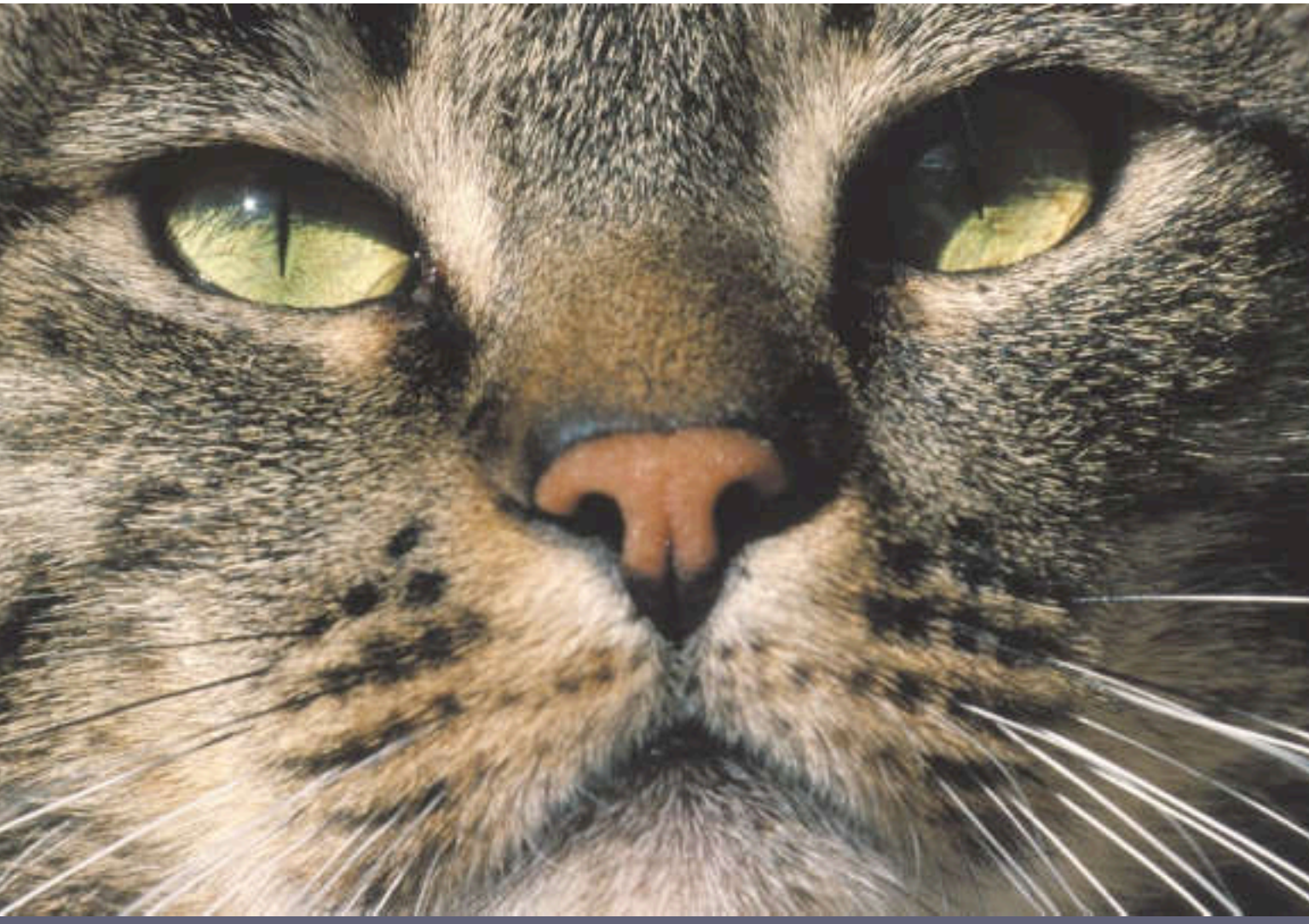
FELINE BEHAVIOR GUIDELINES

FROM THE AMERICAN ASSOCIATION OF FELINE PRACTITIONERS



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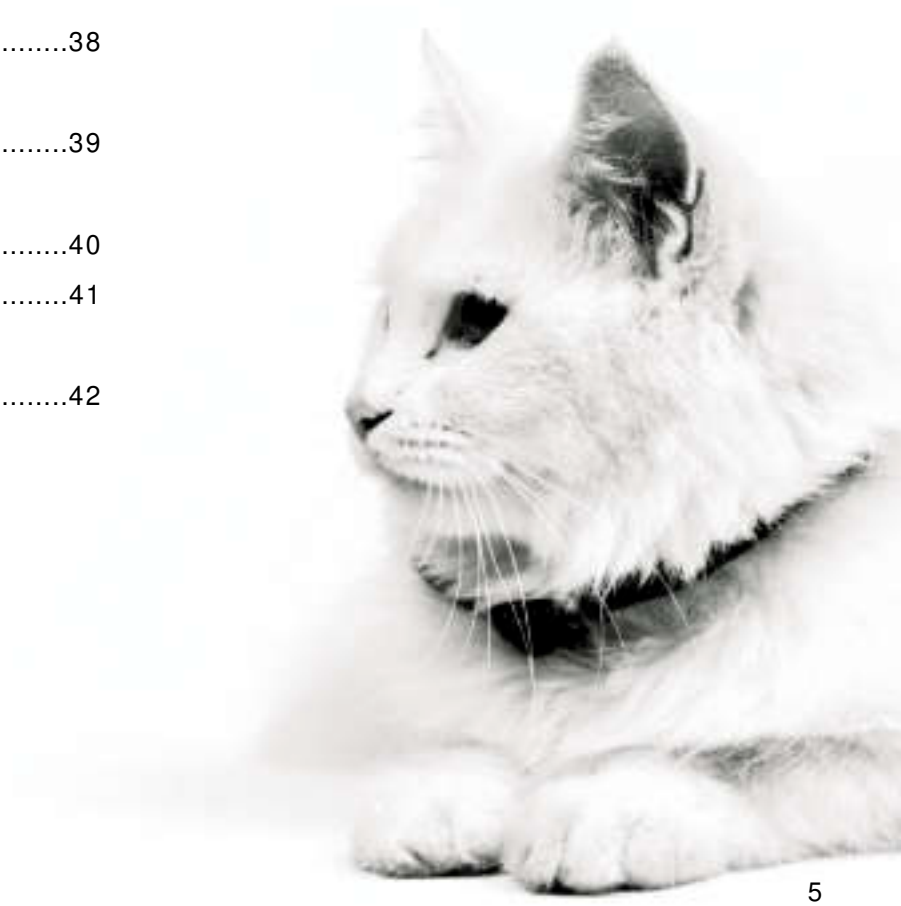

I. INTRODUCTION

The veterinary profession has the privilege and responsibility of caring for both animals and people. The benefits of living with a pet are now well recognized. By preventing and treating behavioral problems, we have the opportunity to protect and strengthen the human-pet-veterinary bond and increase the quality of life for both pets and pet lovers. The goal of the American Association of Feline Practitioners (AAFP) Feline Behavior Guidelines is to support veterinarians by providing practical information and client educational materials to successfully incorporate feline behavioral medicine into every practice that offers feline healthcare.

Veterinarians have a great opportunity to save pets' lives by recognizing that behavioral medicine is as important as any other field of veterinary medicine, and can routinely be incorporated into each veterinary visit. Because most veterinarians never received education in veterinary school about feline behavior, and do not have the time and resources to study all the latest research and develop behavior protocols, the panelists have worked to develop a concise, updated and "user friendly" document that can be easily implemented.

The guidelines include the following information:

- Emphasis is on prevention, from pre-adoption or the first veterinary visit, through senior life. Preventing behavior problems should be an important part of total wellness care. A list of behavior questions intended for inclusion in the medical history questions used at each appointment is provided to aid in early detection and intervention of behavior problems.
- An outline is provided for guidance regarding how to create realistic expectations about living with a cat. This will encourage cat owners to provide positive outlets to allow normal behavior, but in ways that clients will consider acceptable.
- Several of the appendices can be used for both prevention and treatment and can be made into client handouts; these will delegate client education to the veterinary support team and be used to facilitate the veterinarian's role in client education.
- A developmental table specifying home and veterinary care needed at different stages of life is included. This can serve as an excellent poster or client information handout to help clients understand their responsibilities for home and veterinary care.
- Detailed information on behavior and environmental enrichment is included to help prevent many of the most common behavior problems.
- Suggestions regarding prevention and treatment of obesity, the most common consequence of domestication of cats, are provided.
- To help veterinarians better handle routine behavior concerns (eg, inappropriate elimination) a rational first approach to the problems seen day-to-day is included.
- Behavior counseling and treatment, including behavior modification and environmental enrichment, are discussed in detail. For cats needing medical treatment, important drug information including dosing and tapering of medication is provided. Information on where to refer if needed is also provided.
- Information is provided that will promote comprehensive, state-of-the-art, holistic care that incorporates both the physical and psychological well-being of our feline patients.
- These guidelines will help veterinarians raise client awareness that they should turn to the veterinary profession for advice regarding behavior, just as they do with any medical concerns.

II. THE IMPORTANCE OF FELINE BEHAVIOR MEDICINE IN VETERINARY PRACTICE

Despite continued advances in feline health care, behavior problems are still the most common cause of euthanasia in pet cats.[1] Behavior problems, including normal cat behavior that clients consider unacceptable, cause decreased quality of life for cats and their owners. Behavior problems often lead to family stress, inappropriate punishment of pets, destruction of the bond between people and their pets, and relinquishment and euthanasia. Most pets surrendered to shelters had been evaluated by a veterinarian in the year prior to relinquishment.[2-4] Unresolved behavior problems cause veterinarians to annually lose approximately 15% of their client base.[5]

Patients, clients, and veterinary teams all benefit from incorporating behavior services into veterinary practices. Cats benefit by increased quality and length of life, an enriched environment, and respectful, understanding relationships. The psychological benefits to clients of living with a beloved pet include companionship, a feeling of being needed, and less depression.[6,a] The physical benefits include decreased blood pressure, reduced chance of a second heart attack, and decreased triglyceride concentrations.[7-11] Children who live and work with pets gain increased self-esteem.[12]

There is evidence for an association between pet behavior and the level of owner attachment.[13] A positive human-animal bond means that clients will seek more regular and extensive healthcare throughout their cats' lives, which benefits pets, clients, and veterinary professionals alike. Veterinary practices that incorporate behavior wellness attract clients who seek a high level of care for the pets they cherish. Veterinary professionals benefit by maintaining a positive relationship with pets and clients and improved job satisfaction. A positive veterinary-client bond results in clients who are more likely to turn to the veterinary hospital with pet concerns and recommend the veterinary team to friends and acquaintances.

The belief that behavior is too time-consuming to generate profit within the practice is a myth. Client education can be facilitated at all wellness appointments by giving client education handouts and reviewing them with clients. Teaching staff and clients how to improve experiences for the cat at the veterinary clinic also improves patient behavior. Fewer staff, less time, and fewer resources are needed to work with well-behaved patients. Positive experiences during veterinary visits also decrease stress and potential injury for cats, clients, and veterinary team members. Finally, educating veterinary team members and allowing them to educate clients about prevention of behavior problems has the potential to increase their job satisfaction, reduce staff stress and turnover, and allow veterinarians to use their time more effectively.

Saving an animal's life through prevention or treatment of a behavior problem can be as rewarding as saving a life through medical or surgical procedures. Preventive behavior medicine belongs in every veterinary hospital and it is easy to integrate into practice. Incorporating behavior medicine into practice is a win-win situation for all concerned.

III. PREVENTIVE BEHAVIORAL MEDICINE

Veterinary medicine comprises both the physical and psychological well being of our patients. *In cats, physical illness and pain are most often recognized on the basis of a non-specific change in behavior. Knowing this helps clients and veterinarians detect disease and discomfort and monitor efficacy of pain management.* The veterinarian's responsibility is to relieve suffering, whether it is related to physical or emotional pain. We can support cat owners by making them aware of the need to contact the veterinary hospital not only for physical health but also as soon as they see indications of anxiety, fear, or behavior that they consider to be unacceptable or different from their cat's normal behavior.

At routine examinations, clients may not tell us that the kitten bites, or that the cat "misses the box occasionally" unless we specifically ask those questions. Clients often think that the cat is acting "out of spite" or "getting back at them" and are unaware that the veterinary profession can help with these problems. They may even be embarrassed to discuss such incidents and how they are dealing with them. It is important that we change these misconceptions. If behavior questions are not asked, clients will not know that the information is important, especially if they are unfamiliar with normal cat behavior. *Conducting a behavior assessment at every veterinary visit is important for prevention and early detection of behavior-related as well as medical problems* (Appendix 1). Behavior assessments also encourage clients to consult with their veterinarian about their behavior concerns.

The behavior history and medical examination are critical to an accurate diagnosis. A comprehensive history, which includes a behavior assessment, physical examination, and diagnostic testing is needed to differentiate between behavior-related and systemic conditions. For example, a cat that is urinating inappropriately may have any number of conditions that are associated with that behavior, including feline lower urinary tract disease (interstitial cystitis) and arthritis, that make it difficult to get into the litter box. Conversely, a cat with anorexia and lethargy may have an underlying medical problem or may simply be stressed by changes in its environment. In other situations, the psychological well-being of the cat may have been harmed to the point that psychological effects are causing systemic disease.

Appendix 1: Behavioral Assessment

Questions to Ask at Every Veterinary Visit

When obtaining a history, encourage early detection or prevention of behavior problems by asking the following questions:

- Does your cat urinate or defecate outside of the box?
- Does your cat spray? (Spraying occurs when a cat backs up to a vertical surface, kneads his or her feet, and flicks the tail tip while projecting urine.)
- Does your cat show signs of aggression to people, including hissing, biting, or scratching? To any specific family members? To strangers?
- Does your cat exhibit any fearful behaviors that concern you?
- Does your cat show any destructive behaviors, such as scratching or chewing objects in the home?
- Does your cat have any problematic interactions with other cats or pets in the household?
- Has there been any change in your cat's behavior or disposition?
- Do you need any further information regarding your cat's behavior?

The behavioral history and medical examination are critical to an accurate diagnosis. Comprehensive histories, which include a behavioral assessment; physical examinations; and diagnostic testing are needed to differentiate between behavioral and systemic conditions. For example, a cat that is inappropriately urinating may have any number of conditions that are associated with this behavior, including feline lower urinary tract disease/interstitial cystitis, or arthritis that makes it difficult to get into the litter box. Or, a cat that presents with anorexia and lethargy may have an underlying medical problem, or may simply be stressed by changes in its environment. The psychological well-being of the patient may be harmed to the point that it is also causing systemic disease.

IV. UNDERSTANDING NORMAL BEHAVIOR

Understanding normal behavior helps prevent problems—Many behavior concerns expressed by clients involve normal cat behavior that the client finds unacceptable. *Educating clients about normal feline social and elimination behaviors, communication, and developmental stages provides clients with realistic expectations.* If we help clients understand normal cat communication they can interact with and react more appropriately to their cat, reducing the chance of aggression and injury. Understanding feline social and physical needs helps clients provide a better, more stimulating environment, and reduces the chances of inappropriate elimination and scratching on surfaces other than scratching posts.

Without understanding what is normal, veterinarians cannot diagnose what is abnormal. It is important to determine whether the behavior is a normal behavior for the cat that the owner finds unacceptable, a truly abnormal behavior for the cat, or an inappropriate behavior that the client has inadvertently taught or reinforced in the cat.

Understanding normal social behavior and communication can help prevent aggression—Research over the last 2 decades has disproved the popular misconception that cats live as solitary creatures. The domestic cat is a social animal. However, the social organization of feline groups is quite different from that of canine groups. Domestic cats are organized socially much like their early ancestors. The feline social system is flexible, allowing cats to live alone or in groups of varying size (Figure 1).[14] Free-living domestic cats choose to live in social groups, called colonies, whenever sufficient food resources support multiple cats.[15-27,b,c]

Cats form social groups and have forms of communication that reflect their social behavior. Cats recognize individuals in their social group and have different interactions with different individuals (ie, preferred associate relationships).[28-30] Queens often engage in cooperative care and rearing of their kittens. There is individual variation in the social behavior directed to other cats.[31]

Colonies are fairly insular and strangers are generally not welcome. Unfamiliar cats can be aggressively driven away. If a new cat repeatedly visits a group, it may eventually be integrated into the group in a process that requires several weeks.[21,c] This is important to remember when adopting new cats, especially adults. Integrating them into an established group of cats should always be done gradually.

Within a group of cats, a social hierarchy can exist. When cats first establish their relationships, overt aggression (eg, hissing, chasing, swatting) may occur. Once the relationship is established, overt aggression is the exception as long as there are no environmental or physical changes. Social relationships can change throughout life. As with all social species, although the capacity to be social is inborn, specific social skills that result in an individual cat being a successful member of a group are learned.

Socialization is the process that allows potential advantageous behavior changes as a result of exposure to novel situations involving people, other animals, and new environments. The sensitive period is the term used for the developmental stage when an animal has increased risk of developing fears and anxieties if the animal does not have the opportunity to experience and learn from social and environmental stimuli.[32] The primary socialization period of cats to people is from 3 to 9 weeks of age. Fear of people is inhibited by exposure to people during this period.[33] Socialization that occurs early, especially before

Figure 1 Two cats with typical feline social behavior. Courtesy of I. Rodan.

Appendix 2. Developmental Periods in Cats

The following table has been developed by the panelists of the AAFP Feline Behavior Guidelines. It can serve as an excellent poster, brochure, and/or client information handout to help clients have realistic expectations of their cats and understand their responsibilities for both home and veterinary care.

Key: i ingestion s social e elimination o other

NEONATAL:
Birth–2 weeks

Normal at this stage

i Diet entirely milk.
s Minimal social interaction.
e Stimulated by mother.
o Eyes open, walking by 14 days, can't regulate body temperature, can't groom self.

To do's for caregivers

i Provide high quality nutrition for queen or kitten formula.
s Minimal but gentle handling.
e None unless ill or failure to thrive.
o Provide warm, safe environment.

If queen not present, rub perianal area with warm, wet towels to stimulate eliminations.

EARLY SOCIALIZATION:
3–8 weeks

Normal at this stage

i Begins to eat solid food, gradually ceases milk consumption
s Sensitive period for social learning. Social play begins and increases steadily. Learns many social skills.
e Develops control of bladder and bowel function. Begins to use litter box.
o Object play begins and increases. Climbing and running begin. Capable of complex learning. Scratching and predatory behavior begin. Eye color changes. All baby teeth erupt. Can regulate body temperature. Begins to groom self.

To do's for caregivers

i Provide high quality kitten food and fresh water daily.
s Frequent gentle handling and play with varied people including men, women, and supervised children. Expose to other cats and species while ensuring safety. Take kitten socialization classes if available. Reward appropriate friendly behavior to humans and all other animals.
e Provide litter boxes with low sides for easy entry. Scoop litter boxes twice daily. Use unscented litter.
o Enrich environment including toys. Kitten-proof home. Expose to novel objects and locations, Make the carrier a safe haven. Begin tooth brushing. Gently examine ears, teeth, nails. Groom. Provide scratching post. Begin training to harness and leash. Begin training to sit, come, etc.

Ideally, first physical examination, deworm, FeLV/FIV test, and vaccines. Offer kitten socialization classes, Discuss behavior and nutrition.
Never use hands and feet to play with kittens. This teaches your kitten bad habits. Always use toys.

LATE SOCIALIZATION:
9–16 weeks

Normal at this stage

i Eating solid food.
s Continues to learn social skills. Social play peaks. Social conflict over status may emerge.
e Continues using litter box.
o Vigorous exploration of the environment and climbing, begins to lose baby teeth.

To do's for caregivers

i No change.
s Continue social education. If had no previous social education, initiate slowly.
e May need larger litter box, (minimum box length 1.5 X cat's body length).
o Provide vertical space (e.g.,climbing structures). Continue basic training.

Serial physical examinations, vaccines and needed testing. Discuss nutrition, behavior, spay or neuter. Offer kitten classes.
Spay/neuter if not done. Repeat FeLV/FIV testing.

Kittens that have not had adequate social experience during early socialization may have poor social skills and require extra effort to acquire good social skills.

ADOLESCENCE
17 weeks–1 year

Normal at this stage

i No change.
s Sexual maturity if not sterilized. Social play lessens. Likely to be subordinate to larger adults but may challenge these cats for status.
e Spraying may occur, less likely if spayed or neutered.
o If allowed outdoor access, may wander farther and for longer periods than before.

To do's for caregivers

i Start transition to high quality adult food at 6-8 months of age. Provide food puzzles and food toys.
s Continue to play with and reward friendly behavior. Contact veterinarian if serious conflicts arise.
e Reevaluate litter box size. Contact vet if spraying or inappropriate elimination occurs.
o Provide identification (e.g.,microchip or break-away collar and tag), especially if cat goes outdoors.

Spay or neuter if not previously done, discuss behavior and nutrition, repeat FeLV/FIV testing.
If not spayed or neutered, your cat is more likely to urine mark in the house, get into fights, and roam long distances. Female cats that are not spayed can have unwanted kittens.

ADULT
1–6 years

Normal at this stage

- i Metabolic rate slows, may gain weight if diet and exercise not monitored.
- s Matures socially at approximately 2-3 years, personality strongly affected by genetics and early experience, social play decreases but may continue given an available playmate.
- e If intact male, urine odor becomes strong.
- o Nothing.

To do's for caregivers

- i Reassess body condition and food intake every 3 months, encourage exercise.
- s Continue to play with and reward friendly behavior.
- e Reevaluate litter box size, contact vet if spraying or inappropriate elimination occurs.
- o Rotate toys for self play, replace equipment and supplies such as beds and litter boxes as needed.

Annual examination. Vaccines and testing as recommended by veterinarian. Behavior problems are best treated early. Contact your veterinarian if **any** behavior problems arise. Obesity carries the same health risks as it does in humans. Depending on coat and body condition, extra grooming may be needed.

ADULT
7 years and older

Normal at this stage

- i Changes in appetite can occur
- s Decreased activity may lead to decreased social interaction

To do's for caregivers

- i Monitor appetite and water intake. Contact vet if increases or decreases.
- s Continue social interaction—even if lower activity level is warranted
- e Contact veterinarian if elimination concerns occur or persist

Physical examination every 6 months. CBC, chemistry panel, UA, T4 every 6-12 months. Discuss behavior and nutrition. Interaction with younger cats may encourage activity, but extremely active young cats may be incompatible. Extra grooming may be needed, depending on body condition and coat. Medical problems increase with age and may present as behavior changes. Contact your veterinarian if changes occur.

9 weeks of age, results in an increase in the kitten's willingness to approach and be held by people, which persists into adulthood.[34] Animals derive the benefits of socialization when quite young (2 to 5 weeks of age in kittens) and exposure to humans may help teach the animal how to learn from new stimuli throughout life. Unless animals have been prevented from experiencing typical stimuli, they usually retain some plasticity (ability to recover) throughout life, from having experienced some socialization.[35]

If cats are excluded from interactions with and handling by humans from 2 to 9 weeks of age, their risk of interacting poorly with humans in later life is increased.[36,37] Social learning occurs for many weeks after that period, with social play peaking at approximately 3 months of age. An appendix (Appendix 2) describing developmental periods in cats has been developed by the panelists of the AAFP Feline Behavior Guidelines. It can serve as an excellent poster, brochure, or client information handout to help clients have realistic expectations of their cats and understand their responsibilities for both home and veterinary care.

Genetic variables affect some aspects of temperament. For example, the offspring of bold fathers tend to be bolder than those of timid fathers; the offspring of friendly fathers tend to be quicker to approach, touch, and rub people.[38,39] Veterinarians should inform cat breeders about the importance of selecting for positive behavior traits and exposing kittens to people during the sensitive period. A breed can benefit or be damaged by the degree to which cat breeders follow this practice.

Cat communication—Cats communicate through visual, tactile, olfactory, and auditory means. Visual signaling includes body posture (Figure 2); tail, ear, and head position; and willingness to make eye contact (Figure 3). Tactile communication includes rubbing against others, including people; grooming; and nose-touching, which is used as a greeting. Auditory communication includes purring, which occurs primarily during contact with another individual. The trill (or chirrup) and meow are used as greeting calls. Because cats have such a keen sense of smell, olfactory communication is very important. Olfactory communication in the form of fecal or urine marking or spraying is often—but not always—normal behavior that clients find unacceptable.

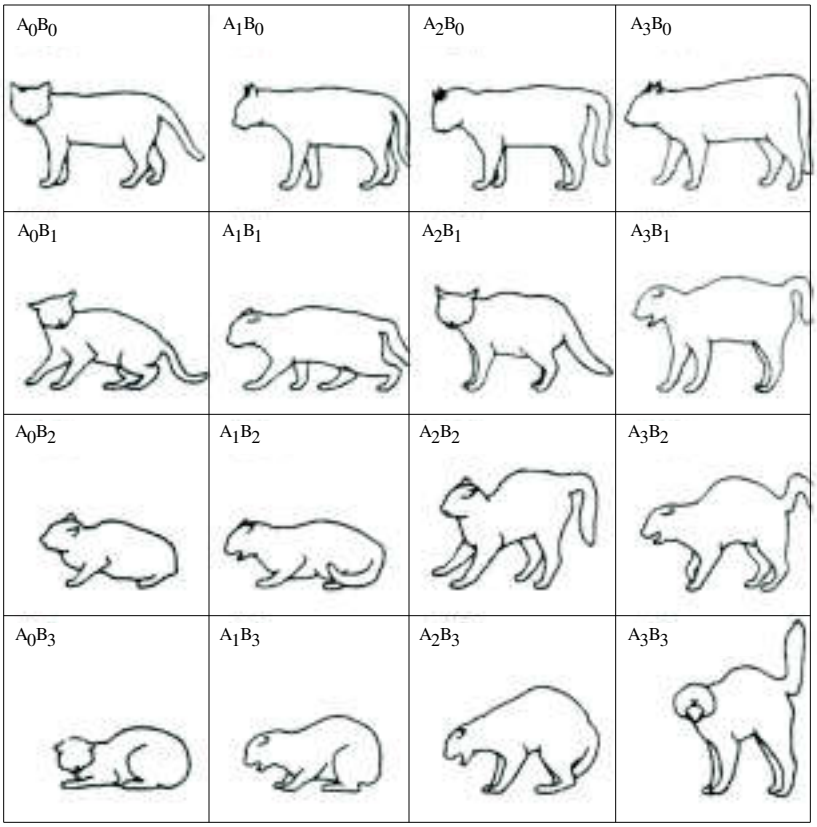

Figure 2 Illustrations of body postures of cats. Notice that in the series from A_0B_0 to A_3B_0, the cat becomes more offensive, whereas the cat becomes more defensive in the series from A_0B_0 to A_0B_3. A_3B_3 represents a cat with defensive and offensive behaviors. A_0B_0 represents a calm cat. A_3B_0 represents the most aggressive cat in an offensive, assertive sense; this is a cat clients will want to watch in situations involving profound inter-cat aggression or unprovoked aggression against humans (from Overall[63] [used with permission, adapted from Leyhausen P. Cat behavior: the predatory and social behavior of domestic and wild cats. Garland STPM Press: New York, 1979]).

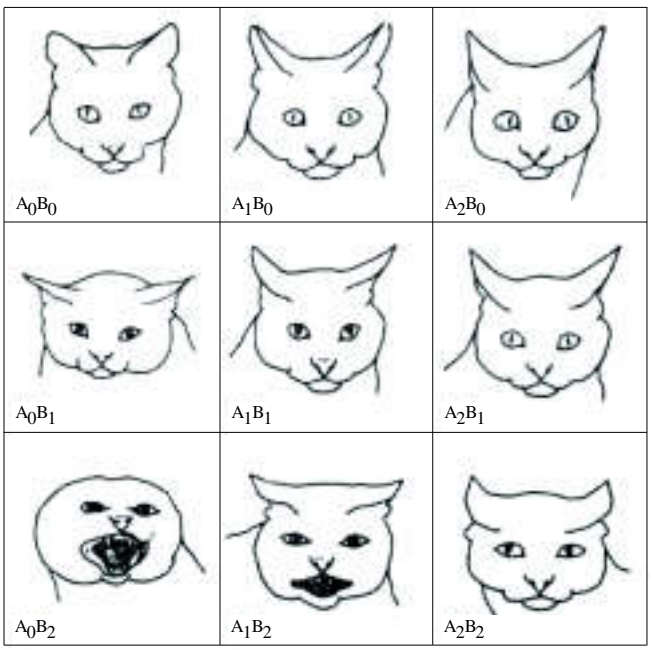

Figure 3 Illustrations of facial expressions of cats. Notice that in the series from A_0B_0 to A_2B_0 the cat becomes more reactive, whereas fear and an increased unwillingness to interact is more pronounced in the series from A_0B_0 to A_0B_2. The diagonal from A_0B_0 to A_2B_2 represents a cat that is becoming more offensive and assertive. More offensive postures are characterized by postures above the diagonal, whereas more defensive behaviors are characterized by the postures below the diagonal. A_0B_0 represents a calm cat. (from Overall[63] [used with permission, adapted from Leyhausen P. Cat behavior: the predatory and social behavior of domestic and wild cats. Garland STPM Press: New York, 1979]).

V. AGGRESSION

Aggression is a serious problem that can result in injury to other animals and people. In addition, zoonotic diseases can be spread from cats to people through aggressive acts. Although not a common client complaint, aggression is commonly seen in the form of play behavior in kittens. Asking clients about such behavior helps us to educate them to prevent play aggression. Understanding the cat's normal social behavior, body postures, and facial expressions can prevent much aggression.

Preventing aggression towards humans

Aggression caused by lack of socialization—There is increased risk of aggression towards humans if cats did not have human contact during the sensitive periods. Cats that are not handled until 14 weeks of age are more fearful and aggressive toward people, regardless of the circumstances.[36,37] Such cats do not voluntarily approach humans and are aggressive if they cannot escape. In contrast, cats handled for as little as 5 min/d from the day they are born until they are 7 weeks of age are quicker to approach and solicit people for interaction and gentle play, quicker to approach inanimate objects, and quicker to play with toys.

Socializing cats to a variety of people, including men, women, and children, may prevent some forms of human-directed aggression. If possible, expose kittens to humans before the kitten is 7 weeks old. Have the queen present, provided she is not afraid. Handling by people should be frequent, pleasant, and gentle. Include handling that mimics basic health care procedures, including clipping claws, checking ears, and brushing teeth. If an adult cat has not been exposed to such handling as a kitten, start with very brief sessions. Reward the cat for cooperation.

Play aggression—Kittens often play roughly with other cats or kittens. The queen and other kittens teach the kitten to temper their play. Cats that as kittens never learn to moderate their responses may play too aggressively with people. Teach clients to use interactive toys (eg, a fishing pole-type toy with fabric or feathers at the end of it) instead of letting the kitten play directly with their hands or feet. Emphasize the need for adult supervision when children play with and handle kittens and cats; this supervision will prevent injury to all involved.

Aggression associated with petting—Some cats become less tolerant of petting as they become socially mature. Cats with this condition actually solicit attention from people, but tend to bite if petted for more than a few seconds. Those cats may have a form of impulse control aggression.[40] Such aggression can be avoided if clients learn to give those cats attention in other ways, pet the cat for very short periods, or both.

Redirected aggression—If a cat is highly aroused by an outdoor cat or other animal, the cat may redirect that aggression toward anyone nearby. This victim could be another household cat with which there had been no previous problems or an unsuspecting family member. *Never attempt to handle a cat in this aroused state, because serious injury may result.* If one cat is attacking another, a noise can distract or startle the attacker and interrupt the event. However, some cats will be rendered more aggressive by these stimuli, so caution is urged in using any disruptive stimulus. If cats must be handled while in this reactive state, throwing a blanket over them can allow safe handling to occur.

Pain-associated aggression—Pain can cause aggression. A cat may attack an individual who causes pain (eg, a person combing over arthritic hips or brushing a

painful tooth) or have lower tolerance because of preexisting pain. *Because painful conditions such as arthritis, dental disease, intervertebral disk disease, meningioma, or injury often induce aggression, clients are strongly encouraged to immediately bring a cat that becomes aggressive to a veterinarian.*

Predatory behavior—Cats are hunters and will go after prey even if not hungry. The best way to prevent predatory behavior is to raise kittens with potential prey animals (eg, pocket pets or birds).[39,41] Even if cats are not aggressive, clients should supervise them whenever they have access to potential prey. To prevent predation of wildlife, keep cats indoors, confine them to outdoor cat enclosures, or leash-walk them. Placing bells on the collars of free roaming cats does not always prevent predation because cats can learn to stalk without the bell ringing.

Inter-cat aggression—Clients are most concerned about aggression between cats within the same household. However, unless there is evidence of wounds, they often miss subtle aggression. Aggressors can control access to food, litter boxes, resting and perching spots, and attention, and the victim usually becomes withdrawn. Both the aggressor and the victim may have undesirable elimination and other behaviors.[39] Inter-cat aggression is most likely to occur when a new cat is introduced to a household, a resident cat has been absent and returns to the home (eg, after a veterinary visit), and when there is competition for resources (eg, litter boxes, food, and resting areas).[42] Multiple resources should be easily accessible.

To prevent inter-cat aggression, clients should be taught that gradual introductions should be made if adopting another cat (Client Education Handout A). If aggression occurs after the return to the household of a resident cat, the cats should also be reintroduced gradually.

Pheromone products can help reduce aggression when unfamiliar cats are introduced to existing residents.[43] Although these products may be helpful as part of a complete behavior treatment plan,[44,45] they are not a substitute for social interaction and exposure.

VI. UNDERSTANDING NORMAL ELIMINATION BEHAVIOR

Inappropriate elimination is the most common client concern regarding cats. Client education about litter box care and normal elimination behavior is important for prevention and treatment of medical and behavior problems. Early intervention offers the best chance to redirect the cat back into the litter box.

Cats voluntarily eliminate wastes in 3 ways: squat urination, defecation, and urine spraying. Urine eliminated by squatting makes a circular puddle on the underlying substrate. The typical housebound cat uses squat urination to pass relatively large volumes of urine twice daily. Defecation is the method by which the cat eliminates solid wastes; some cats also use defecation as a means of communication.[17] The typical house cat defecates once daily.

Elimination in a squatting posture is a typical behavior with a specific sequence of actions by the cat. First, the cat digs with its forepaws to make a depression in the underlying substrate, then squats and deposits urine or feces. The cat may or may not turn to sniff or cover eliminations. Cats choose elimination sites within their territory based on social interactions, previous site use, and surface preference or aversion. High-ranking, free-ranging cats may control access to preferred elimination sites; this pattern may also play a role for indoor cats in situations in which social systems are stressful.[46] Strategic location and easy access to litter boxes help prevent inappropriate elimination in multiple-cat households.

Figure 4 Photograph of 3 litter boxes for cats. The commercial cat litter box (left) is too small for most cats. The sweater box (middle) and the dog litter box for dogs that weigh as much as 15.9 kg (right) are better choices for most adult cats. Courtesy of I. Rodan.

Most cats prefer a fine-grained substrate.[47] For indoor cats, the cleanliness of the litter box correlates with a return to litter box usage in cats with elimination problems. *Research indicates that house cats without elimination problems will dig in their litter boxes longer before eliminations, whereas cats that dig for 4 seconds or less prior to elimination may be candidates for elimination problems.*[b] Making clients aware of this can help identify a potential problem with litter box aversion, so that they can change to a litter that cats prefer (ie, dig in for longer than 4 seconds).[b] Cats also spend more time in litter boxes that are at least 1.5 times the length of a cat's body.[b] *Commercial litter boxes are often too small, but there are a number of options that can be used instead* (Client Education Handout B; Figure 4).

Although squat urination is the method by which most cats empty their bladder, some cats start in a squatting position and finish in a standing position. Some cats also eliminate urine in a standing posture called spraying. Spraying is a normal feline behavior, despite the fact that humans find it appalling. Spraying is not a primary means of urine elimination in most cats; feline communication may be its main function. Both males and females spray, although males and estrous females spray more often.

When spraying, the cat typically stands upright on all 4 limbs and holds its tail vertically. Occasionally, cats will flex their elbows and lower their forearms. The cat may quiver its tail, step back and forth on its hind limbs, or both. The cat does not dig before it sprays, nor does it try to cover the affected area afterwards. When spraying, the cat usually voids small volumes of urine onto vertical surfaces. A fan pattern with drip streaks results if the urine hits a vertical surface. If the urine does not hit a vertical surface, it creates a long thin wet area, in contrast to the circular puddles left when squatting and voiding. The cat may also posture to spray without releasing urine.

Obtaining a detailed history will help differentiate between squat urinating and spraying. Small amounts of urine on the floor at the junction of a wall, furniture leg, or door suggest that the cat sprayed urine that subsequently ran down the vertical surface onto the horizontal one. A cat may also urine mark without spraying; the cat will squat and void small volumes of urine onto horizontal surfaces in carefully selected locations.

Spraying can be viewed as a passive form of aggression and as a method by which an intact resident male advertises his presence and activity. Cats from multiple-cat households are more likely to spray than those from single-cat households.[48]

Client education about litter box care (Client Education Handout B) should come from veterinary professionals. Information from pet stores, friends, the Internet, or advertisements may be incorrect. An active role in preventive client education sets the stage for clients to consult a veterinarian if a problem occurs. Clients should also be made aware that inappropriate urination or defecation often accompanies an underlying medical condition, and does not occur "to get back at the owner." Emphasize to clients to seek veterinary attention at the first sign of problems. To determine whether an elimination problem is caused medical or behavior-related causes, a detailed history, thorough physical examination, and diagnostic testing are required. Even if a medical problem exists, attention to litter box care is important in treatment.

VII. SCRATCHING

Scratching is an innate behavior of cats.[38,49] Scratching serves to groom the front claws, as well as to leave visual and perhaps olfactory markers. It appears that cats may also scratch to stretch their muscles.[50]

Nail care and proper training can prevent scratching damage in the home. *Help clients recognize that scratching is a normal cat behavior that can be directed at appropriate surfaces* (Client Education Handout C; Figure 5). Many cats prefer vertical scratching posts, although some prefer horizontal posts. Vertical scratching posts must be sturdy and preferably tall enough for the cat to have a good stretch. Scratching materials preferred by most cats are wood, sisal rope, and rough fabric. Recommend that clients locate scratching posts near areas favored by cats, such as windows or sleeping areas. Cats often stretch and scratch upon awakening.

Training to scratching posts when the kitten or cat is first introduced to the home helps prevent undesirable scratching. This can be done by enticing the cat to the scratching post upon awakening, rubbing catnip on the post, and holding treats or toys part-way up the post to encourage stretching and scratching.[50] Rewards can be given at each step—as the cat approaches the post, touches it, and scratches it. Clients should never yell at or punish the cat.

If the cat is already scratching in an undesirable area, the client should be asked questions to help determine whether the cat prefers vertical or horizontal objects. Asking about the materials the cat is scratching helps to identify the cat's preference so that clients can make or purchase posts of similar fabrics. Placing double-stick tape on areas formerly used, as well as rewarding use of the post helps direct the cat to the post. If necessary, the cat can be confined to an area where it has a scratching post or posts and cannot scratch objects that clients consider undesirable.

Trimming is preferred for nail care and is well accepted by most cats if done correctly. Plastic nail caps are an option for cats that are easy to handle.[50] Declawing is highly controversial and client education about all options often provides clients with good alternatives (http://www.aafponline.org/positionstate.htm for more information).

Figure 5 Training a kitten to use a scratching post can help prevent undesirable scratching. Courtesy of I. Rodan.

VIII. FEEDING AND INGESTIVE BEHAVIOR

Providing proper guidance about cat nutrition requires an understanding, not only of cats' unique nutritional needs, but also of their feeding behavior. Domestic cats share many feeding behaviors with their wild counterparts. Cats typically eat 10 to 20 small meals throughout the day and night.[18,51] Small rodents comprise 40% or more of the diet of feral domestic cats; however, a typical mouse only provides 30 kcal or 8% of the daily energy requirement of an adult cat.[52,53] For that reason, repeated cycles of hunting throughout the day and night are required to provide sufficient food for a typical cat. Domestic cats usually have similar ingestive behavior, making multiple small food acquisitions throughout a 24-hour period.[52]

Predatory behaviors are well developed; in fact, cats will stop eating to make a kill.[54] This strategy allows for multiple kills, which optimizes food availability. Unfortunately, this behavior and others may surprise clients who confuse predatory behavior with hunger. If the cat is already a hunter, supplemental feeding may reduce hunting time but does not alter hunting behavior.

Obesity in cats has become a major concern, affecting overall health and increasing the risk of several disorders. *This obesity epidemic is a direct reflection of the lifestyle of modern cats: cats have gone from being predators that would spend most of the day hunting small, single-meal prey, to feeding on freely available food, with much less energy expended on hunting.*

Feeding methods should simulate normal feeding behavior, including ways to allow cats to hunt for their food. This increases exercise during feeding time, which decreases boredom and helps with weight management. Suggestions include hiding dry kibble around the house, using puzzle cubes for feeding, and tossing kibble so cats can chase after their food as they would prey. Food can also be used as a reward for performing tricks and obeying word or clicker commands (eg, sit or come), but this food should be accounted for in dietary calculations. Feeding tips for clients to help prevent or treat obesity and boredom are provided (Client Education Handout C).

Preventing feeding problems

Picky eaters—Adult cats fed highly palatable, single-item foods may develop a fixed reliance on 1 food.[55,56] This may lead to refusal of other foods, and may be a problem if a dietary change is needed because of health problems, discontinuation of a product, or a household move. One suggestion to minimize this effect is to expose cats to various flavors, sizes, textures, and shapes of food, and feed at least 2 forms and varieties of premium foods. Feeding both canned and dry food to cats is acceptable.

Many cats, especially picky eaters, will not eat food in which medications are mixed. If clients cannot administer medications orally, a pill hidden in a small ball of canned or semi-moist food and offered away from the main meal helps prevent the cat from associating the medication with feedings. If medications must be administered in food, place the medicated food in a bowl away from the regular feeding area. Food can be enhanced with tuna or salmon juice, baby food without onion powder, or meat drippings, to entice the cat.

Although some authors state that cats should not go without eating for 48 to 72 hours, the feline practitioners on the panel recommend that clients should be informed that cats should not go without food for longer than 24 hours (less in kittens) and that clients should call if the appetite tapers over more than 48 to 72 hours. Because of the nature of cats, especially in a multiple-pet household, it may be difficult for clients to recognize decreased or no appetite, and veterinarians often find that cats have lost a substantial percentage of body weight when clients think they have only missed a few meals.

Obesity—Changing the behavior of both pets and people is important in preventing obesity. Encourage clients to show love to their cats by giving positive attention, not food. The amount of food should be calculated and measured out to prevent overeating.

A 2-fold difference in energy requirements has been observed between active and sedentary cats. Food intake must be adjusted according to the cat's activity level to maintain optimal body condition.

Calculation of the daily energy requirements (DER) for each cat on the basis of its lifestyle determines accurate food quantities. The DER is a multiple of the resting energy requirement (RER) where RER (kcal) = 70 X (body weight [kg])0.75 The following general multipliers of the RER may be used for adult cats:

Obese cats, especially if sedentary, often require as few as 0.8 X RER or 40 kcal/kg of ideal body weight to achieve a mean weight loss of 1% of body weight per week.[52] Weight loss should be monitored every 2 to 3 weeks initially.

Because neutering reduces the DER of adult cats by 24% to 33%,[52] nutritional counseling should be provided to clients at the time of neutering to provide information about caloric requirements and the problem with feeding sedentary or neutered cats the amounts indicated on commercial food bags. If a kitten is neutered earlier in life, energy requirements should be assessed earlier.

Food and training—Treats can be used as rewards to help train a cat. Part of the daily ration can be used for training or to positively manipulate behavior. Either the regular diet or other tasty morsels may be used, depending on the cat. However, the caloric content of food used in training must be taken into account in the total measured daily ration. Treats should be limited to prevent dietary deficiencies or excesses.

Multiple cats—Having at least 1 food bowl per cat in the household will avoid food guarding and hierarchical interactions. Multiple feeding stations and individual food dishes, especially if put at multiple levels and in quiet hiding spots, allow timid cats a secure place to eat apart from more dominant, forceful, or assertive cats. Assertive cats also benefit by having more time to eat quietly in a social environment that they do not have to control. If an individual cat in a multi-cat household has specific nutritional requirements, that cat may need to be fed separately from others.

Food Aversion—Cats may develop learned aversion to certain foods when feeding is paired with a negative gastrointestinal experience.[52] Also, cats can develop a food aversion to a food they were eating when they developed other illnesses—they associate the food with becoming sick. Food aversion may also be associated with anorexia, as well as stressful experiences such as hospitalization and force feeding.

Dietary changes—In most situations other than food aversion, it is best to make gradual dietary changes by increasing the amount of new food over a period of several days while gradually decreasing the amount of the old food over the same period. The cat can be encouraged to eat a new diet by adding small amounts of another food that the cat likes, such as baby food (without onion powder), chicken drippings, tuna or clam juice, or garlic powder. *Do not starve a cat into eating a particular food.* It is better for the cat to eat anything than to refuse to eat the most appropriate diet.

The following general multipliers of the RER may be used for adult cats:

neutered cat	(1.2- x RER) or 60 kcal/kg
intact adult cat	(1.4-1.6 x RER) or 70-80 kcal/kg
inactive cat	(0.8 - 1.2 x RER) or 40-60 kcal/kg
obese-prone adult cat	(0.8 - 1.0 x RER) or 40-50 kcal/kg

IX. LEARNING IN CATS

As in all animals, learning in cats involves a change in molecular chemistry that results in long-term modification. Acceptable and unacceptable behaviors are both learned. Once a behavior is learned, it is difficult to reverse. It is always easier to learn an appropriate behavior than to stop performing an inappropriate behavior.

Cats can be trained. Encouraging and rewarding positive behavior are the best ways to train a cat. Never use physical or verbal abuse! Ignore or redirect undesired behavior. For example, kibbles or treats can be combined with verbal praise to train a cat to use the scratching post. If the cat starts to scratch furniture, redirect the cat back to the post and give a reward.

Cats can be taught to sit, come, shake a paw, and a variety of other tricks, either by use of clicker training or by use of food treats, catnip, or toys as rewards (Figure 6). For example, to teach a cat to sit, hold a treat in front of the nose and then move it upward. As the cat's head goes upward, the haunches go down. Say "sit" as the cat sits and give a treat at the same time.

Initially, for rewards to work, they need to be given immediately and consistently. After the desired behavior is well learned, rewards should only be given intermittently.[57,58]

Cats appear to enjoy the attention and stimulation associated with training. Being trained can be helpful for an anxious cat in a strange environment (eg, responding to the command "sit" and receiving a treat at the veterinary hospital may help keep the cat calm).

Figure 6 By use of a feather toy as a target and praise when the cat tracks it, this very bold black kitten is being taught to climb the cat post and jump between the top of the post and the chair, then down again and repeat by following the feather. In 5 minutes he learned the words 'climb', 'jump', and 'down'. He also learned that he was a 'good kitty', but he already knew that. Courtesy of K. Overall.

X. PREVENTIVE BEHAVIORAL MEDICINE AT THE VETERINARY CLINIC

If knowledgeable veterinary team members incorporate preventive care into their educational programs, pre-adoption counseling, kitten classes, or wellness appointments, clients will have calmer, healthier, happier cats.

Pre-adoption counseling—Pre-adoption counseling provides an opportunity to ensure that clients have realistic expectations about the time commitment and expenses involved in owning a cat. Important home care includes positive attention, play, training, and litter box maintenance; expenses include food, litter, toys, scratching structures, and routine veterinary care. Educating clients before adoption allows clients to prepare a kitten-safe home and acquire appropriate cat supplies.

Evaluating the temperament of the cat is an important part of an assessment. Cats are all individuals, but classifying them into 4 loose groupings of personality types is helpful. These include the bold, active cat; the easy-going, affable, social, but non-pushy cat; the withdrawn, shy, timid, fearful cat; and the assertive cat.[59] Understanding body postures (Figure 1) and facial expressions (Figure 2) can help clients choose confident, friendly cats. Because some shyness in cats is genetic,[38] clients who want an outgoing cat need to interact with prospective kittens long enough to learn whether the kitten will meet their needs. Pathologically shy kittens can improve with much help, but may never be normal. Clients may not know the early history of their kittens, but if the kittens were feral for the first 3 months of their lives, clients need to know that the risk of pathologic anxiety is increased.[60] In recent years, shelters have been trying harder to characterize the temperaments of kittens and cats to better match their needs to those of the people adopting them.

Choosing between a kitten and an adult cat depends on the human family. According to several sources, including the Centers for Disease Control and the AAFP Feline Zoonoses Guidelines, adult cats pose less zoonotic risk than young cats, making them a better choice for older people, immunocompromised individuals, and families with very young children. Kittens are a good choice for households that have time to socialize and play appropriately and regularly with the kitten and consistently promote positive behavior. If veterinary expense is a consideration, care for a healthy adult cat is usually less costly

than for a kitten. Educate clients to choose kittens or cats that appear healthy and sociable, rather than choosing a cat on the basis of looks or pity. If clients decide to rescue a special-needs cat, educate them about the potential consequences.

Because of the association between temperament and genetics,[38] a benefit of purchasing a pedigreed kitten is the ability to evaluate the parents. Calm, friendly parents are desirable. A kitten is more likely to have good social behavior if left with its mother and siblings until it is at least 8 weeks of age, in an environment with substantial exposure to friendly people. Adopting a queen with her kittens provides maximum social stability and opportunities for learning for the kittens. Adult cats that remain with their siblings spend more time together than nonlittermates.[31] Early development with the queen and siblings teaches kittens to temper their play responses; kittens that never learn this may play too aggressively with people.

Removing a kitten from its mother prior to 6 weeks of age is not desirable. Kittens separated from their mothers at an early age are more likely to be suspicious and aggressive.[61] Properly raising orphaned kittens is a labor-intensive job that should not be undertaken lightly. To prevent future behavior problems, it is critical that people who are knowledgeable in tempering play behavior safely and effectively handle these kittens early and in a safe, enriched environment.

Pleasant veterinary visits for cats—Creating pleasant veterinary visits for our patients helps prevent stress and potential injury for the client, the patient, and the veterinary team alike. *Clients do not care how much we know until they know how much we care—for their cat and for them*. Most clients cannot judge our knowledge of feline medicine, but they can judge our ability to work confidently, respectfully, and effectively with their cat. Good patient handling and client education skills demonstrate our knowledge of feline behavior, increase our credibility, and increase the likelihood that clients will comply with our recommendations. Clients are more willing to obtain regular veterinary care, including more extensive preventive and therapeutic care, if the visits are pleasant. Calm, relaxed cats enable us to perform more thorough physical examinations and enable clients to better focus on our recommendations.

We set an example in the veterinary clinic as to how clients should handle their cats at home. Everything we do should have the potential for appropriate learning and pleasant associations. One example is helping the cat associate the examination table and medical procedures with food treats. Emphasize that this can translate to every other potentially problematic situation in the cat's life (eg, giving treats when the cat is introduced to a new baby or new cat). It is helpful to give clients advice on how to make the journey and the visit to the veterinary hospital as pleasant as possible (Client Education Handout D). If clients reward the use of the carrier at home, the cat will consider the carrier a safe haven during car trips and veterinary visits (Figure 7).

With respectful handling, even fearful cats can be examined with minimal stress. These cats are often calmer and easier to work with if at least part of the examination is done within the bottom half of the carrier (Figures 8-12).

First veterinary visits—To allow sufficient time to educate clients regarding prevention of behavior problems in their new kittens, provide information over the course of a few visits, ideally during kitten classes. A checklist can help ensure that all topics are discussed during appointments or classes (Appendix 3). Handouts or reading material are recommended to supplement the information provided, both to improve retention and convey the information more concisely. Client education should include normal cat behavior, socialization, training, and home maintenance. In addition to preventing problems at home, such education also facilitates positive future veterinary visits.

Figure 7 Rewarding use of the carrier by giving treats, praise and toys helps make the carrier a safe haven for visits to the veterinary hospital. Courtesy of I. Rodan.

Figures 8–12 A fearful cat being examined in the bottom half of the carrier. This is an excellent method to help reduce fear at the veterinary clinic. After removing the screws or clips that hold the top and bottom halves of the carrier together, a towel is slipped in over the cat as the top is removed. The cat is then examined while being safely and calmly handled in the bottom half of the carrier. Note that the gloves are used for protected guidance, not restraint. Once the cat has calmed down, the cat is removed from the carrier with minimal handling to complete the examination and perform diagnostic procedures. Courtesy of I. Rodan.

Figure 8

Figure 11

Figure 9

Figure 12

Figure 10

APPENDIX 3. Topics to be covered in the 2-week kitten class or the first few veterinary visits

Understanding normal behavior helps us:
- Interact with our cats.
- Set up an enriching life for them.
- Prevent behavior problems.

Cats are social animals
- The kitten class is a perfect environment to teach kittens to interact positively with other cats and be exposed to a variety of people in a safe setting.

How cats communicate
- The importance of smell.
- Reading cat's body language.
- Attention to the tail, ears, pupils, raised hackles (Figures 1 and 2).

Rules for playing with people
- Appropriate and inappropriate play for kittens.
- How to play and how not to play with kittens; prevention of play biting.
- Safe, interactive toys; chasing games.
- Creative use of cardboard boxes, empty paper bags, tunnels.
- Food treasure hunts and food puzzles.

Scratching posts and proper use of claws
- Scratching is normal.
- Select scratching posts that are sturdy and made of materials cats prefer (usually wood, sisal rope, rough fabric).
- Teaching kittens to use a scratching post.
- Locate the scratching post next to a window, sleeping area, or other areas favored by the cat.
- Many cats prefer vertical scratching posts, whereas some prefer horizontal posts.
- Nail trimming and other alternatives to prevent damage from claws.

Home maintenance helps keep cats healthy and less fearful at the veterinary hospital
- Tooth brushing—the best method for dental care and early detection of oral disease.
- Nail clipping and handling of feet.
- Use of a thermometer.
- How to administer medication—this makes care easier when the animal is ill.

Normal elimination behavior and promoting good litter box use
- Call the veterinarian if a cat is not using the litter box.

Normal feeding behavior and how to feed cats
- Kitten diets; when to switch to adult food.

Enriched environments, including play and mental stimulation, are key to a low-stress life
- Value of routines, including specific allotted quality time.
- Climbing, perching, and bedding areas
- Vertical spaces (inexpensive shelving and purchased or homemade climbing trees).
- Hiding spaces (retreats).
- Interactive toys; rotation of toys.
- Indoors versus outdoors.
  The benefits and risks of allowing cats outdoors.
  How to fit and use a harness for walking.
  Outdoor enclosures for cats.
  How to give cats the feeling of the outdoors without the risks (eg, bird feeders outside the window, window perches).

Pleasant veterinary visits
- Carrier or crate training.
- Adjusting to car rides.
- Veterinary care to protect physical health (based on veterinary clinic recommendations).

Cats can be trained
- Reward with treats or positive attention to encourage desired behavior.
- Redirect undesired behavior.
- Don't punish, swat, slap, or yell.
- Cats can be trained to scratch in appropriate areas.
- Cats can be taught to sit, come, and perform a variety of tricks.
- Teaching cats to allow home maintenance, such as teeth brushing, helps improve health, early detection of problems, and behavior at the veterinary hospital.

Special situations, if appropriate for household
- Getting along with other dogs and cats.
- Getting along with children.
- Getting along with visitors.
- Exposure to novel social and physical environments.
- How to adjust to new environments and new people.

Emphasize common adult cat problems and how to prevent them
- Obesity.
- Inappropriate elimination.
- Aggression.
- Various expressions of anxiety and fear are among the most common behavior problems.

At the final kitten veterinary appointment or kitten class:
- Emphasize that this is the start and not the end of working on positive behavior.
- Emphasize the importance of routine adult wellness to address physical and behavior problems.

When to call the veterinary clinic
- Get help early. Don't believe that bad behavior will go away or that the cat will grow out of it.

Contact the veterinary clinic with any behavioral or medical concerns

XI: KITTEN CLASSES

Kitten classes effectively establish the veterinary team as a primary resource for information about cats, to both clients and the community. Offering kitten classes helps a veterinary practice stand out from others in the area.[d,57]

Kitten classes provide an opportunity to comprehensively educate clients about their growing cat's behavior and health needs in 2 or 3 fun-filled sessions. Classes help dispel the myth that cats can't be trained. Indeed, by teaching clients how to train their kittens, classes give clients the skills they need to shape the behaviors they want from their cat at home.

Kitten classes set the stage for avoiding common behavior and medical problems. They create realistic expectations by educating clients about normal cat behavior,[62,63] provide information about necessary home and veterinary care, and allow time to address questions from previous appointments. An added benefit is educating all family members, or several clients at once, which reduces the overall time needed for first veterinary visits.

Kittenhood is a critical age for socialization. Kitten classes allow kittens to play together and to be exposed to people of different ages and genders (Figures 13-17). Such exposure, with positive reinforcement, helps the kitten better adapt to all possible changes that may occur in the family and home environment, setting the stage for a lifetime without fear of noises, people, places, and experiences. Kitten classes also allow identification of emerging problems so that they can be addressed as soon as they arise.

Teaching clients veterinary maintenance procedures, such as tooth brushing, checking ears (Figure 18), and grooming, helps them recognize what is normal for their cat (Appendix 4). Early detection of health problems allows for early treatment and minimal patient discomfort.

Participating kittens gain confidence as they travel regularly in the car, play with other kittens and toys, and broaden their life experiences. Attending classes in the veterinary hospital allows for positive associations with the hospital.

Because the sensitive period in kittens is shorter than in puppies, classes are open only to kittens from 7 to 14 weeks of age.[57] Clients with older kittens or adult cats are welcome to come without their pets. They too can learn how to socialize kittens and prevent problems at home, and they add to the variety of people with whom kittens socialize. Inviting all family members allows for consis-

Figure 13 Kitten socialization class. This kitten class provides all the things good classes should: novel experiences, examples of intellectually stimulating toys, hiding holes, and other kittens. Note that the 3 cats are all engaged in different activities. The orange cat is sneaking up on a novel toy, and he is uncertain, so he creeps up on it. The cream cat takes advantage of the opportunity to sniff the orange cat while he is otherwise engaged. The calico is watching everyone. She is not interacting now, but she is also not scared—there's a cat nest behind her if she wants to hide. Many cats like to collect information by observation, and they are very good at observational learning, so even if she chooses not to interact, the experience is of benefit to her. Note also that these cats are of different sizes and so likely to be of different ages. Early exposure is critical in cats because they play and interact with each other so differently from the ages of 7 to 12 weeks. Courtesy of I. Rodan.

Figure 14 These 2 kittens are similar in age and temperament and they are fascinated by this unique toy that encourages practice with eye-paw co-ordination. Notice that they are more focused on the toy than they are on each other, but they could work together with this puzzle. Courtesy of I. Rodan.

tency of home care. Limit class size to 3 to 8 kittens to allow for effective socialization and training. Kittens should have received at least one FVRCP vaccine at least 10 days prior to the first class,e a first deworming, and negative results of a recent FeLV/FIV test. Owners of kittens with upper respiratory tract infection, FeLV, FIV, ringworm, or other contagious conditions are welcome without their kittens.

Kitten classes are a win-win situation. Clients bond with their kittens and veterinary staff, good behavior at the veterinary clinic is promoted, and veterinary team members are given the opportunity to increase their responsibilities and the likelihood of job satisfaction. Kitten classes are also fun!

Kitten Kindy™ is a highly successful kitten class started by Kersti Seksel in Australia.[57] Several other successful kitten classes now exist in the United States and other countries. At this time, the only complete guided on this subject is available through the Australian Small Animal Veterinary Association (ASAVA). Their brief video is useful for viewing a typical kindergarten class session. E-mail requests to asava@ava.com.au.

Figure 15 Here a new toy has been introduced and the movement and addition has attracted the attention of the orange cat. Cats become as intellectually curious as they are allowed to be. These types of sessions allow exposure to all sorts of stimuli that benefit kittens and facilitate social interaction associated with play. These types of set-ups encourage independent play, play with toys, and communal or joint play with toys. Courtesy of I. Rodan.

Figure 17 Here we see how the same 2 cats as in the previous figure have been encouraged to get closer to each other by playing with a toy, and the black kitten's attack of the toy has taken the pressure off the black and white cat, allowing her to approach more confidently. Courtesy of K. Overall

Figure 16 These 2 kittens are evenly matched in size and age. The black and white kitten is a little more unsure of the situation than is the black kitten (her ears are a bit back and she is crouched closer to the ground). The toy being dragged between them has become a focus for them both, encouraging them to get closer than they otherwise would have at this point in the class. Very bold cats, like this black kitten, can scare other kittens in class and because they are so young they have no sense of how they affect their social system. Toys, hiding places, and lots of human supervision ensure that everyone has a good experience at a pace suitable for them. Courtesy of K. Overall

Figure 18 Checking ears is one of the home maintenance procedures that clients can learn to help them recognize what is normal for their cat and that helps the cat be more comfortable with such handling at the veterinary hospital. Courtesy of I. Rodan.

Appendix 4. Teaching kittens to accept handling

Week 1: Demonstrations

Check mouth: lift lips, touch gums with fingers.
Open mouth: offer food immediately after.
Lift and lightly tug tail.
Rub and massage ears.
Touch belly.
Stroke with a brush or comb.
Fit and wear a collar or halter.

Week 2: Demonstrations

Brush teeth, start with gauze or washcloth.
Give pills.
Take temperature; Child-proofing.
Clean ear flap.
Brush undersides.
Grooming.
Walk on a leash.

XII. PREVENTING HARMFUL STRESS IN CATS PREVENTS BEHAVIOR PROBLEMS

Focusing on stress is presently popular and the domestic cat is a species in which harmful stress has been extensively studied. The focus in this report is on stress associated with adverse physical and behavior outcomes (distress). The stressor may be emotional, but the consequence is the triggering of the hypothalamic-pituitary-adrenal axis and a cascade of physiologic events.[64] Exposure to strongly fearful or aversive events can create long-term neurochemical changes and associations that trigger equally fearful responses for years. The more extreme the fearful response, the more likely it is that the cat's neurochemistry has changed in ways that facilitate future fearful behavior. By understanding what harmful stress is for a cat, we can better prevent it. Part of any evaluation for behavior problems requires assessment of the factors in the behavior and environment background that could be attributed to stress.

A complete absence of stressors is impossible to achieve and some level of stress or provocation is necessary to develop pliant neuroendocrine and behavior responses. An important component of preventive medicine is interpretation of harmful stress and clear communication about how to minimize stress for the cat. Many feline behaviors about which clients complain are usually associated with lack of mental and physical stimulation, or with fear or anxiety, making them largely preventable. Enriching the cat's environment and providing consistency in their routines prevents many of these problems. Clients may say: "The only thing my cat does is sleep all day. My cat doesn't live with stress. I do." Our responsibility is to educate them about harmful stress in cats.

Examples of harmful stress—The situations under which cats have substantial deviations in physical and behavior parameters associated with stress or distress include: [65]

- Irregular and unpredictable feeding times where cats are kept hungry for extended periods.
- Irregular and unpredictable cleaning of litter boxes.
- Absence of stroking and petting by humans or other positive interactions with humans.
- Unpredictable and unfamiliar manipulations or handling.
- Changes in social environment (eg, new baby, spouse, roommate; change in client's work schedule).
- Changes in physical environment.
- Lack of mental stimulation.
- Anything that acutely startles the cat, such as loud noises.
- Lack of choices or control over situations (behavior entrapment).

Common indicators of feline stress, anxiety, or fear:

- Decreased grooming (particularly in situations consistent with feline depression and mourning or increased antagonistic interactions with other cats).
- Decreased social interaction.
- Decreased active exploration and play behavior.
- Greater proportion of daily time spent awake (eg, exhibiting vigilance and scanning behavior).
- Increased hiding or attempts to hide.
- Decreased frequency and success of mating behaviors.
- Chronic withdrawal and signs of depression.
- Alterations in appetite (anorexia and overeating [occurs secondary to stress in some cats]).

Preparation for life—Veterinarians need to encourage clients to take the opportunity, especially during the early part of the sensitive period (3 to 9 weeks), to prepare their kitten for a lifetime without fear. Gradual, regular exposure to a wide array of stimuli in a positive manner fosters stable behavior. If the client thinks ahead to what his or her life might involve in the next 10 years and tries to incorporate those elements into the kitten's life at this time, the kitten will more readily adapt to the changes when they arise. Although the process will require more time and effort, older kittens and cats can still develop stable behavior via positive interactions with people and the environment.

We can prevent development of excessive fears, anxieties, and other uncomfortable feelings by exposing kittens or cats to novel noises, people, places, and experiences under calm, fun conditions and by using positive reinforcement (eg, treats, toys, massage, praise). Clients should be encouraged to avoid exposing their cat to strongly fearful or aversive events. Fearful behaviors can include withdrawal, hiding, crouching, pupil dilation,

Figure 21 This kitten enjoys a cat tunnel where she can hide, pounce, and make the bag crackle. Courtesy of M. Dyer.

and panting. Children should be taught to handle kittens gently and avoid rough handling and teasing.

The easiest way to intervene is to anticipate and prevent stressful exposure whenever possible. To do so requires that practitioners and clients pay attention to the cat's behaviors and know when they deviate from normal behavior.

Even adult cats will respond positively to proper litter box placement, cleanliness, scratching posts, and other environmental improvements. Furthermore, they can learn to change many behaviors that might otherwise worsen and become part of a more serious condition. The encouragement of appropriate learning in cats is undervalued as a preventive strategy.

The practice of preparation applies to older cats as well. The client may casually mention an upcoming change or trip. This is an excellent opportunity to educate the client about preparing his or her cat for this potential stressor. Knowing that a timid cat is going to travel on a plane in a month allows for slow acclimatization to traveling. How a client introduces a new cat, dog, or baby may cause years of anxiety or may act as the stepping stone for a strong social bond.

Protection from fear and stress—Protect the cat by minimizing unpleasant situations. Meet the cat's emotional needs for social companionship and mental stimulation, so it is not functioning in a background of distress. Lack of mental and physical stimulation is stressful.[66]

Give the cat coping tools—Stress is greater when an animal has limited options or choices, or worse, none. Remind clients that the physical and social organization of their feline household may not reflect what the cat would arrange, were it given choice of or control over housemates. Clients can minimize problems if they can anticipate and prevent situations that cats may find stressful (eg, having to share a litter box). Choices provide a measure of control for the cat. For example, in a multiple cat household, providing several stations throughout the home with litter boxes, food, and water allows cats to choose whether they wish to interact with or avoid the other cats. Hiding may be an important coping mechanism for cats in stressful environments. Providing areas of concealment reduces stress.[65,67] Strategically placed crates, boxes, open closet doors, and climbable cat trees or vertical shelves can all serve as retreats for stressed cats. Hiding can be particularly helpful for caged cats and can be as simple as providing a cardboard box.

Clients who play with and groom their cats and who maintain a relatively predictable, but flexible routine for feeding decrease adverse background stress. For example, 10 minutes of daily, reliable, quality time can help a sociable cat deal with being ignored after the arrival of a new baby. When unpleasant stimuli are predictable (eg, they have a known outcome with a beginning and end), they are less problematic. Unpredictability of stressful stimuli makes those same stimuli more stressful.[68,69] Both inflexible, regimented patterns as well as chaos, especially if coupled with unpredictable deprivation, are associated with injurious stress.

Promotion of well-being—Encourage clients to promote a sense of well-being in their cat. Social companionship in the form of gentle petting and stroking, feeding, grooming, and playing have benefits beyond the mere easing of loneliness. Cats need mental stimulation: their environment should provide opportunities for them to create their own positive experiences, including interactive toys, new objects to explore, hide and seek games (eg, hidden food), and visual stimulation (eg, window seats, bird feeders, and videotapes designed for cats; Figures 19-22).

Figure 22 This scratching structure can serve several purposes—for scratching and hiding, as well as a ramp for an older or debilitated cat. Courtesy of M. Dyer.

XIII. ENVIRONMENTAL ENRICHMENT

Providing an enriched environment will prevent many potential behavior problems that can occur secondary to under-stimulation and stress. Stress affects many physical problems, such as feline interstitial cystitis and obesity and its associated risks (eg, diabetes mellitus, hepatic lipidosis, heart disease, difficulty grooming and walking).

In situations where behavior problems have already occurred, environmental enrichment is an important component of the treatment plan.

Client education and suggestions on how to improve the environment can usually prevent such stress, and subsequently improve the quality of life for feline pets (Client Education Handout F).

Predictability—A flexible routine for feeding, playing, or grooming decreases stress. Clients can feed their cat after a particular event (eg, after the morning shower and before dinner) so that the cat can rely on some pattern of response. However, recommend that clients not feed cats upon awakening, because cats may learn to wake people for food. Have clients establish a routine for litter box care that includes scooping boxes twice daily.

Preventing startle—As much as cats like predictability, small, regular changes in the environment teach coping skills, provide novelty, and prevent boredom (a lack of social and environmental stimulation, or stimulation at a level less than what the cat would seek). To enhance the cat's coping skills, make regular small changes in the environment. For anticipated changes in the family, such as adding a new pet or baby, prepare the environment and gradually introduce the cat to these changes.

Figure 20 Watching videotapes designed for cats provides visual stimulation. Courtesy of M. Dyer.

Social companionship—Cats need companionship and mental stimulation. Cats handled during infancy are more resistant to stress, and gently stroking a cat can reduce fear and lessens signs of pain.[70]

Social companionship can be in the form of gentle petting and stroking, feeding, grooming, and play. If cat owners are away for a large part of the day, the resident cat may benefit from having another cat as a companion.

Litter box maintenance—Understanding normal elimination behavior and proper litter box maintenance helps prevent inappropriate elimination—the number one behavior problem in cats.

Choice—Choices provide a measure of control for the cat. Provide an environment with opportunities for the cat to create its own positive experiences, including interactive toys, new objects to explore, hide and seek games, hidden food, and visual stimulation such as window seats, bird feeders, and videotapes designed for cats.

Multiple cat households—With critical resources available at more than 1 site, a cat can choose which path to take, and which cat to greet or avoid. For many cats, hiding is a preferred coping strategy when stressors occur. Strategically placed crates, boxes, open closet doors, and climbable cat trees or vertical shelves can all serve as retreats for stressed cats.

Figure 19 Environmental enrichment is important for cats of all ages. This older cat learned to use this puzzle within a short time once his favorite toys and treats were added to the puzzle. Courtesy of I. Rodan.

XIV. AGING AND BEHAVIORAL CHANGES

Old age is not a disease, and older cats still need exercise, human affection, and regular routines. However, changes in behavior are common in older cats and are often caused by underlying medical problems. The incidence of behavior problems increases with advancing age.[f] Once the underlying cause is identified, many behavior problems in older cats are correctible. To promote early detection and prevention of both medical and behavior concerns, semiannual examinations are recommended for cats 7 years of age and older.[52,71,72] Age-appropriate diagnostic testing once or twice per year can help identify diseases that can lead to medical or behavior problems. If behavior changes are noted, a thyroid panel that includes analysis of free thyroxine by use of dialysis and total thyroxine is recommended.[73,74] Bacteriologic culture of urine is recommended if the urine is dilute (specific gravity < 1.035), because dilute urine can predispose to urinary tract infections and infections may exist without evidence of infection on sediment examination.

Hyperthyroidism, hypertension, chronic renal disease, and diabetes mellitus are common conditions of older cats that often are characterized by behavior abnormalities. Pain-associated conditions such as dental disease and arthritis can also affect behavior. A decline in hearing and vision are normal aging changes that may affect behavior and can lead to subsequent fear, phobias, or aggression.[76] Altered sleep-wake cycles are also common in older cats, with wandering and increased vocalization, especially at night. Causes include cognitive dysfunction, hypertension, pain, and sensory decline. Urge clients to contact the veterinary hospital even if there are minor changes in their cat's behavior.

If a behavior problem occurs secondary to a medical problem, it may be insufficient to treat only the underlying medical condition. The treatment plan may include environmental management, behavior modification techniques, and behavior-altering drugs (Appendix 5). Simple environmental modifications can make daily activities much easier for older cats. These include quiet, safe sleeping spots; nonskid surfaces; and ramps or steps to reach places where they can no longer jump.

An increase in the number and size of litter boxes along with frequent cleaning can help prevent inappropriate elimination caused by dirty litter boxes, decreased ability to get to or into the box, and disorientation. In cases of severe polyuria, clumping litter may dry as hard concretions on the paws; avoid clumping litter in these situations. Lights or night lights can be left on to help cats with visual decline find litter boxes in the dark.

Keeping the older cat's routine and environment as stable as possible will decrease stress.[76] If changes occur, try to prepare the cat, or make gradual changes.

XV. PRINCIPLES OF TREATMENT AND TREATMENT MODALITIES

The first step in any treatment is to understand the cat's normal behavior and then determine whether there is deviation from it. A diagnosis requires the integration of results from a comprehensive history, physical examination, and diagnostic findings. On the basis of these findings, treatment options and a treatment plan may be developed and discussed with clients. Behavior modification and environmental enrichment are important components in the treatment of behavior problems. *Drug therapy, if indicated, should only be used in conjunction with client education, behavior modification, and environmental management.* With behavior cases, follow-up communication is essential and should occur at weekly intervals in person, by phone, or by e-mail, until the concern is resolved. If cats do not respond, the problem may be more challenging and require continued testing, referral, or consultation.

Cats' temperaments affect the manner in which they react to new experiences and shape their development of behavior problems. Their overall personality type is important to consider in treatment. Realistic expectations dictate that a timid cat will never be a bold cat. If clients truly prefer or desire one type of cat versus another, they may put the less desired cat in situations injurious to its welfare. This is an education and guidance issue for veterinarians, shelters, and breeders.

Principles of behavior treatment

Obtain a history—At every visit, clients should answer questions relating to behavior (Appendix 1). This enables early detection of problems and ensures that good prophylactic behavior strategies become part of the client's repertoire. Additional questions should be asked regarding new patients. Follow-up questioning is needed for each behavior concern noted previously.

Make a diagnosis—To develop a full behavior treatment plan, a working diagnosis is mandatory. *A diagnosis requires a good history, a comprehensive physical examination, and diagnostic testing to identify medical problems that may influence the behavior.* Environmental changes and client education can begin while awaiting the results of diagnostic testing and complete diagnosis. If it is not possible to make a working diagnosis, consultation with or referral to a veterinary behaviorist is recommended.

Educate clients—Clarify the client's understanding of what normal behavior should be for their cat, taking into account age, breed, and environment. Also, clarify client expectations and compare these with likely outcomes.

Modify the environment—Change the cat's social environment. Social change can include increased focused client time with the cat, including teaching tricks, active play, or quiet time, and the establishment of a reliable but not inflexible routine. The addition, separation, or re-homing of other cats may be warranted in some instances. Encourage normal, desirable behavior (eg, exploring, chasing or stalking toys, relaxing quietly) with rewards (eg, treats, praise, petting).

Change the physical environment. Start by keeping the cat in an environment that does not trigger the behavior. This may involve a separate room, restricting access to the room in which the behavior occurs, using crates or kennels, completely changing the environment (eg, providing outdoor cat enclosures), increasing vertical spaces (eg, climbing trees or shelves), or improving scratching areas. Also, enrich the environment as previously discussed.

Change behaviors and teach new, appropriate behaviors—Behavior modification is simply using the principles of learning to change behavior. *Animals—including cats—learn best by being rewarded. Punishment does not teach the desired behavior.* In addition, punishment used incorrectly typically makes cats more distressed. As a result, punishment is more likely to encourage cats to be more fearful and reactive to the client.

Rewards are things or activities that appeal to the cat, such as food, play, toys, petting, massage, and praise. Unfortunately, no single reward works for every cat, so clients have to learn what their cat likes best. Clients will know that the reward is working if the cat changes the behavior in the desired direction.

Rewards must be given as soon as possible during the behavior. The best way to do this is to watch for early signals that the behavior will happen. If clients are using food or toy rewards, they need to carry these with them so that rewards can be almost instantaneous. Clients can learn to watch for sequences that lead to the specific behavior. For example, cats that are sniffing around scratching posts may do this as a precursor to scratching. Rewarding the sniffing will encourage the cat to explore

the post. Clients can also scratch on the post to incite use, and reward mimicked behavior. Watching for precursor behaviors (eg, sniffing and approaching the post) allows instantaneous rewards when the cat scratches on the post.

New behaviors are learned best if they are rewarded every time they occur, and subsequently rewarded intermittently once learning has been established. For intermittent rewards to maintain a behavior, the behavior must be truly learned; otherwise, the cat learns random associations. For example, every time the cat uses a new scratching post, give the cat a treat until the cat consistently uses the scratching post. Once the cat uses only the post and not the furniture, the client can encourage this behavior pattern by rewarding the cat a few times per week. Verbal praise can serve as a secondary reinforcer. Scratching is a special case—because it is also a self-rewarding behavior, rewards from the clients are added bonuses that promotes bonding with the cat.

Passive interventions—*The easiest passive intervention is to absolutely ignore the undesirable behavior*, as long as medical problems that might cause this behavior have been ruled out or treated. If the client's response to the cat's behavior has contributed to the problem, the behavior may fade if the response ceases. For example, if the cat meows to be fed at 3:00 AM and the client complies, the cat is inadvertently rewarded both with food and attention. This teaches the cat an undesirable behavior that may also contribute to obesity and decrease the quality of the relationship between pet and client. Clients must ignore the cat completely when it meows in the night, even if this means banning the cat from the bedroom until the habit is broken. A few initial rough nights may prevent a prolonged behavior concern.

More serious behaviors or destructive acts involving serious risk (eg, electric cord shock) require active intervention. Ignoring these behaviors can put the cat in danger.

Active interventions—The most effective active intervention is to disrupt the behavior every time it occurs. Disruption is tricky and ignoring the undesirable behavior while rewarding only desirable behaviors is often preferable. *Disruption is effective only if it occurs every time that the behavior occurs and at the start of or during the performance of the behavior*. This means that it is effective only for those behaviors that are not self-reinforcing and that do not occur in the client's absence. Disruption should be sufficiently aversive to stop the behavior (eg, a loud whistle, shaking a can of coins) without causing damage to the human-animal bond. *The cat must not be scared or hurt by the client*. The best disruptive stimulus will not be the same for every cat. After interruption of the behavior, the client should encourage another behavior to replace the interrupted one. For example, if the cat begins to scratch the sofa and is interrupted, the client can gently take the cat to the post and scratch it; the cat may follow suit and be rewarded. For this to work best, the cat cannot have access to the sofa in the client's absence.

Active interventions can also redirect the cat to an alternate behavior. For example, if the cat meows every time a person goes near the refrigerator, instead of feeding the cat, a favorite toy can be thrown for the cat. If the person always throws a toy, the cat will learn to substitute play for begging. The key here is to insure that clients meet the cat's needs while decreasing the cat's unwanted behavior.

Medication—A variety of medications (Appendix 5) are available to help with behavior problems. Medication should be used only as part of a treatment program that includes environmental management to prevent the behavior triggers, plus behavior modification to teach appropriate behaviors. Most medications presently recommended, particularly the tricyclic antidepressants (TCAs) and the selective serotonin reuptake inhibitors (SSRIs) enhance new learning, both associative and operant, so using them without environmental and behavior management is unlikely to be effective.

Premedication considerations—Make a diagnosis before medication is administered; do not base medication decisions on clinical signs alone. Diagnostic testing is important to rule out the many common medical problems that may be manifested originally as behavior problems. Testing should identify any contraindications to the usage of certain behavior-altering drugs. Most behavior-altering drugs are metabolized through renal and hepatic pathways; follow-up laboratory evaluation is necessary to ensure that medication-associated organ damage does not occur.

Choice of medications—Specific treatments depend on a number of factors, including diagnosis, cat health, client goals, environment, work schedules, and client abilities or limitations. Clients should understand the causes and development of the problem. *Choice of medication should be based on the diagnosis*. Most cats require drug treatment for an extended period of time; quick fixes are rare.

Although the effects of SSRIs such as paroxetine (Paxil) or fluoxetine (Prozac) can be detected within the first

week in cats, the full effects become more clear within 4 to 6 weeks. Emphasizing to the client the need for medication to be administered a minimum of 4 to 6 weeks for SSRIs can prevent them from discontinuing medications too early and making inappropriate assumptions about treatment failures. The initial anti-anxiety effects of TCAs, such as amitriptyline or clomipramine are seen after 5 to 7 days, although more profound changes are seen with additional time. *Treatment for a minimum of 4 to 6 months is recommended to improve problem behavior.*[76]

Emphasize to clients that medication works with and does not replace behavior modification. After the behavior has been modified, attempt to gradually discontinue medication by tapering doses (Appendix 6). If the behavior worsens, increase medication again.

Discontinue medications immediately if signs of toxicosis occur. Older cats can be particularly susceptible to the adverse effects of behavior-altering drugs, which can include sedation, retention of urine and feces (constipation), and hypotension. Lower doses and longer intervals between doses may decrease the risk of adverse effects in older cats. Do not combine monoamine oxidase-inhibitors such as selegiline with any SSRI or TCA, because of the potentiated effects on serotonin and norepinephrine. Such combinations can lead to serotonin syndrome—an iatrogenic condition marked by hyperactivity, anorexia, insomnia, tachypnea, tachycardia, and potentially death, if provocative treatment continues. Severe adverse effects are rare with the newer medications when they are used appropriately, although atypical reactions can be profound and may be manifest as profound signs of depression or excitation.[77,78] In the event of an atypical response, routine support including fluids is required and almost always successful.

Administering medication—To prevent difficulties with administering medications, teach clients how to handle the cat's mouth and give medications as part of routine handling (eg, in kitten classes or during first veterinary visits). When orally administered medications are prescribed, always instruct the client on how to administer them. Handouts are also helpful to enhance client learning.

Oral administration of medication may be difficult, either because of the disposition of the cat or the inability of the owner. Many drugs are bitter and have an objectionable taste; most can be repackaged in capsules to minimize problems associated with taste. Oral administration of tablets or capsules (especially doxycycline) with 6 mL of water to enhance swallowing of the medication decreases risk of gastroesophageal disease and ensures rapid delivery of the medication to the stomach.[79]

Adult cats that remain with their siblings spend more time together than non-littermates. Most inter-cat relations can be treated with environmental management and behavior modification. If medication is needed, it should be used in conjunction with the environmental management and behavior modification. Courtesy of A. Bauknecht.

Transdermal routes may be desirable, as has been true for analgesia medications.[80,81] However, we presently know little about the pharmacodynamics or pharmacokinetics of using preparations intended for oral administration in transdermal form to treat behavior problems.[82] One should not expect psychopharmacologic agents to behave the same way when delivered transdermally versus orally. The active metabolite of fluoxetine has a long elimination half-life, which may have implications for adverse effects in transdermal applications.[83] Pharmacokinetics may also differ for transdermal medications. For example, to attain equivalent blood concentrations, transdermal patches may need to contain 10 times the amount of compound found in orally administered preparations.[84]

When to refer—As with all specialties, it is the veterinarian's responsibility to refer if expertise is needed beyond what the veterinarian is able to provide. Behavior problems are often life-threatening conditions, deserving the same importance and expertise as other life-threatening conditions.

A listing of board-certified specialists can be found in the AVMA Directory at www.dacvb.org or www.veterinarybehaviorists.org, or by contacting Dr. Bonnie Beaver, executive director of the American College of Veterinary Behaviorists at bbeaver@cvm.tamu.edu.

Appendix 5: Oral medication choices for cats

Before prescribing medication for any cat with a behavioral problem, first rule out any medical problems and conduct a full physical and laboratory evaluation. The following suggestions are patterned after large, multi-center drug trials in human medicine, and after a series of open label and placebo-controlled, double-blind studies in cats.

Diagnosis or Type of condition	First drug of choice (drug class)	Dosage	Comments
Fear, anxiety associated with veterinary visits, car trips, panic.	Alprazolam (0.25 mg tabs) (Xanax) *(Benzodiazepine)* Oxazepam (10 mg caps) (Serax) *(Benzodiazepine)*	0.0125-0.025 mg/kg q 24 h to start; dosage or frequency may need to be increased.	Rapid onset of action (1-2 hours). May increase appetite.
Helps victim of inter-cat aggression become more outgoing and assertive. Action of drug actually relies on resultant social interactions to effect and maintain change.	Buspirone (5 & 10 mg tabs) (BuSpar) *(Azapirone)*	0.5-1.0 mg/kg q 12-24 h 5-10 mg/cat q 12-24 h	For victim only! Will make cat more outgoing and assertive.
Milder, relatively non-specific anxieties, psychogenic alopecia, inappropriate urination secondary to feline interstitial cystitis.	Amitriptyline (10 mg tab) (Elavil) *(TCA)*	0.5-1.0 mg/kg q 12-24 h; start at 0.5 mg/kg q 12 h; 2.5-5.0 mg/cat q 12-24 h	5-7 days to effect.
Milder, relatively non-specific anxieties with avoidance of sedation.	Nortriptyline (10 + mg caps) (Pamelor) *(TCA)*	0.5-1.0 mg/kg q 12-24 h 2.5-5.0 mg/cat q 12-24 h	5-7 days to effect.
Ritualistic behavior associated with anxiety/obsessive compulsive disorder.	Clomipramine (25 mg caps in human formulation; 20 mg scored tab in veterinary formulation). (Clomicalm in veterinary medicine / Anafranil in human medicine) *(TCA)*	0.5 mg/kg q 24 h	5-7 days to initial effect; long term effects may take a minimum of 3-5 weeks.

Diagnosis or Type of condition	First drug of choice (drug class)	Dosage	Comments
Social phobias, anxieties concerning social interactions and related urine marking.	Paroxetine (Paxil) (10 mg tab); suspension: 10 mg/5 mL) *(SSRI)*	0.5 mg/kg q 24 h	6-8 weeks to profound effect. For victims needing more confidence in interactions (paroxetine or sertraline).
Panic/generalized anxiety and associated intercat aggression and marking.	Sertraline (Zoloft) (25 mg cap) *(SSRI)*	0.5 mg/kg q 24 h	6-8 weeks to profound effect. For victims needing more confidence in interactions (paroxetine or sertraline).
Outburst / impulse control aggression and related anxieties concerning social interactions; related urine marking.	Fluoxetine (Prozac) (10 mg cap or tab; Solution: 5 mg/mL) *(SSRI)*.	0.5-1.0 mg/kg q 24h	6-8 weeks to profound effect. Do not use transdermally because of the long half life. For aggressors with aggression outbursts.
Cognitive dysfunction.	Selegiline (Anipryl) (5, 10, 15 & 30 mg tabs) *(MAOI)*	0.5 to 1.0 mg/kg q 12-24 h, start low	Give in the morning. Do not use in combination with SSRIs or TCAs.

All of the listed drugs are used off-label for cats. Obtain informed client consent before using.
SSRI - selective serotonin reuptake inhibitor; TCA - tricyclic antidepressant; MAOI - MAO-inhibitor

Appendix 6: Algorithm for treatment length and weaning schedule for SSRIs and TCAs based on mechanism of action, $t_{1/2}$ of parent compounds and intermediate metabolites, and potential adverse effects and relapse

1 Treat for as long as it takes to begin to assess effects:
7-10 days for relatively non-specific TCAs (amitriptyline).
3-5 weeks minimum for SSRIs and more specific TCAs.

2 Treat until "well" and cat either has no signs associated with diagnosis or at a low, consistent level for another 1-2 months minimum.

3 Treat for the amount of time it took you to attain the level discussed in (2) so that reliability of assessment is reasonably assured for another 1-2 months minimum.

4 Wean over the amount of time it took to get to (1) or more slowly. Remember that these drugs work by changing specific neurochemical receptor function in neurons. When the medication is stopped these changes may reverse over approximately 3-5 weeks. While acute side effects are seldom associated with sudden cessation of medication, a reversion to the former, untreated state is considered a profound "side effect." Full-blown recurrent events may not be responsive to re-initiated treatment with the same drug and/or the same dose.

7-10 days for relatively non-specific TCAs.
3-5 weeks minimum for SSRIs and more specific TCAs.

TOTAL: Treat for a minimum of 4 to 6 months
Courtesy of Dr. Karen Overall (Overall, 2001, 2004)[77,78]

Although Sally, a clinic cat, has 2 cat trees, she chooses the highest perch of all to oversee what's going on. This photograph shows how we under-use the brains of intelligent animals. Courtesy of I. Rodan

For more information—Most major continuing education meetings (eg, AVMA Annual Convention, North American Veterinary Conference, Western Veterinary Conference, Central Veterinary Conference, British Small Animal Veterinary Association, Australian Veterinary Association) regularly feature behavior courses. Practitioners can also take several day- to week-long intensive courses in behavior medicine, such as that offered through the North American Veterinary Conference Post-Graduate Institute (www.navconline.com), or through the Post-Grad Foundation of the University of Sydney, Australia (www.pgf.edu.au).

To learn more about feline behavior and the treatment of behavior problems, there are several excellent references. Membership in the American Veterinary Society of Animal Behavior provides newsletters, a membership directory with names of individuals who either have a special interest in behavior or are board-certified in behavior and are willing to evaluate cats with behavior problems, and an online forum for questions and comments (www.AVMA.org/AVSAB).

XVI. SUMMARY

Behavior is the most neglected of the veterinary specialties, yet there is no aspect of any condition that does not have a behavior component. These guidelines are intended to inspire practitioners to incorporate behavior medicine into all aspects of feline healthcare so that behavior problems cease to be the biggest reason people abandon, euthanatize, or relinquish their cats.

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Introducing a NEW CAT into a household with already existing cats

From the American Association of Feline Practitioners

When introducing a new cat, initially isolate it in a separate room with its own food, water, litter box, and toys. This allows each cat to gradually adjust to the scent and sounds of the other cat. Once a veterinarian has deemed cats healthy, limited interaction may occur under the door.

Continue the gradual introduction by exchanging bedding between cats, and rubbing a cloth around one cat's mouth and leaving that cloth in the other cat's space, or rubbing a cloth alternately on each cat. As cats start to exhibit curiosity about each other, reward friendly behavior with treats and praise.

At this point, short, supervised, direct interactions can begin. For the initial exposure, have one cat in a carrier and allowing the other cat to approach. Feeding both cats at the same time can reduce stress as well. Following this, allow cats to walk around and sniff each other. Continue to reward friendly behavior. Gradually increase the supervised time together.

Do not leave the cats together unsupervised until several supervised interactions without aggression have occurred. The process of introducing a new cat may take several weeks. Older cats may need a quiet space away from kittens for an extended period of time. Friendly, well-socialized cats may adapt to each other rapidly.

Pheromonal products may ease the introduction, but should be used in conjunction with gradual introduction.

Supported by an educational grant from Hill's Pet Nutrition

LITTER BOX CARE
to prevent or treat
Elimination Problems

From the American Association of Feline Practitioners

Most cats prefer a fine-grained, unscented litter substrate (e.g., clumping litter).

Boxes should be scooped 1 or 2 times daily.

Clumping litter should be completely changed at least weekly and more often if more than one cat uses it. Clay litter should be changed a minimum of every other day (more frequently if multiple cats are using it). Wash litter box with warm, soapy water and dry well before adding new litter.

The ideal number of litter boxes is one per cat, plus one. Litter boxes should be placed in at least 2 different locations, and preferably more if a multiple cat household. Locations should be private and have easy access. Boxes should not be placed next to noisy appliances.

Prevent blocking litter box exit or entry of one cat by another. Have at least two ways for cats to enter and exit the box.

Never trap or corner a cat in its litter box to give it medication or perform other procedures that the cat may dislike.

Many cats prefer a litter depth of approximately 1.5 inches; however, preferences vary.

Cats prefer litter boxes that are at least 1.5 times the length of their bodies. ***Many commercial litter boxes are too small for larger cats.*** Sweater storage boxes, cement mixing tubs, and small dog litter pans (for dogs up to 35 pounds) all make excellent cat litter boxes.

HELPFUL FACTS REGARDING URINATION AND DEFECATION:
The average cat urinates twice daily (+/- 2), and defecates once (and up to 3-4 times in outdoor cats) daily.

Some cats sniff and cover their eliminations; others don't. Both are considered normal behavior.

Eliminating outside the box often signals an underlying medical condition. The earlier the problem is corrected, the better the chance for the cat to return to the litter box.

Call your veterinarian to schedule an appointment.

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How to prevent CATS from SCRATCHING in Undesirable Areas

From the American Association of Feline Practitioners

Scratching is *normal* cat behavior, serving to groom the front claws and leave markers of the cat's presence.

Cats may also scratch to stretch their muscles.

Proper training to scratch on appropriate surfaces, combined with nail care, can prevent damage in the home. The following information is pertinent in choosing a scratching post:

Many cats prefer vertical scratching posts; some prefer horizontal ones.

Vertical scratching posts must be sturdy and preferably tall enough for the cat to have a good stretch. Scratching materials preferred by most cats are wood, sisal rope, and rough fabric.

Locate scratching posts near areas favored by cats, such as windows or sleeping areas since cats often stretch and scratch upon awakening.

Start training your new kitten or cat to use scratching posts when first introduced to your home. Cats return to favorite or chosen scratching sites, so motivate them to use the scratching post you select and avoid letting them use the furniture. This can be done by enticing your cat to the post upon awakening, rubbing catnip on the post, and holding treats or toys partway up the post to encourage stretching and scratching. You can secure an appealing toy, such as feathers, at the top of the post. Rewards can be given at each step—as the cat approaches the post, touches it, and finally scratches it. Never yell at or punish the cat.

If your cat already scratches in an undesirable area, talk to your veterinarian or a veterinary staff member. They will help determine your cat's likely preferences—for a vertical or horizontal scratching post, for the type of material that will draw the cat to the post, for the location of the post. You can then make or purchase posts of similar fabrics.

Place double-sided sticky tape on inappropriate areas and reward use of the post. This helps direct the cat to the post. If necessary, the cat can be confined to an area where the scratching post is the only available scratching outlet. This establishes use of the scratching post and prevents inadvertent reinforcement for scratching off-limits household items.

Trim the tips of the nails every one or two weeks. If done correctly, this procedure is well accepted by most cats. Introduce nail trimming as part of routine handling to kittens.

Plastic nail caps, applied every 4-6 weeks, are an option for cats that are easy to handle. After trimming nail tips, fill the cap about a third of the way with adhesive, and fit the cap over the nail. The soft plastic covers prevents furniture damage when the cat scratches.

Declawing remains controversial but does stop furniture destruction. For more information, consult your veterinarian. Both the American Association of Feline Practitioners and the American Veterinary Medical Association promote training to use the scratching post and discourage declawing as a surgical procedure. You can read their position statements and acquire additional information at their websites, http://www.aafponline.org/positionstate.htm
and http://www.avma.org/onlnews/javma/apr03/030415c.asp

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Feeding Tips to PREVENT OBESITY in Your Cat

From the American Association of Feline Practitioners

Cats in the wild typically eat 10 to 20 small meals throughout the day and night, with hours of foraging time each day. Simulating this feeding behavior for domestic cats provides exercise, and prevents problems associated with lack of problem solving activity. Such stimulation also prevents obesity, a major problem associated with abnormal feeding behaviors.

SIMULATE MORE NORMAL EATING BEHAVIOR:

- Provide cats with puzzle feeders, interactive toys, and food balls that dispense food as the cat rolls it around.
- Make homemade puzzle feeders by cutting holes into a cardboard box or 2-liter plastic jug so that the cat paws the food out.
- Hide food around the house, in different places, and in or around objects for cats to "hunt."
- Toss kibbles and let cats chase after the food, as they would chase prey.
- If unable to do multiple feedings each day, feed a minimum of twice daily, and try to hide the food in creative hiding places.

Seek your veterinarian's advice on the type and amount of food to feed your cat.

Recommended food quantities on pet food containers are based on the amount needed by active cats living with multiple cats. The amount needed by sedentary, neutered cats is much lower.

If treats are used to train or reward behavior, make sure that the caloric content is part of the total measured daily ration. It's best to use a portion of the regular diet for treats; if extra tidbits are used, limit the amount to less than 10% of the total diet. Involve all members of the family so that duplication of rewards does not occur.

If your pet begs, feed the largest meal when you will be present to prevent begging. If your cat wakes you at night to be fed, feed the largest meal prior to bedtime.

Seek veterinary attention if your cat has not eaten in 24 or more hours.

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How to help YOUR CAT have pleasant Veterinary Visits

From the American Association of Feline Practitioners

Fear is the primary cause of misbehavior.
Knowing this can help prevent problematic veterinary visits.

GETTING THE CAT INTO THE CARRIER

Keep the carrier out in the home. Put treats inside. Train cats to view the carrier as a safe haven and "home away from home." A quick response is crucial in case of disaster or emergency.

Carriers that have both a top and a front opening are best. Top-loading carriers allow for stress-free placement and removal of the cat. A removable carrier top enables cats to be examined while remaining in the bottom half of the carrier. Do not "dump" a cat out of the carrier.

ADJUSTING TO CAR RIDES

Always put the cat in a carrier or other safe container.

Take the cat for regular car rides, beginning with very short ones, to places other than the veterinary hospital.

To prevent car sickness, do not feed before traveling.

Reward verbally, with positive attention, and with treats.

PLEASANT VETERINARY VISITS

Bring along the cat's favorite treats, toys, and blanket.

Perform regular home maintenance procedures, including grooming, nail trimming, teeth brushing.

"Play vet" procedures that mimic temperature taking, ear cleaning, and pilling can help cats better adjust to the veterinary hospital and to future home care when necessary.

Regular trips to the veterinary hospital for "fun" visits involving no examinations or procedures provide owners and staff with the opportunity to reward the cat with praise and food treats.

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Environmental ENRICHMENT enhances Quality of Life for your cat

From the American Association of Feline Practitioners

PROVIDING AN ENRICHED ENVIRONMENT can increase activity, decrease mental stagnation, and prevent many behavior problems. Cats need mental stimulation. An enriched environment will give cats the opportunities to create their own positive experiences.

VERTICAL SPACE is highly desirable for cats and increases the overall space available to the cat. Provide cat trees, preferably with hiding spots, cat perches, and shelves.

SCRATCHING IS NORMAL CAT BEHAVIOR. Provide acceptable scratching materials (e.g., scratching posts). To train your cat to use the post, reward with treats and praise. Also put catnip, treats, and toys on or near the post. Scratching posts should be sturdy, and made of materials cats prefer (usually wood, sisal rope, or rough fabric). Locate the scratching post next to a window, sleeping area, or another favorite area. Many cats prefer vertical scratching posts; some prefer horizontal ones.

INTERACTIVE TOYS AND HUNTING GAMES allow cats to stalk and catch; play several times a day with solitary indoor cats.

KEEP THE HOME ENVIRONMENT predictable, but without rigidity or boredom. Make small changes that provide novelty. Studies indicate that cats play best and most often with toys which also use human interaction. Rotated or new toys hold cats' curiosity and interest for longer periods of time.

CATS IN THE WILD eat 10-20 small meals per day. By making all food available in the bowl, foraging time for indoor cat has been reduced to a few minutes per day, as compared with the hours needed for natural foraging. This contributes to the obesity problems in cats, which can lead to various disorders, as well as early death.

TO MAKE FEEDING MORE NATURAL FOR THE CAT:

- food puzzles, interactive food toys, and/or food balls.
- Make homemade food puzzles from a cardboard box or a plastic beverage bottle with holes cut into it.
- Hide food in different places around the house, and in or around new objects so that cats can "hunt" for their food
- Boxes, bags, and carriers that are left out provide nice hiding places for cats.
- Outdoor enclosures for cats protect them from injury while still allowing outdoor exposure.

SOCIAL COMPANIONSHIP

Cats are social animals. They need companionship and mental stimulation. Social companionship can be in the form of gentle petting and stroking, feeding, grooming, and play. If cat owners are away for a large part of the day, it may be helpful for their cat to have another cat to interact with.

Do not let your kitten or cat bite you hands or feet. If your kitten is doing this, substitute a toy to bite on instead.
In a multiple cat household, set up several stations, with litter boxes, food and water, throughout the home. With critical resources available at more than one site, a cat can choose which path to take, and which cat to greet or avoid.

PREVENTING STARTLE

To enhance the cat's coping skills, make regular small changes in the environment to provide novelty.

For anticipated changes in the family, such as adding a new pet or baby, prepare the environment and introduce the cat gradually to these changes. For example, when moving, first introduce the cat to a small, comfortable space in the new place, which has been previously stocked with favorite items such as toys or the owner's clothing. When the cat has adjusted to this environment, gradually increase the new space available to the cat.

CATS CAN BE TRAINED & ENJOY THE ASSOCIATED ATTENTION

- Reward cats with treats or positive attention to encourage desired behavior.
- Redirect undesired behavior.
- Do not punish; don't swat, slap, or yell at the cat.
- Train under calm, fun conditions using positive reinforcement (e.g., treats, toys, massage, praise).
- Cats can learn to "sit", "come", and do a variety of other tricks. Start with things your cat already likes to do.
- You can also train your cat to allow teeth brushing, nail trimming, and grooming.

Supported by an educational grant from Hill's Pet Nutrition

I would like to take this opportunity to thank all the panelists for their many hours of hard work and their tremendous contributions to develop the AAFP Feline Behavior Guidelines. A special thanks goes to my co-chair, Dr. Karen Overall, for her dedication to the field of behavior and educating veterinarians around the world. I greatly appreciate that despite her very busy schedule she provided knowledge, enthusiasm and support and worked an inordinate number of hours to complete the guidelines.

Thanks also to Hill's Pet Nutrition for their support, and especially to Dr. Mary Beth Leininger for continued support of the profession and the AAFP. I would also like to acknowledge all the reviewers, the members of the AAFP Feline Guidelines Committee, and the AAFP Board for their timely reviews and input. Rusti Greene has done a great job with design and been a pleasure to work with. In closing, I'd like to talk about two of my favorite kitties that I lost while preparing the guidelines. I am forever grateful for what I learned about behavior to better care for my own and for other cats.

~Ilona Rodan

DEDICATIONS

In memory of Mittens, who was adopted as a 16 week-old feral kitten. Cats can still be socialized after the sensitive period, but it is a much slower process. After much positive reinforcement when interacting and playing with the family and lengthy or repeated visits by guests, Mittens gradually became less anxious and more affectionate. As with many cats, her years as a senior cat were the best. At 17 years of age, behavior changes were the first signs that led to a diagnosis of hepatic neoplasia. *Courtesy of I. Rodan and family.*

In memory of Socks, found at 2 days of age. Despite our love for Socks, she challenged us with different forms of aggression and taught us about aggression and behavior. She was the sweetest of cats most of the time, but made sudden attacks without warning. Socks had many strikes against her—she was an orphaned kitten with severe congenital ocular herpes virus infection. Until the age of two, when her second eye was enucleated despite the great care of 4 veterinary ophthalmologists, she had pain aggression. It took several years before Socks was comfortable being touched anywhere near the head. Not surprisingly, Socks had fear aggression at the veterinary hospital, even after the pain had resolved. It took 2 years of her associating the clinic with baby food before she was calm at the clinic. Perhaps because of her history, Socks also had aggression associated with petting. She would jump on a lap, rub against the person, and purr as she was being petted, and then suddenly turn and bite. The family needed to learn to watch her body language—ears back, tensing of the body (in a cat that is not blind this includes sudden dilation of pupils)—and stand up to prevent being bitten.

Socks died of pancreatic cancer. She was comfortable throughout her last months because of our ability to recognize pain and prevent it. Understanding behavior allows us to prevent pain and suffering. *Courtesy of I. Rodan and family.*

My family and I are grateful to have known and loved these wonderful cats. However, how many clients would cope well with the "problem cats" that many veterinarians live with and love?

Almost 3 years ago, I incorporated behavior into my practice to the fullest extent. Approximately 80% of clients at my wellness appointments have some behavior concern that is evident from the history, which allows us to educate the clients about normal behavior and detect and treat behavior problems early on. Several of the cats we have seen were in their second, third, or fourth home because someone didn't like their behavior. Nearly 100% of sick cats present with behavior problems that are detectable by clients and veterinarians and lead to needed medical care. Since incorporating behavior to the fullest in my practice, there have been so surrendered or euthanized cats to my knowledge.

Through staff education, my veterinary team has learned to take comprehensive histories and to handle patients in respectful and compassionate ways. Patients, clients, and veterinary teams all benefit from incorporating behavior services into veterinary practices. Preventive behavior medicine belongs in every veterinary hospital and it is easy to integrate into practice. Incorporating behavior medicine into practice is a win-win situation for all concerned and we wish you the great success that you too can achieve.


American Association of
Feline Practitioners