exponentially more difficult when there are children or elderly or cognitively impaired household members; extent of physical injuries should also be considered, as managing risk during treatment is more dangerous when there are injuries. The owner must also be able to administer the recommended products or medication, which is often stressful for the owner and the cat, especially when the cat will not consume medication hidden in food.

One study has shown a poor prognosis for resolution of intercat aggression when the first encounter or introduction was associated with scratching or biting or was considered unfriendly or aggressive.²⁸

Clear communication with the owner about prognosis, desired outcomes, and continued need for coaching throughout the course of treatment is key. Behavior change is gradual, and it can sometimes take months or longer to achieve a desirable outcome. Many owners struggle with the patience and diligence needed to address the problem.

Clinical Follow-Up/Monitoring

Clinicians without a special interest and/or specialized education in feline behavior and training should at minimum understand the behavior concepts outlined in this article and be able to refer owners to a qualified behaviorist or trainer to discuss training adjustments and behavior modification. Clinicians should research the credentials, educational background, and continuing education when selecting a referral. This is especially true when referring a feline patient, as there are fewer paraprofessionals with the education and experience to work with cats as compared with dogs. There are many resources and websites that can help clinicians find a qualified consultant in their area (see *Suggested Reading*).

Conclusion

Feline aggression is a common behavior problem. Management strategies, anxiolytic products, diet, medication, and behavior modification can help clinicians, owners, and patients optimize the chances for successful management. ■

References

1. AVMA. 2017-2018 AVMA pet ownership and demographics sourcebook. AVMA website. <https://www.avma.org/sites/default/files/resources/AVMA-Pet-Demographics-Executive-Summary.pdf>. Accessed May 30, 2020.
2. Bamberger M, Houpt KA. Signalment factors, comorbidity, and trends in behavior diagnoses in cats: 736 cases (1991-2001). *J Am Vet Med Assoc*. 2006;229(10):1602-1606.
3. Ramos D, Reche-Junior A, Hirai Y, Mills DS. Feline behaviour problems in Brazil: a review of 155 referral cases. *Vet Rec*. 2020;186(16):e9.
4. Tamimi N, Malmasi A, Talebi A, Tamimi F, Amini A. A survey of feline behavioral problems in Tehran. *Vet Res Forum*. 2015;6(2):143-147.
5. Amat M, Ruiz de la Torre JL, Fatjó J, Mariotti VM, Van Wijk S, Manteca X. Potential risk factors associated with feline behaviour problems. *Appl Anim Behav Sci*. 2009;121(2):134-139.
6. Salman MD, Hutchison J, Ruch-Gallie R, et al. Behavioral reasons for relinquishment of dogs and cats to 12 shelters. *J Appl Anim Welf Sci*. 2000;3(2):93-106.
7. Lindell EM, Erb HN, Houpt KA. Intercat aggression: a retrospective study examining types of aggression, sexes of fighting pairs, and effectiveness of treatment. *Appl Anim Behav Sci*. 1997;55(1-2):153-162.
8. Stella JL, Lord LK, Buffington CAT. Sickness behaviors in response to unusual external events in healthy cats and cats with feline interstitial cystitis. *J Am Vet Med Assoc*. 2011;238(1):67-73.
9. Amat M, Manteca X, Le Brech S, Ruiz de la Torre JL, Mariotti VM, Fatjó J. Evaluation of inciting causes, alternative targets, and risk factors associated with redirected aggression in cats. *J Am Vet Med Assoc*. 2008;233(4):586-589.
10. Clayton HA, Reschak GL, Gaynor SE, Creamer JL. A novel program to assess and manage pain. *Medsurg Nurs*. 2000;9(6):318-321.
11. Overall KL. Medical differentials with potential behavioral manifestations. *Vet Clin North Am Small Anim Pract*. 2003;33(2):213-229.
12. Evangelista MC, Watanabe R, Leung VSY, et al. Facial expressions of pain in cats: the development and validation of a feline grimace scale. *Sci Rep*. 2019;9(1):19128.
13. DePorter TL, Bledsoe DL, Beck A, Ollivier E. Evaluation of the efficacy of an appeasing pheromone diffuser product vs placebo for management of feline aggression in multi-cat households: a pilot study. *J Feline Med Surg*. 2019;21(4):293-305.
14. Dramard V, Kern L, Hofmans J, et al. Effect of L-theanine tablets in reducing stress-related emotional signs in cats: an open-label field study. *Ir Vet J*. 2018;71:21.
15. DePorter TL, Bledsoe DL, Conley JR, et al. Case report series of clinical effectiveness and safety of Solliquin for behavioral support in dogs and cats. In: Proceedings from the American College of Veterinary Behaviorist Symposium; 2016; San Antonio, TX.
16. Beata C, Beaumont-Graff E, Coll V, et al. Effect of alpha-casozepine (Zylkene) on anxiety in cats. *J Vet Behav*. 2007;2:40-46.
17. Miyaji K, Kato M, Ohtani N, Ohta M. Experimental verification of the effects on normal domestic cats by feeding prescription diet for decreasing stress. *J Appl Anim Welf Sci*. 2015;18(4):355-362.
18. Stevens BJ, Frantz E, Orlando JM, et al. The use of trazodone to reduce feline travel anxiety and improve veterinary exam tractability. *J Am Vet Med Assoc*. 2016;249:202-207.
19. Van haften KA, Forsythe LRE, Stelow EA, Bain MJ. Effects of a single preappointment dose of gabapentin on signs of stress in cats

- during transportation and veterinary examination. *J Am Vet Med Assoc.* 2017;251(10):1175-1181.
20. Pankratz KE, Ferris KK, Griffith EH, Sherman BL. Use of single-dose oral gabapentin to attenuate fear responses in cage-trap confined community cats: a double-blind, placebo-controlled field trial. *J Feline Med Surg.* 2018;20(6):535-543.
 21. Hart BL, Cliff KD, Tynes VV, Bergman L. Control of urine marking by use of long-term treatment with fluoxetine or clomipramine in cats. *J Am Vet Med Assoc.* 2005;226(3):378-382.
 22. Seksel K, Lindeman MJ. Use of clomipramine in the treatment of anxiety-related and obsessive-compulsive disorders in cats. *Aust Vet J.* 1998;76(5):317-321.
 23. Hopfensperger MJ. Use of oral venlafaxine in cats with idiopathic cystitis or behavioral causes of periuria. In: Proceedings from the American College of Veterinary Behaviorists Symposium; 2016; San Antonio, TX.
 24. Mills DS, Redgate SE, Landsberg GM. A meta-analysis of studies of treatments for feline urine spraying. *PLoS One.* 2011; 6(4):e18448.
 25. Landsberg GM, Wilson AL. Effects of clomipramine on cats presented for urine marking. *J Am Anim Hosp Assoc.* 2005;41(1):3-11.
 26. Buffington CAT, Westropp JL, Chew DJ, Bolus RR. Clinical evaluation of multimodal environmental modification (MEMO) in the management of cats with idiopathic cystitis. *J Feline Med Surg.* 2006;8(4):261-268.
 27. Buffington T. Multimodal environmental modification (MEMO) for prevention and treatment of disease in cats: part 1. *Feline Focus.* 2015;1:275-80.
 28. Levine E, Perry P, Scarlett J, Houpt KA. Intercat aggression in households following the introduction of a new cat. *Appl Anim Behav Sci.* 2005;90(3-4):325-336.

Suggested Reading

- American Veterinary Society of Animal Behavior. Position statements and handouts (for the public). AVSAB website. <https://avsab.org/resources/position-statements>. Accessed September 2020.
- CAAB directory. Animal Behavior Society website. <https://www.animalbehaviorsociety.org/web/applied-behavior-caab-directory.php>. Accessed September 2020.
- Curtis TM. Human-directed aggression in the cat. *Vet Clin North Am Small Anim Pract.* 2008;38(5):1131-1143.
- Find a board certified behaviorist. American College of Veterinary Behaviorists website. <https://www.dacvb.org/search/custom.asp?id=4709>. Accessed September 2020.
- Find a Fear Free certified veterinarian, trainer, and more! Fear Free website. <https://fearfreepets.com/resources/directory>. Accessed September 2020.
- International Association of Animal Behavior Consultants. Find an animal behavior consultant. IAABC website. <https://iaabc.org/consultants>. Accessed September 2020.
- Moesta A, Crowell-Davis S. Intercat aggression - general considerations, prevention and treatment. *Tierarztl Prax Ausg K Kleintiere Heimtiere.* 2011;39(2):97-104.
- Pachel CL. Intercat aggression: restoring harmony in the home: a guide for practitioners. *Vet Clin North Am Small Anim Pract.* 2014;44(3):565-579.
- Tudge N, Nilson S. Open letter to veterinarians on referrals to training and behavior professionals. The Pet Professional Guild website. <https://www.petprofessionalguild.com/Open-letter-toveterinarians-on-referrals-to-training-and-behavior-professionals>. Published 2016. Accessed September 2020.

Behavior change is gradual, and it can sometimes take months or longer to achieve a desirable outcome. Many owners struggle with the patience and diligence needed to address the problem.

LOOK FOR THESE ARTICLES IN FUTURE ISSUES & ON CLINICIANSBRIEF.COM

- ▶ Vehicular Trauma Algorithm
- ▶ Urinary Tract Infections Overview
- ▶ Top 5 Ways to Manage Stress in Boarded or Hospitalized Patients
- ▶ Post-Traumatic Stress Disorder in a Dog
- ▶ Identifying GI Foreign Bodies on Radiographs