



# FELINE AGGRESSION

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Aggression is second only to inappropriate elimination as a feline behavior problem presented to many referral practices. Aggressive cats can present a danger to people and other pets in the household. Because owners may consider them to be dangerous, aggressive cats may be at a higher risk for relinquishment to animal shelters than are cats with other behavior problems.

Veterinarians are in a unique position to help manage feline aggression problems. In a 1996 study to evaluate risk factors associated with relinquishment of cats to animal shelters, Patronek and associates reported that approximately 86% of cat owners who sought behavioral advice obtained it from a veterinarian.<sup>1</sup> Owners expect their veterinarians to have a working knowledge of companion animal behavior and answers to many of the common behavior problems.

As with any problem presented by a cat owner, the successful diagnosis and treatment of feline aggression problems depends on exclusion of any underlying medical etiology or contributing factors, a careful collection of a behavioral history, formulation of a list of diagnostic differentials, and selection of a presumptive diagnosis and treatment protocol. Any medical condition that causes pain or discomfort for a cat can lead to aggressive behavior. In addition, aggressive behavior can be a presenting sign of such diseases or conditions as rabies, hepatic encephalopathy, uremia, hyperthyroidism, toxoplasmosis, ischemic encephalopathy, lead toxicosis, seizure activity, and central nervous system neoplasia (particularly meningioma). This discussion will focus on a step-by-step approach to behavioral diagnosis and treatment of common types of feline aggression once a medical etiology has been ruled out.

## BEHAVIORAL HISTORY

Whether obtained in advance or during the behavior consultation, behavioral histories must be comprehensive. Owners must be guided to give descriptive and factual accounts of the events before, during, and immediately after the aggressive episodes. Owners may express their feelings and interpretations of the problem, but these are seldom useful in arriving at a correct diagnosis. Veterinarians can use a thorough, standardized behavioral history form to safeguard against omissions in the information-gathering process. Ready-to-use forms have been published.<sup>2-4</sup>

A basic behavioral history for aggression should include descriptions of recent episodes of misbehavior, onset and duration of the problem, circumstances that lead to the aggressive events, the victims or targets of the aggression, the number of episodes, and the severity of the attacks (Was the skin broken? Did the victim require medical care?). Because many cases of feline aggression are highly related to social friction between cats in a household, information about all of the cats in the home must be obtained.

An account of “a day in the life of” both the aggressive cat and the victims is helpful. This 24 hour period should include all typical interactions among the aggressive cat, other pets, and people in the home. Play, grooming, elimination, and feeding activities should be described. A description of favorite resting and hiding places (noting which cat has preferential access to socially significant areas) can help determine the relative status of each cat in the home.

Any recent changes in the home environment, such as the addition of a new household member, a change in schedule, increased travel time away from home, or even new furniture, may be associated with changes in behavior. Unless asked, some owners will not volunteer these details because they may not think that they could be significant.

Other information that should be part of the behavior history is a summary of the cat’s medical history. Knowledge of medications that the cat has been given in the past or is being given at the time of the appointment is necessary in case the treatment plan includes the use of psychotropic medication.

Finally, details about the cat’s origin—its source, the age at which it was obtained, and information about its sire, dam, and littermates—and a description of the cat’s elimination habits can yield useful information. In many cases of feline aggression, particularly those involving housecats, urine spraying and marking are a secondary problem. If the urine spraying is addressed without consideration of the underlying intercat aggression, treatment may prove unsuccessful.

History taking can be time consuming. To save time, the client should be asked to fill out a standardized questionnaire *before* the appointment. The veterinarian can review the completed form before the behavior consultation and draw up a preliminary working plan to direct further questions to points of interest or to discuss owner descriptions that need further clarification. Even with all of this advance planning, expect to spend anywhere from 1 hour to 2 or more hours (if you are holding a house-call behavioral consultation) for most feline aggression cases.

## CATEGORIZING FELINE AGGRESSION

There are no uniformly accepted diagnostic criteria for behavioral problems, particularly when European diagnostic categories are compared with those used in North America. Nonetheless, there is a general consensus that descriptive or phenomenological diagnoses are useful when categorizing behavior problems.<sup>2,4-7</sup>

This article focuses on common types of feline aggression, including fear or defensive aggression, predatory aggression, play aggression, assertive aggression, pain-related aggression, redirected aggression, and intraspecies (intercat) aggression. Less common types of feline aggression, including sexually dimorphic aggression (maternal, sexual, and intermale aggression), territorial aggression, idiopathic aggression, and learned aggression, have been discussed elsewhere.<sup>2,4-7</sup>

## FEAR OR DEFENSIVE AGGRESSION

### *Recognition*

When a fearful stimulus is encountered, most animals respond in one of three ways: they will freeze, they will take flight, or they will become aggressive and defend themselves. Fearful or defensive cats may attempt to flee and avoid the fear-inducing stimulus. When flight is prevented, those that do not freeze will attempt a defense. These cats will show a combination of defensive and offensive postures and may vacillate between the two states from one second to the next.

The commonly recognized “Halloween cat” pose is a defensive, not an offensive, posture. The cat arches its back upward, and its fur stands on end (piloerection). The ears are somewhat flattened, and legs are held stiffly and straight. The cat may show its back teeth—either silently or with hissing and spitting. The pupils dilate, and the cat may exhibit hypersalivation. All of these gestures help the cat present a more threatening demeanor and tend to discourage an attacker.

Piloerection of the tail and the carriage and motion of the tail are useful indicators of how defensive a cat is. Very defensive cats hold their tails low or tucked near their bodies. A cat showing a U-shaped tail is sending mixed defensive-offensive signals. A cat that is somewhat more on the offensive holds its tail straight up. Tail lashing is a sign of agitation but does not appear to be specific to defensive or offensive states.

Distance-increasing postures help maintain space between an individual and a perceived threat. If the

perceived threat cannot be kept at bay and enters into the cat's critical distance, which is shorter than its flight distance, the cat's posture will compress into a crouch, the ears will flatten against the head even further, and the neck will be retracted toward the thorax. As opposed to pretending to be a more formidable foe, the cat is now presenting a smaller target, thus decreasing the chances of injury.

The cat may roll over on its back in preparation for striking with a forepaw. This is a defensive threat posture—*not* a submissive one, as is the case with dogs. Should the cat be approached when it is in this position, it may bite, holding with his forepaws while kicking with his hind feet. If possible, it will then attempt to flee.

### *Treatment*

The first step is to teach the client what to do when a cat is fearful. A cat that is showing signs of fearful aggression may be responding to a real or perceived threat. Once aroused, the cat may stay in a defensive state even after the frightening stimulus is removed. To prevent injury, owners should be instructed to allow cats that are showing signs of fearful aggression to calm down before handling the cat.

If the cat must be moved, a blanket or a large piece of cardboard can be used to "herd" the cat to a quiet area. Ideally, the room should be quiet and dimly lit. Water, food, and a litterbox can be placed in the room. If the cat has selected a secluded place where it is out of harm's way, it should be allowed to remain there. Give the cat 1 to 2 hours before checking on its status. Under no circumstance should the owners try to reassure the cat: The client may be injured, and, at the very least, the owner will reinforce the fearful behavior.

Once the cat has calmed down, it can be desensitized to the frightening stimulus or counterconditioned to a different behavior (e.g., sitting for a treat). For desensitization to be successful, the threatening stimulus must be both identifiable and reproducible. The cat must be exposed to the stimulus at an intensity that is below the threshold for a fearful response and then rewarded for remaining calm. The intensity of the stimulus is gradually increased until the stimulus is presented at full or near to full intensity without eliciting a fearful response.

During desensitization, it is essential to avoid eliciting a fearful response. If at any point during the desensitization the cat becomes fearful, the exercise should be stopped until the cat is calm and then started again at the last level of intensity that the cat toler-

ated well. For some cats, the use of anti-anxiety medication is indicated if the fearful reaction is so severe that it interferes with learning of a new behavior.

## PLAY AND PREDATORY AGGRESSION

### *Recognition*

Normally, a kitten learns bite inhibition while playing with its littermates and its dam. When a kitten bites down too hard, its playmate will cease play and may cry out, swat with a paw, or bite back. The kitten quickly learns how much pressure to apply while biting in play. Playing with retracted claws is learned in the same fashion. Orphaned kittens that are hand-raised by well-meaning owners who fail to provide corrections during rough play seem to be presented more often for play-aggression problems.

Play may be initiated by either the cat or the owner and may start as gentle play that progresses to injury. Some play-aggression bouts are characterized by a period of stalking, an attack, pounce, or ambush, a bite, which may be accompanied by scratching with the hind feet, and a quick escape. In these cases, an added predatory component exists. The attacks are silent. This kind of "commando raid" can occur at any time, but early mornings and evenings are typical times. Cats are *crepuscular* (i.e., they exhibit an increase in prowling and predatory activity in the dawn and dusk hours).

### *Treatment*

Treatment of play aggression consists of interrupting inappropriate play and substituting toys for human flesh as play targets. Various techniques can be used to startle a rambunctious cat: a stream of water from a water gun or sprayer bottle, a blast from a compressed-air can, or, in severe cases, a shrill blast from an air-horn canister. You should instruct the client to start with the least aversive method of punishment that will make the cat abort the behavior. For cats that are not bothered by plain water, adding two to three tablespoonfuls of lemon juice or white vinegar to a cup of water may add an aversive odor that will deter further aggressive play.

Owners should have structured playtime with items that the cat is allowed to play with, particularly for cats with a predatory component to their play. There are numerous toys in the market that allow a cat to chase, jump, and catch (e.g., so-called cat dancers and teasers, wand toys, and even motorized rodents). I recommend that a treat be occasionally hidden in the toy to enhance the cat's motivation to play with the item. Stuffed toys that can be dragged by a string are

good for “chase and hunt games” because it usually is possible to hide a treat in the folds of the toy’s fabric.

Owners of cats that exhibit predatory behavior toward natural prey items may be distressed by their cats’ instincts. They may express consternation that their cats hunt and kill even though they are well fed. Some cats have very strong predatory drives and will hunt and kill even when not hungry. They may consume the entrails or only decapitate their prey, much to their owners’ dismay. Environmental modification in the form of limiting access to the outdoors or letting the cat out only at specific times when prey items are not present should be recommended. If the owner supervises the cat when it is outside, he or she may be able to startle the cat and interrupt the behavior with a loud noise or a spray of water.

Predation directed at infants is best treated by complete supervision of the cat and infant and by denying the cat access to the infant’s nursery. Because the attraction of the infant as a prey item will wane as the child gets older, the owners may consider placing the cat in a foster home for a while if the cat poses a threat to the child.

## ASSERTIVE AGGRESSION

### *Recognition*

This type of aggression has been recognized for a while but not given a specific name. Previously referred to as irritable aggression or attributed to anti-social or aloof cats, it describes a cat that seem to ask, even demand, attention, only to get its fill and signal that it has “had enough” by biting or scratching, with or without a signal that the owner can detect. These cats may need to control the owner’s actions in more than one situation (e.g., when the owner is attending to guests or another pet) or may revolve only around times when the owner wishes to interact with the cat.

### *Treatment*

Owners need to be taught how to read their cat’s body language and to stop interacting with the cats when they start signaling that aggression is imminent. Dilated pupils and tail lashing, pulling away of the body, body stiffness, and the more obvious growl should indicate to the owner to stop interacting with the cat and walk away. If the cat is very aroused and follows, the owner should walk into an area, such as a bedroom, where the cat can be isolated for a few hours until the cat has calmed down.

Cats are usually more tolerant of petting during greeting after their owners have been away for a while

and when being fed. Owners can be instructed to limit petting to these instances and to gradually increase the amount of time spent petting the cat. Canned food can be used to desensitize the cat to being petted. The cat is fed a small quantity at a time on a spoon and only for allowing the owner to pet it. Through this technique, petting can be extended into a 10 or 15 minute session that can satisfy the owner’s need to interact with the cat in a positive fashion.

Owners need to learn to recognize their cats’ limits. Medication is of questionable value in the management of assertive aggression and should be reserved for cases with a pain or fear component.

## PAIN-RELATED AGGRESSION

Pain-related aggression is a normal and adaptive behavior. Furthermore, *pain-related aggression is preventable*.

Clients must be taught what conditions are potentially painful and how to modify their interactions with their cats in order to minimize inflicting pain. Cats are notorious for being subtle in their display of clinical signs. A cat that is actually in severe pain may appear to be merely quieter than usual.

As practitioners, we need to be more aware ourselves of procedures and disease processes that can cause pain and be generous in our use of analgesics, so long as they are not contraindicated by a preexisting or current medical condition. Cats that are in pain become aggressive in self-defense. At the very least, the cat will learn from the experience and perhaps become more fractious and difficult to handle during its next visit to your clinic. Analgesics and sedatives should be used as needed to ameliorate any painful experience as much as possible.

## REDIRECTED AGGRESSION

### *Recognition*

Redirected aggression can be the inciting episode that leads to other types of aggression (particularly intercat aggression, as discussed below). In ethology and behavioral sciences, *redirection* refers to an activity or behavior that is a correct and contextual response to a stimulus or situation but that cannot be directed at the inciting stimulus and carried to completion. It is therefore displayed or *redirected* toward an unrelated individual or object.<sup>8</sup> In other words, a real or perceived barrier makes it impossible for interaction with the individual or situation that elicited the behavior. Instead, a secondary, accessible, and new target becomes the focus of the behavior.

This is the case of the “innocent bystander.” In feline

redirected aggression, the most common scenarios are people getting attacked when they intervene to stop a cat fight that breaks out among feline housemates, or when a cat responds to a frightening or threatening stimulus (real or perceived) and attacks another cat in the house. The inciting stimulus might be a cat seen outdoors, an odor, or even a loud noise. In the case of owners getting attacked, they might interfere with an interaction *inadvertently*, such as walking between two cats that are having a staring standoff.

### *Treatment*

Because the inciting offense might be subtle and difficult to detect, and sometimes missed altogether, these cases can be difficult to treat. If stimuli can be identified, the cat can be desensitized as previously explained. Most of the time, treatment consists of educating the owner on how to recognize signs of impending aggression and how to confine the cat to a safe area (as described above). If intercat aggression occurs secondary to a single episode of redirected aggression, the social friction between cats in the home also must be addressed.

## INTRASPECIES (INTERCAT) AGGRESSION

### *Recognition*

For the purpose of this discussion, *intercat aggression* will be used to describe aggression between cats in a household and will not include aggression toward cats outside the home. Social friction between cats in the home can occur in a variety of circumstances.

Cats that have been raised together and have lived perfectly happily with each other may begin to have aggressive encounters when one or more of the cats reach social maturity, anywhere between 2 to 3 years of age. Even past this stage, changes in the composition of the household can disrupt the social arrangements cats may have worked out among themselves. These changes include the addition of a new cat or the death of a resident cat, a short or prolonged absence of a resident cat, a change in a resident cat's physical appearance (such as a total body clip) or a deterioration in a cat's condition owing to age or disease.

Because of the lack of familiar visual or olfactory cues, cats may fail to recognize a cat that has been away at a veterinary hospital. After hospitalization, the cat's smell may seem different from that of the cats in the home. A physical deterioration, particularly if the affected cat is high ranking, may encourage another

cat in the home to take its place. A cat that was the victim of a redirected aggression episode may now fear the attacker and display victim and escape behaviors in the presence of the aggressor, thus encouraging further attacks upon itself.

### *Treatment*

Some of these aggressive events might be prevented if introduction of new individuals or reintroduction of a resident cat is performed gradually. New animals should be confined to an area, such as a large cat cage or a bedroom, where cats can become acquainted with each other through olfactory, auditory, and visual cues without coming into physical contact. These early interactions should be observed by the owner to determine if the cats are compatible. Feeding of highly palatable foods should be reserved for times when the cats are separated as described above but are aware of each other's presence: this will help them associate the proximity of the other cat with a pleasant experience.

If a pattern of aggression is already established, it is important to prevent the behavior from recurring—every episode can serve as reinforcement. The aggressor should be separated from the victim and placed in a separate room when the owners are not home to supervise the interactions between the cats. A gradual reintroduction with the aggressive cat placed in a carrier or cage and the victim cat allowed the run of the room is recommended. The aggressor can have its feeding dish in the crate while the victim cat's dish is placed at a distance at which no fearful response is elicited and both cats settle down to eat without paying much attention to each other. Over time, the cats are brought closer together by moving the victim's dish closer to the crate door until the cats are practically side by side. The owners must be watchful for any body language that indicates that either cat is getting aroused and should move the dishes apart if this reaction is observed.

Once the cats are eating side by side, the owner will have to let the aggressive cat out of the crate. The aggressive cat can be fitted with a harness and light leash to control its movement. At the first sign of aggressive behavior, a light tug on the leash can be given to interrupt the behavior. By the same token, if the aggressive cat demonstrates tolerant or benevolent behavior toward its victim, a small food treat can be given as a reward.

Once the cats can be together in the same room without aggressive confrontations, the aggressor's harness and leash can be removed. At this point, plac-

ing a bell on the aggressor (on a breakaway collar) will allow both the owner and the victim cat to know the whereabouts of the attacker. The spray water bottle or water gun should be kept handy in case the owner needs to interrupt any further attempts at aggression. Owners need to be aware that aggressive displays can be subtle. An aggressor may stand immobile and stare at the victim before a more overtly aggressive exchange. At any time that an aggressive episode occurs, the owners should return to the previous level of restraint that kept the peace between the cats.

An increase in stratification of space within the home can be helpful to decrease the odds of aggressive encounters just by providing areas where the victim cat can remove itself to and be out of harm's way. Free access to high places should be encouraged. Once on high ground, the victim cat has a defensive advantage. This is particularly true for "cat condos," tower structures that have steps to enable a cat to climb to the highest level. The better ones have an enclosed hiding place at the top. Few predators pursue a victim that has reached higher ground.

In a few cases, antianxiety medication is indicated for the aggressor, the victim cat, or both—if anxiety and fear are factors that will interfere with the desensitization and counterconditioning process.

## PSYCHOTROPIC DRUGS

The use of psychotropic medication has become an acceptable and necessary component of a comprehensive treatment plan for the management of animal behavior disorders (see Table 1). The use of medication will continue to grow as our knowledge of these drugs slowly expands. The following is but a brief introduction into the field of behavioral psychopharmacology. Comprehensive sources of information on the subject have been published.<sup>4,9,10</sup>

Psychoactive medication can be a helpful adjunct to behavior modification and owner vigilance but should never be used by itself with the expectation that the problem will be resolved. This belief constitutes a simplistic view of a system—composed of the interaction between the environment and the central nervous system at the molecular level—that we are just beginning to comprehend. While medication can be used safely in most cases, no drug use is without risks.

At present, there is incomplete knowledge of the pharmacokinetics, mode of action, and possible side effects of many of the psychotropic drugs in companion animal species. For this reason, baseline ancillary tests (a serum chemistry profile, complete blood count, and [in the case of tricyclic antidepressants] an

TABLE 1  
Psychopharmacologic Agents  
Useful in the Management of  
Anxiety-Related Feline Aggression

Agent	Dose Regimen
Amitriptyline	0.5–2.0 mg/kg PO q12–24h
Bupirone	0.5–1.0 mg/kg PO q8–12h
Clomipramine	0.5–1.0 mg/kg PO q24h
Diazepam	0.2–0.4 mg/kg PO q12–24h
Fluoxetine	0.5–1.0 mg/kg PO q24h
Oxazepam	0.2–0.5 mg/kg PO q12–24h
Paroxetine	0.5–1.0 mg/kg PO q24h

electrocardiogram) should be performed. The tests should be repeated after the medication has been used for 6 weeks—or sooner should clinical signs warrant. Most side effects resolve once the medication is discontinued.

Use of psychotropic medication should continue for 3 to 4 months of acceptable behavior before attempts are made to gradually wean the patient off medication. Rapid withdrawal can result in a sudden rebound of anxiety and a return of the problem behavior. In some instances, medication can be fully withdrawn without a return to undesirable behaviors. In other cases, the patient must be maintained at some dosage level of drug for the rest of its life. Weaning should take approximately as long as it took each drug to achieve a therapeutic steady state, which in most cases is between 3 to 5 weeks for most psychotropic agents discussed here, with the notable exception of the benzodiazepines, which exert their effect within hours of administration. Nonetheless, a gradual decrease in dosage is recommended even for these fast-acting anxiolytics. Their use is associated with dependency, and rebound anxiety may occur if they are withdrawn suddenly.

### *Tricyclic Antidepressants*

The tricyclics that are most commonly used in companion animal behavioral medicine are amitriptyline<sup>a</sup> and clomipramine.<sup>b</sup> Both inhibit the reuptake of serotonin at the level of the presynaptic neuron, and amitriptyline is a more potent inhibitor of norepinephrine than clomipramine is. Their use is indicated for the aggressor cat in the household if the aggression is partly due to or affected by anxiety or fear.

Side effects can include tachyarrhythmia, hepatic tox-

<sup>a</sup>Elavil®—Zeneca Pharmaceuticals.

<sup>b</sup>Anafranil®—Novartis Pharmaceuticals.

icity, urine retention, sedation, a lowered seizure threshold, and gastrointestinal upset. Their use is contraindicated in cases of glaucoma, thyroid disease, and cardiac disease. Most side effects will disappear once the medication is withdrawn. Paradoxical anxiety can occur in response to tricyclic antidepressant use. The current understanding of anxiety disorders is in its infancy, and there are subtle differences in the receptor subtypes affected among anxiety disorder types and even among individuals.

Amitriptyline is bitter; if tablets are split, they should be placed in empty gelatin capsules to facilitate dosing and compliance. Currently, the available formulations of clomipramine must be compounded into smaller doses for use in cats.

### *Specific Serotonin Reuptake Inhibitors*

The specific serotonin reuptake inhibitors (SSRIs), including fluoxetine<sup>c</sup> and paroxetine<sup>d</sup>, are widely used in veterinary behavioral medicine. SSRIs act by preventing serotonin reuptake at the presynaptic cell, with little if no effect on other neurotransmitters. Fluoxetine is available in 10, 20, and 40 mg capsules and in a mint-flavored solution. Compounding is necessary for use with most feline patients. Paroxetine is available in 10 mg tablets that can be halved or quartered for feline patients. As with all serotonin-specific reuptake inhibitors, paradoxical anxiety and inappetence are possible side effects.

### *Benzodiazepines*

Diazepam<sup>e</sup> and its intermediate metabolite oxazepam<sup>f</sup> are anxiolytics that can be useful in the treatment of anxiety-based feline aggression. However, these agents should be used cautiously because benzodiazepines facilitate social interaction by disinhibition. A cat that had inhibited an aggressive response in the past may not do so under the effects of a benzodiazepine. If a benzodiazepine is given to an assertive, confident cat, the aggression may escalate. When given to the victim cat, a benzodiazepine may help to make the cat behave more assertively, thus interrupting the attacker/victim cycle.

Because of the concern about idiosyncratic, fulminant hepatotoxicity, a laboratory assessment of hepatic function is essential before a diazepam is prescribed. If there are any indications of hepatic compromise, another anxiolytic (other than benzodiazepines) should

<sup>c</sup>Prozac<sup>®</sup>—Dista Products, a division of Eli Lilly & Co.

<sup>d</sup>Paxil<sup>®</sup>—SmithKline Beecham.

<sup>e</sup>Valium<sup>®</sup>—Roche Products.

<sup>f</sup>Serax<sup>®</sup>—Wyeth-Ayerst Laboratories.

be selected, assuming that serum chemistry profile changes are not severe enough to question the wisdom of using psychotropic medication at all.

As an alternative, oxazepam can be used. Oxazepam is diazepam's intermediate metabolite. It has a short half-life and no active intermediate metabolite of its own before it is glucuronidated and excreted from the body. I have had success with oxazepam in treating anorexia in feline patients recovering from hepatic lipidosis.

Owners of cats treated with benzodiazepines can be instructed to carefully observe for changes in appetite and food intake. A decrease in appetite following benzodiazepine administration warrants an immediate examination by the cat's veterinarian.

### *Other Anxiolytics*

Buspirone<sup>g</sup> is a mixed serotonin agonist/antagonist, and it may also affect the dopaminergic system. It is not related to any other class of anxiolytics. So far, very few side effects have been reported when buspirone is used to treat feline patients. It may be a good first choice of anxiolytic when preexisting medical conditions preclude the use of tricyclic antidepressants or benzodiazepines.

Buspirone must be given every 8 to 12 hours because of its short half-life, and some clients may be unable or unwilling to medicate the cat three times a day. Buspirone is available in 5 and 10 mg tablets, which facilitates its use in feline patients. There are anecdotal reports of increased assertiveness and aggression following administration of buspirone, so buspirone may be a good medication to prescribe for the victim cat in the home.

### *Progestins*

The use of progestins in the treatment of feline aggression should be reserved for salvage situations—when the owner has expressed an intention of euthanizing the aggressive cat if the problem cannot be ameliorated. The long list of side effects associated with chronic use of progestins poses an unacceptable risk given the availability of drugs that are less likely to pose dangerous problems. This risk is only acceptable when compared with certain death from euthanasia. A partial list of side effects includes polydipsia and polyuria, diabetes mellitus, aplastic anemia, hypercalcemia, mammary neoplasia, and pyometra in intact females.

Of the two common preparations available to veterinarians—megestrol acetate and medroxyprogesterone

<sup>g</sup>BuSpar<sup>®</sup>—Bristol-Myers Squibb.

terone acetate—megestrol acetate is preferred. If side effects are detected, it will be easier to discontinue its use and to stop exposure of the body to the hormone. The injectable form is metabolized at different rates by different individuals. Once the drug has been injected, there is no control over its breakdown and eventual excretion from the body.

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