Clinical Animal Behavior Conference

2019 Proceedings

Focus on:

Human Directed Aggression

October 4th – 6th, 2019

Oquendo Center, Las Vegas, NV

The Clinical Animal Behavior Conference is Presented By:

AVSAB American Veterinary Society of Animal Behavior

Academy of AVBT Veterinary Behavior Technicians

SVBT Society of Veterinary Behavior Technicians

www.AnimalBehaviorConference.com

Thank You to Our 2019 Sponsors!

Gold Sponsors

PURINA PRO PLAN VETERINARY DIETS

nutramax LABORATORIES VETERINARY SCIENCES, INC.

INSTINCT DOG BEHAVIOR & TRAINING®

IAABC INTERNATIONAL ASSOCIATION OF ANIMAL BEHAVIOR CONSULTANTS

Special Event Sponsors

CATTLEDOG PUBLISHING drsophiayin.com A VETERINARY CORPORATION

ASSISI ANIMAL HEALTH

Additional Contributors

karen pryor ACADEMY for Animal Training & Behavior

TEAM Education in Animal Behavior

BEHAVIOR WORKS

Doggone Good! THE CLICKER COMPANY ClickerCompany.com DoggoneGood.com

Dogwise www.dogwise.com

FEAR FREE Taking the pet out of petrified.

Aversives Work: To Shoot or Not to Shoot the Dog!

Kenneth M Martin, DVM, DACVB
Veterinary Behavior Consultations, LLC
TEAM Education in Animal Behavior, LLC

What is Aversive?

Aversive – Anything the animal is willing to escape or avoid

What is aversive is open to interpretation by the individual who experiences it. If the animal is willing to avoid or stop a behavior when faced with a given stimulus, that stimulus is likely aversive. What is aversive is not necessarily painful, but it is considered unpleasant by the individual who experiences it. What is aversive may cause physical and/or psychological harm, yet not be to a level that causes an animal to avoid or stop a behavior. What is aversive may not always be reinforcing or punishing.

One explanation is that there may be competing motivations and the desire to perform a given behavior is stronger than the motivation to stop a given behavior. The intensity of the aversive is not strong enough to deter or induce behavior change.

Learning Theory

Behavior can be reinforced or punished. Behaviors that are followed by a pleasant consequence will increase in frequency. This is referred to as reinforcement. Reinforcement maintains or increases the frequency of a behavior. Behaviors that are followed by an unpleasant consequence will decrease in frequency. This is referred to as punishment. Punishment decreases the frequency of a behavior.

Stimuli may be pleasant or unpleasant and presented or removed as a consequence of a behavior. When a stimulus is presented or removed as a consequence of the behavior, regardless of whether the behavior is reinforced or punished, this is referred to a positive or negative, respectively. Positive is adding a stimulus as a consequence of the behavior. Negative is removing a stimulus as a consequence of the behavior.

Ethics of Learning Theory

Positive reinforcement is the preferred method of learning. Positive reinforcement and negative punishment (sparingly) can be appropriate ways to help address the majority of pet behavior problems.

An example of positive reinforcement is offering something pleasant such as praise or food following a desired behavior. Most pet owners too often fail to reinforce desired behavior. If the behavior is maintained or increases in frequency after adding something pleasant, the behavior has been positively reinforced. An example of negative punishment is withdrawing attention for attention seeking behaviors in dogs. If the behavior decreases in frequency after removing something pleasant, the behavior has been negatively punished.

Controlling pleasant consequences, by offering something pleasant for desired behavior and removing something pleasant for undesired behavior, are less likely to damage human animal relationships than other operant conditioning techniques.

Positive punishment and negative reinforcement can be used effectively to teach new behaviors, but their use is problematic and likely associated with undesirable emotions (fear, anxiety, and/or conflict).

The use of aversives is rarely necessary and not recommended when dealing with most behavior problems of pets.

An example of positive punishment is inflicting pain when a dog performs an undesirable behavior. If the behavior decreases in frequency after adding something unpleasant, the behavior has been positively punished. An example of negative reinforcement is the termination of shock when a dog performs a desired behavior. If the behavior increases in frequency after removing something unpleasant, the behavior has been negatively reinforced.

While behaviors that have pleasant consequences will increase in frequency and behaviors that have unpleasant consequences will decrease in frequency, there is a missing scenario from the Law of Effect. The missing scenario is extinction. Extinction can be a stressful learning process, especially if the behavior has a long learning history of reinforcement. A behavior that has no consequence will decrease in frequency and cease to occur. This is known as extinction. Many behaviors that are not self rewarding can be ignored and allowed to go into extinction. Although environmental management is imperative to avoid the use of extinction and negative punishment as much as possible.

Classical associations are always being made on a conscious and subconscious level. At times the association is not always made in direct correlation with the desired operant response. This is problematic when any aversive methodology is used in training.

Types of Punishment

Examples of positive punishment include the induction of physical pain or discomfort (hitting, leash corrections, shock), applying an aversive (water, citronella, or startling with a shaker can, verbal reprimand), social punishment (time out away from social affiliates), and physical restraint (forced down, roll over, shake down, or scruffing). Examples of negative punishment include removing attention contingent on behavior that is attention seeking or giving the pet a time out. Yet, a time out or time away from social companions can be punishing for dogs and increase anxiety associated with physical separation. Conditioned punishment includes verbal reprimands such as the word ‘no’ or scolding when they precede a physical correction. The tone of an invisible fence collar is a conditioned punisher because it predicts the impending shock should the dog approach flags set up at the boundary. The tone or vibration on a shock collar is a conditioned punisher and/or negative reinforcer.

Problems with Aversives

The use of aversives in training can inhibit learning and reduce creativity. Punishment may inhibit all behavior, not just the problem behavior, and often induces fear, anxiety, and/or conflict. Animals may go into learned helplessness or give up when they are unable to avoid the punishment. Punishment can inhibit or subdue behavioral responses and be perceived as calming. Punishment is often applied inconsistently, used instead of teaching an appropriate response, and used without rewarding the appropriate response. If aversives are used consistently and predictably, such that the learner knows how to avoid the aversive, they are less likely to induce stress. If aversives are used in training, they should only be used after a desired behavior is taught with positive reinforcement and used to stop (positively punish) undesired behavior or encourage (negatively reinforce) desired behavior. A certain level of proficiency must be achieved, and a pleasant classically conditioned response must be established, for the behavior to not look 'ugly' (induce conflict behaviors in the dog). If aversives are used in training, alternate appropriate responses should always be positively reinforced.

Aversives are not recommended for puppies and kittens, behavior problem pets, teaching new behaviors, or for appeasing motivation. There are effective ways to train animals without use of positive punishment and/or negative reinforcement. The use of aversives does not allow the trainer to focus on teaching the appropriate response, but rather the focus is on correcting the inappropriate responses. Even if an effective punisher is used, the pet may perform the behavior in the owner's absence.

Aversive based training tools, such as, prong, choke, or shock collars are unnecessary and inhumane for teaching a dog new behavior. Aversive based training tools, such as, prong, choke, or shock collars are unnecessary and inhumane for addressing problem pet behaviors. They have a greater potential to cause emotional and/or physical harm than non-aversive methodology. Yet, aversive based training tools can be effective for teaching new behavior whether used as positive punishers or negative reinforcers. Many dogs have been "successfully" trained using the "Koehler Method of Dog Training" since the mid-1940s. Most dogs will respond to the placement of a prong collar with a decrease in leash pulling. Dogs can be taught operant responses with electronic shock collars and behaviors can be maintained with the threat of shock.

The risks associated with aversives are greater when used on emotionally unstable dogs as they are less resilient. The risk associated with aversives are greater when used on dogs with behavior problems. Conversely, the use of aversives may be more effective in emotionally unstable dogs as they may be more sensitive to correction. When used for addressing aggression, aversives may suppress warning signs associated with aggression thereby making it more unpredictable. Aversives are unlikely to change the motivation of anger or frustration and they are likely to induce fear, anxiety and/or conflict.

Verbal reprimands, such as the word 'NO', quickly become a conditioned punisher by association. It does not tell the pet the appropriate behavior. Rather, it conditions a negative emotional state that can contribute to fear and anxiety. Verbal reprimands may actually condition unwanted behaviors and contribute to overattachment to the owner or codependence on the owner/handler.

Criteria for Effective Punishment

In order to have effective punishment, one must consider the pets' motivation, contingency, timing, intensity, and lastly the context.

1) Motivation
    a. Motivation for a given behavior may not be reduced by punishment; rather punishment may induce conflict, behavioral inhibition, or increased arousal associated with the context. In certain contexts, the motivation for escape or avoidance may be enhanced without affecting the underlying motivation for the behavior. The motivation to perform a behavior may not be eliminated by punishment. The motivation for the behavior may still be present, but negative associations or behavioral baggage are also classically conditioned with the context. If punishment instills fear, punishment is unlikely to improve fear related aggression. In the case of predatory aggression, the desire to chase may still be present even with an inhibited behavioral response.
2) Contingency
    a. Punishment must occur *every time* the undesirable behavior occurs. The punishment is contingent on the behavior. A variable reinforcement history will make a behavior more resistant to extinction and/or punishment. If the behavior has had pleasant consequences in the past, it may be worth the risk of punishment in a given situation, when motivated. Ideally, the behavior-in-itself, becomes punishing and undesirable for the animal to perform within the given context. It may be undesirable for the punished behavior to become generalized to a multitude of contexts. For example, a dog punished for picking up undesirable objects with his mouth will be more difficult to train to pick up desirable objects, even with positive reinforcement.
3) Timing
    a. Punishment must occur *within ½ a second of the start* of the behavior. A delay in punishment makes it less effective, provides for an opportunity for reinforcement with the undesirable behavior already being performed, or presents an opportunity for misassociation. For example, the chase sequence of predatory behavior may be innately reinforcing for dogs, even without ever capturing prey. A delay in applying aversives may allow for reinforcement. If the behavior continues it is either intrinsically or extrinsically reinforced.
4) Intensity
    a. Punishment must be delivered at the *proper intensity to stop the behavior* without inducing severe stress. Motivation for the behavior may be greater than the aversive consequence. If the behavior does not decrease in frequency, the definition of punishment has not been met. If the intensity is too great, it risks decreasing desired behavior along with undesired behavioral responses. The intensity should be enough to interrupt the behavior, yet not induce severe pain or high anxiety. If the intensity is lacking, one risks inducing tolerance to the aversive.
5) Context
    a. Some may place context in the category of environmental contingencies. Punishment should *not be associated with the owner* as it can instill distrust along with fear, anxiety, and conflict directed toward the owner. When punishment is associated with the owner, it is damaging to the human animal relationship and may lead to fear of humans

or human directed aggression. For example, a wooden chair leg may be sprayed with a bitter tasting substance to deter chewing while alternate appropriate items are made available for chewing. This provides the animal with an appropriate chew choice and the aversive is not associated with the owner.

b. Some trainers would argue that they want punishment to be associated with the handler, so the animal refrains from preforming the behavior in their presence and 'knows who is boss." Perhaps, the context can be managed in the handler's absence. Yet the problem presents for opportunities of mis-association. For example, a dog who is shocked whilst urine marking on a tree may not associate the shock with urine marking, but the person's presence while urine marking. Larger mis-associations may occur, such as a fear of all trees, a small child who was innocently standing near the tree, or perhaps even the substrate on which the dog was standing.

It is difficult to meet the criteria for effective punishment, and if punishment is going to be effective, it will work in 1-2 attempts. Gadgets and gizmos are available that meet the criteria for effective punishment. Punishment may be considered as a last resort when all other alternatives have been exhausted. There are ways of training dogs and dealing with the majority of behavior problems without ever using punishment. Veterinarians should be cognizant of the methodology used for training when referring patients for obedience classes or behavior modification.

Alternative Methods to Aversives

One early list of bad and good methods for addressing problem behavior or training was written by Karen Pryor. She wrote of 8 methods of getting rid of a behavior in her book about dog training, Don't Shoot the Dog!

1) Shoot the dog
2) Punishment
3) Negative reinforcement
4) Extinction
5) Train an incompatible behavior
6) Put the behavior on cue
7) Shape the absence of the behavior; reinforce every other desirable behavior
8) Change the motivation

One alternative to aversives in training, is considering Susan Friedman's Hierarchy of Behavior-Change Procedures: Most positive, least intrusive effective intervention model. Consider the following steps or exits when designing a training plan.

1) First, consider the animal's mental health and physical wellness.
2) Antecedent arrangements. Set the environment to control the learning process.
3) R+. Utilize positive reinforcement in training as the primary method
4) DRI. When problems arise, utilize differential reinforcement of alternate or incompatible behaviors. This is synonymous with response substitution.
5) Yield! If considering extinction, negative reinforcement, and negative punishment.

6) Stop! Rethink the training plan before considering positive punishment

When consider the four quadrants of learning theory and training, the author recommends the following ethical considerations in stepwise fashion.

1) Positive reinforcement. Teach behaviors incompatible with undesirable behavior. Reward appropriate responses, proactively.
2) Negative punishment. Avoid reinforcing undesirable behaviors with attention. Set up the environment and reinforced desired behaviors to avoid needing to use this technique very often.
3) Negative reinforcement. Rarely ever necessary, yet the use of a leash may be consistent with negative reinforcement when not used as a cue.
4) Positive punishment. Avoid in a training plan. Use is not without undesirable sequalae.

Alternative Behavior Modification Methods to Aversives

- Antecedent arrangements. Avoidance of the practice of undesirable behavior. Prevent the behavior from being reinforced. Control the learning environment while minimizing stress. Know the ABCs of the behavior.
- Motivation. An alternate way of reaching the goal behavior is to funnel the motivation in the right direction. Provide alternate appropriate outlets for species specific behaviors.
- Pharmacotherapy. Treat medical and/or emotional disorders that may contribute to the behavior. Medications may treat internal antecedents, underlying motivations, and chemical imbalances.
- Classical conditioning/counter-conditioning the emotional response. Classical counterconditioning is used to change the pets underlying emotional state. It is effective when the motivation is one of fear, anxiety, or anger.
- Positive reinforcement based operant conditioning.
    - Clicker or marker training, utilizing a positive event marker, as an alternative to correction-based training.
    - Proper positive acclimation to a non-correction centric leash and collar for use as a cue. Headcollars and front clip harnesses are highly effective in allowing for the control of unmanageable dogs.
- Systematic desensitization to stimuli which induce undesirable behavioral responses. Systematic desensitization is used to reduce fear or arousal by gradual gradient controlled exposure to the eliciting stimulus. It is highly effective in specific circumstances.
- Ignoring undesirable behavior. Ignore rather than reinforce, when possible.
- Response substitution applied to unwanted behavior. Response substitution is used when a behavior cannot be ignored. Initially an alternate appropriate behavior is taught outside of the problem situation. The pet is then redirected in the problem context and rewarded for performing an alternate appropriate behavior. Response substitution has been called DRI (differential reinforcement of an incompatible behavior) or DRA (differential reinforcement or an alternate behavior). Best if applied proactively rather than in response to the undesired behavior.

- Negative punishment is used when the motivation for the behavior is attention seeking. The withdrawal of attention is the removal of the reward or the opportunity for reinforcement. Negative punishment is not cueing the dog to go away from the handler or moving the dog to a timeout locked away in isolation of the handler. This can result in frustration and should not be used routinely. As with positive punishment, if it will be effective it should only be used a few times to have the desired change in behavior. If considering negative punishment, re-evaluate medical and physical health, antecedent arrangement, and positive reinforcement strategies.

Conflict Related Aggression: What is It and What to do about It?

Kenneth M Martin, DVM, DACVB
Veterinary Behavior Consultations, LLC
TEAM Education in Animal Behavior, LLC

Conflict related aggression often begins as a puppy problem. The learning ability of an 8-week-old puppy is equal to that of an adult dog based on electroencephalograms and multiple behavioral studies. Let's first evaluate factors that can go wrong with development and contribute to the development of conflict related aggression.

Conflict related aggression is influenced by genetics and modified by the influence of experience, like all behaviors. Environmental circumstances and consequences can have a positive and negative effect on development. Learning plays a significant role in the development of behavior. Learning may be more important than personality traits such as boldness or shyness. Traits of boldness or shyness may be malleable to learning. Yet, breed specific differences in learning and trainability exists among the canine population. Different breeds exhibit specific inherited strengths and weaknesses for coping with environmental pressures. Social interactions and play styles will vary by breed or genetics.

Normal Behavioral Development

Dogs go through critical or sensitive periods of development. The socialization period is the optimum period for the formation of enduring social attachments and bonding. Experiences with people, other dogs, and other animals can have lifelong effects. From 3 to 16 weeks of age, puppies probably learn more than during the remaining course of their lifetime, forming lasting cognitive and emotional impressions.

The early developmental periods/life stages of dogs include the prenatal, neonatal, transitional, and socialization period. We will also include a juvenile and adolescent period. A senior and geriatric period also occur yet will not be discussed.

The prenatal period occurs in utero. Puppies undergo sexual dimorphism. Testosterone masculinizes the male brain and may also masculinize the female brain pending uterine position. The mother's nutritional and emotional state can affect the development of the puppy.

The neonatal period occurs from birth until twelve days of age. Puppies are born developmentally insulated from the environment. They are born both blind and deaf. Sensory perception is limited to temperature, pressure, movement, taste, and smell. Most of the time is spent sleeping, with the remaining time nursing. Neurologically, the brain is not fully developed. EEG studies indicate low brain activity. Myelinization is limited to regions of the brain associated with taste and suckling. Puppies are unable to regulate body temperature and urination and defecation requires anogenital stimulation. Puppies exhibit flexor dominance early and extensor dominance late within this period. Leaning is limited to simple discrimination and approach-withdrawal responses.

During the neonatal period, external influences have long-term effects on learning, emotionality, and general adaptability. Handling and exposure to mild environmental stressors can have a positive impact and increase resistance to disease, reduce emotional reactivity, and improve adult learning and problem-solving ability.

The transitional period occurs from twelve days of age until three weeks of age. Puppies undergo progressive sensory and neurological development. The eyes open early within the period and puppies begin walking unsteadily. Puppies are able to eliminate voluntarily. The ears open and teeth emerge late within the period. With developing senses, puppies become progressively more active and independent and their desire for social contact is greater than nursing. Puppies are able to perform conditioned avoidance responses. Weaning may occur as early as day sixteen. Weaning before day fifteen predisposes puppies to the development of adult oral and motor compulsive behaviors involving sucking and kneading.

The socialization period of dogs occurs from three weeks of age until twelve weeks of age. This is the most influential learning period of a dog's life in which puppies learn to communicate and relate with conspecifics, humans, and the environment. Lack of socialization is the foundation for many undesirable adult behavioral patterns and problems. Primary socialization occurs between three and five weeks of age in which puppies learn from conspecifics. Secondary socialization occurs between six and twelve weeks of age in which puppies are more influenced by interactions with people.

During primary socialization, there is increased interest in social interaction with conspecifics. Social play and tail wagging are observed. The predatory components of play are observed, and puppies begin to acquire bite inhibition. Sexual behavior and mounting are evident, yet dominant-subordinate roles are unstable. Primary socialization is an important time of kinship recognition. Puppies show intense signs of separation distress when removed from mother and littermates. There is a strong preference for the odor of the mother and littermates. If removed from the litter during primary socialization, puppies will usually prefer human company to conspecifics. Many social and emotional deficits are observed in adult dogs removed too early. Puppies may be predisposed to separation anxiety, compulsive disorders, hyperactivity, fear, and interdog aggression. Prior to 5 weeks of age, puppies are virtually immune to lasting negative impressions, and readily recover from fearful social experiences without permanent avoidance learning.

Secondary socialization is the process of bonding and social conditioning within the context of the human domestic environment. This occurs when the puppy leaves its mother and littermates. The optimum time is probably around 8 weeks of age. This coincides with the mothers' disinterest in nursing and declining lactation or weaning. Peak agonistic interactions between puppies occur, as well as, peak willingness to approach a stranger and to investigate novel objects with vigorous tail wagging. During secondary socialization, there is progressive fearfulness and attenuation of social approach (starting around 5 weeks and culminating at 12 weeks). A documented fear period occurs usually between eight and ten weeks of age. This is a sensitive period for long lasting fearful imprints or memories. The brain is

adult-like at eight weeks of age based on EEG studies, therefore memories of aversive experiences are retained.

Motherly discipline during the secondary socialization period can have a positive effect. Observational learning can account for bias toward people and other dogs. In one study, dogs exhibited greater trainability as narcotic detectors when permitted to observe their mother performing searches when they were puppies (6-12 weeks of age). Social play has a continuous influence over social development and learning. Play has a role in the formation of dominance hierarchies among dogs. Dogs deprived of play during this period may be incapable of play later in life. Trainability in dogs is dependant on ball drive (retrieving ability), food drive, and inquisitiveness of novelty.

Socialization should be considered vaccinating against behavioral disorders. Poor socialization or deprivation of environmental exposure will often lead to lifelong deficits and dysfunctional behaviors. Dogs deprived of socialization may be fearful or socially inhibited/withdrawn, hyperactive, aggressive, and more difficult to house train. Some have suggested they may be prone to separation anxiety, but definitely those dogs never reach their full potential.

The juvenile period occurs from twelve weeks of age until sexual maturity. Sexual maturity may occur as early as 6 months of age. During the juvenile period, if the litter remain together, there is the formation of stable social relationships. Social dominance occurs between ten and sixteen weeks of age. Up to sixteen weeks of age is the optimal time for social and environmental exposure, yet socialization beyond this developmental boundary is still beneficial and necessary.

The adolescent period occurs between sexual and social maturity. Social maturity in dogs occurs at about two to three years of age. In wolves, peak position in the dominance-subordinate pack hierarchy occurs at social maturity. It is important to realize that dogs differ in their social organization and development from wolves.

Fear periods have been defined as sensitive periods of development for lasting fearful imprints or memories. The initial fear period has been described to occur between eight and ten weeks of age. Michael Fox has suggested a second fear period to occur between four months and one year of age. It may last up to three weeks. During the fear period, dogs may show fear of familiar objects. Traumatic events during the fear period can be detrimental to development and emotional well-being.

What Can Go Wrong with Behavioral Development

Many things can go wrong with normal development. A dog could be born genetically fearful. Aggressive behavior is highly heritable. If the behavior occurs prior to eight weeks of age it is likely genetic. Maternal influences can contribute to the learning of biases toward people and animals. Lack of socialization can be as detrimental as a negative event. Any negative event during a fear period can have long lasting effects. Lastly, miscommunication between dogs and humans can contribute to behavioral problems.

Aggression toward Household Members

Aggression to household members is the most common behavior problem of dogs seen by behavior specialists. In one study in Canada, forty percent of owners reported that their dog had growled at them in some situation. Over twenty percent had growled or snapped over food or objects, and over fifteen percent had bitten a household member. Aggression toward family members is typically a puppy problem with dogs less than one year of age being most likely to bite. Many dogs that bite their owner were food aggressive at two months of age.

In another study in Spain, aggression problems were the most common behavior complaint comprising 52.28% of 1040 canine aggression cases. Social conflict aggression towards family members was the most common diagnostic category (35.34%) and 69% of those dogs were male.

The initial expression of aggression in puppies may be overexuberant play, food guarding, or fear-based aggression. Conflict may occur when there is lack of predictability and controllability of the environment. Triggers of aggression include staring at the dog, handling the head, neck or feet, reaching over/petting on the dog on the head, stepping or leaning over, disturbing while sleeping or approaching on the bed or sofa, applying verbal or physical punishment, or over resources such as food and/or toys.

Dominance vs Conflict

Dominance aggression theory suggests that aggression is manifested in response to dominant threats due to the lack of an owner's established leadership role. This was proposed by Borchelt and Voith in 1982. Dominance aggression theory suggests that humans are viewed as members of the canine pack and social dominance among dogs transcends to humans. Treatment of dominance aggression is to establish a human leadership role. The onset of dominance aggression should occur at social maturity and the aggression should be offensive. Dogs with dominance aggression should appear confident and assertive.

Conflict aggression theory suggests that aggression is manifested over motivational or environmental conflict due to a lack of effective owner communication, and unpredictability resulting in fear and/or anxiety. It was proposed by Luescher in 1992. Based on this theory, humans are not viewed as members of the canine pack and social dominance among dogs does not transcend to humans. Treatment is to establish effective communication and predictability to thereby reduce conflict, fear, and anxiety. The onset of conflict aggression is typically a puppy problem and the manifestation of aggression is usually defensive. Only through learning will aggression become offensive. Dogs display fear and/or stress or conflict reducing behaviors prior to aggression. Conflict behaviors are signs of stress, including fear and/or anxiety, and they have been shown to diffuse aggression. Examples include averting the gaze or squinting, licking the lips or nose, yawning, chattering the jaw, scratching or shaking, freezing, mounting, or any other displacement activity.

Dominance aggression has been the most common type of aggression in the veterinary literature and has been reported to account for twenty percent of all aggressive cases seen at referral institutions. Intact males and purebreds are overrepresented. One would expect, if aggression is truly dominance based, the onset should be between two to three years of age or at social maturity. Aggression should be directed only toward owners or family members. In the literature, dominance aggression has been diagnosed in puppies, and when aggression is directed toward strangers.

In one large epidemiological study, dogs that bite most often were found to be neutered males. Males bite more often than females and inflict more serious wounds. Intact females bite the least. In small breed dogs, females bite more frequently than males. Aggression to family members usually starts with puppies and aggression at two months of age over food was a precursor to future aggression.

For most cases of aggression to owners, "dominance" is not a valid diagnosis. Most aggression toward family members is based on fear and/or conflict. Dogs often show ambivalent body language before or after an attack, rather than confidence. Aggression typically starts as a puppy problem and through learning and controlling resources the dog shows less fearful body language. In order to believe in dominance, one would have to believe in leadership/dominance and its transcendence toward humans as pack members. Communication between dog and owner must be fluent in order to have a hierarchy relationship. This does not account for interspecies communication.

What's in a name? Does it matter what we label the behavioral diagnosis in terms of treatment?
Many family members who have dogs that show owner directed aggression are anthropomorphic. When giving a diagnosis of dominance, it tells the owner that they are not the alpha or an effective leader. This encourages the owner to dominate the dog and use forceful methodology to obtain a dominance-submissive relationship. This puts blame on the owner for the dog's behavior and the owner at risk for injury. When a diagnosis is based on conflict, the owner is taught how to be consistent and allow for predictable interactions to make the dog less anxious over social situations that have elicited aggression. The focus is on fluent interspecies communication between owner and dog. Positive training methods on improving the human animal bond are encouraged.

Conflict related aggression is not the "new" term for dominance aggression. Conflict related aggression and dominance aggression are different entities and diagnoses.

Concept of Dominance
The concept of dominance only makes sense if relationships are stable over time and the expression of dominance is consistent in multiple contexts. Dominance may explain the outcome of dyadic relationships and it is most easily applied when there is a complete to near linear hierarchy. Dominance has been used to evaluate an individual's reproductive success within a species. The motivation, context, and fighting ability must be stable (RHP) for value.

Dominance in wolves has been described as an artifact of captivity. Wolf packs are an extended family group with the parenting role occupied by the breeding pair. The pair is naturally dominant to offspring. It has been said that status is “trivial information” and “falsely implies a rigid force-based dominance hierarchy.”

The dominance model predicts the relative stability of relationships within a group. With hierarchy comes stability and little aggression. The outcome of future conflicts determines a winner vs loser which is synonymous with the dominant vs submissive individual.

Dominance has been assessed by body language. The dominance factor may be associated with assertiveness, boldness, physical aggression, and reduced fearfulness. Dominant individuals are often assessed by their body language. High body postures and an elevated tail position may be the most reliable indicator of social status. Lowered body position and a tucked tail is offered rather than forced. Rather than using the terms dominant vs submissive, it may be better to view individuals as displaying high body posture vs low body posture. It may be better to describe the individual as confident/assertive vs fearful/appeasing with respect to social interactions. Stable personality traits may include boldness vs shyness.

Social dominance in dogs is difficult to detect in neutered individuals where competition for resources is virtually absent. In dogs, social dominance is often fluid with regard to specific resources. There can be variances in competition for breeding (females), food, space, and high valued objects (toys, people). It only makes sense to discuss social dominance with regard to the same species and repeated interactions in a set context, and even then it provides limited useful information for enhancing social relationships. Stable social relationships within a species can be best explained by associative learning and nonassociative learning. Emotions within a given context drive behavior and the consequence of the behavior determine its repetition. Interspecies social relationships are best explained by motivation and learning rather than dominance.

It is unlikely that dominance aggression really exists as a canine aggression directed toward human family members. Aggression may be used to establish dominant vs subordinate individual within a clear winner-loser paradigm. That paradigm is rarely clear with regard to human and dog interactions and it may be said that neither the dog nor the human win in terms of benefiting the relationship. It is not helpful to look at dominance cross species or dominance as a method of improving social relationships.

Diagnosis of Conflict Related Aggression

The diagnosis of conflict related aggression is often reserved for canine aggression directed toward family members, yet there are exceptions. Aggression in other species, such as cats with petting intolerance/feline hyperesthesia, may fit as a form of conflict related aggression. On occasion, aggression may be directed toward unfamiliar people such as when a dog has been punished for aggression to strangers and treats are given by strangers. The presence of conflict behaviors prior to aggression are a hallmark. Conflict behaviors or calming signals are sometimes subtle, missed by owners,

or simply misunderstood. A dog approaching its owner and rolling over at their feet is often interpreted erroneously as a dog that wants belly rubs (erroneously as a distance decreasing signal) rather than the rolling over behavior being actually a distance increasing signal.

A clear diagnosis establishes a motivational conflict typically of approach-withdrawal. The dog approaches and "solicits" interaction with family members. At some point within the social interaction, the dog becomes conflicted with interaction (i.e., uncertainty or unpredictability as to how the human might respond). Rather than just displaying avoidance, the dog displays aggression. Conflict behaviors are displayed prior to aggression, they may be subtle indicating uneasiness with the type of social interaction. Body language is often ambivalent after aggression.

Diagnostic criteria for conflict related aggression

- Aggression typically directed toward family members by otherwise physically healthy pets.
- Presence of motivational conflict typical of an approach-withdrawal resulting in the display of human directed aggression.
    - The pet appears to solicit social interaction via approaching a family member. The pet initiates the human interaction and may appear or be described by family members as friendly or seeking attention.
    - The pet displays human directed aggression at some point during the social interaction rather than withdrawing.
- Conflict and/or appeasement behaviors are present prior to aggression and they may be subtle or missed by family members. Aggression may be described as unpredictable or unprovoked.
- Ambivalent body language often displayed after aggression.

Comorbid Behavioral Diagnoses

Common comorbid behavioral diagnoses are possessive aggression over food or toys and/or fear-based aggression. Fear based aggression is differentiated from conflict related aggression by aggression resulting from the owner soliciting the interaction with the dog rather than the dog soliciting interaction with the owner. Dogs with fear-based aggression often clearly display fearful body language toward the owner in other contexts and with aggression. This may occur with the owner approaching the dog which may be resting in a specific spot. Aggression related to fear is common with non-family members interacting the dog. Aggression related to fear and/or conflict may occur with owner-initiated handling such as petting and/or grooming. Many cases may have underlying generalized anxiety disorder which shortens the fuse of tolerance to interactions or procedures. Hypervigilance and hyperexcitability increase the likelihood of a negative emotional response with human-dog interactions.

Prognosis

Prognosis is determined by the ability to identify risk factors that can be avoided. The contexts, nature of the interactions, consistency of household members (children in home) influences the prognosis. To determine prognosis, the clinician needs to identify the predictability of aggression and level of threat

displayed by the dog. Does the dog give warning prior to aggression? Does the dog display good bite inhibition? Prognosis varies from good to guarded. A dog who only growls when physically reprimanded for placing a rawhide in the owner's lap may be cured. That being said, the presence of aggression carries risks for future aggression. Aggression can be reduced in frequency and intensity, but it is rarely cured.

A study by Reisner et al has suggested that patients have an increased risk of euthanasia when there is the presence of severe aggression related to benign challenges, the body weight exceeds 18.2 kg, aggression is unpredictable, and history suggests the dog was purchased.

Treatment

Treatment begins with education of the dog's human family members. The owners must understand normal dog body language for predicting aggression. Signs of fear/anxiety and/or conflict/appeasement are identified. Conflict behaviors or calming signals are precursors of aggression and its escalation; often called the ladder of aggression. Aggression is described as an emotional disorder rather than a training problem. Evidence suggests neurotransmitter imbalance, primarily monoamines, with regard to canine aggression. Dogs are described as special needs and interactions may need to be limited. Realistic goals are established with the ability to reduce the frequency and intensity of aggression.

Following education is avoidance or antecedent arrangements. Triggers of the behavior are avoided by altering social interactions, the feeding routine, and access to resources/problem areas of the home. All correction or reprimands (positive punishment or negative reinforcement) are stopped in favor of using response substitution to differentially reinforce alternate or incompatible behaviors.

Casual human-dog interactions as well as aggression eliciting human-dog interactions are avoided. Interactions are structured in the format of a cue, behavioral response, and a reward (readily consumed food/treat). Consistency and predictability of human-dog interactions allow the dog to control interactions and predict the outcome. Classical conditioning and/or counterconditioning are used to change associations with approach and social interactions. Casual attention is avoided as attention is not always reinforcing and for most dogs it has been a trigger of aggression in the past.

A routine is established for human dog interactions. That may include managing meals on a set schedule twice a day or using food for all human-dog social interactions. Routine exercise is encouraged if it is enjoyed by the dog and does not elicit conflict associated with the owner. This may include leashed walks off the property twice a day. Training using a positive event marker and rewards twice a day can be predictable and positive for dog and owner. It allows for response substitution and may function as mental stimulation. Typically, come, sit, and place cues are taught. Basket muzzle training is often done prior to any future work on handling and/or grooming.

The neurotransmitter serotonin is believed to exert behavioral control over aggression. Dogs with aggression often have low brain or serum serotonin levels. Aggression is likely influenced in conjunction

with the dopamine system. Reduced serotonin activity is associated with decreased inhibition of aggressive behavior whereas dopamine is associated with impulsivity and hyperactivity. Most patients are started on a SSRI like fluoxetine to be given daily. The effect is evaluated in 4 to 6 weeks with concomitant behavioral and environmental modification. Fluoxetine is often well tolerated by dogs with minimal side effects. Common side effects are transient reduction in appetite or lethargy. Occasionally, transient increases in anxiety or irritability may be seen in some individuals.

Adjunctive medications are often considered pending the patient's response to initial treatment. The author has had good effects with medications like gabapentin in cases of impulse control and social aggression/anxiety. Gabapentin has a wide safety margin and is primarily eliminated renally unchanged. In severe cases of aggression, medications like carbamazepine may be used. With carbamazepine, side effects are potentially serious or life threatening, therefore patient monitoring is recommended.

Most cases of aggression toward family members are due to fear and/or conflict related aggression, not dominance. Genetics and early experiences play a significant role in the development of owner directed aggression. With timely and appropriate intervention, a majority of cases will improve, yet future aggression is probable.

Behavioral indicators of fear, anxiety, and stress in the veterinary hospital and medical management

E'Lise Christensen, DVM DACVV
Behavior Vets NYC CO info@behaviorvets.com

Introduction

There are many ways veterinarians and clients can work together to improve patient outcomes in veterinary settings. With a basic (or better yet, detailed) understanding of body language, common triggers, components of a calm environment, and medication protocols success can be maximized and patients can receive the care their families prefer. The topic of low-stress handling is far larger than can be covered in a 1 hr course (most basic courses are several hours). This lecture will focus only on body language and medical interventions. For more information, audience members are encouraged to explore the many offerings from a number of books and videos on the subject, including but not limited to, those from Fear Free™.

Body language

Body language is best interpreted when looking at the entire animal, including the context in which it is exhibited Symptoms of anxiety, fear, and stress often, but not always, follow a predictable pattern. Behavioral indicators of fear are species specific. For the purposes of this lecture, we will focus on cats and dogs.

Dogs

Dogs who are willing to eat, play, and follow known cues most of the time and with only short breaks of difficulty with these are likely tolerating veterinary handling well. These animals should never be taken for granted because without support and appropriate handling, they can become less comfortable with repeated exposures and escalate to growling, snarling, snapping, biting, freezing, hiding, and even urinating and defecating due to panic.

Dogs who are taking many breaks in eating or playing, who are having a harder time responding to known cues or are moving/away or hiding are starting to escalate towards fight or flight. Symptoms in these pups can often be improved by taking short breaks for play, petting, and/or rest depending on the patient's preferences.

Dogs who are showing muscular stiffening, food refusal for high value foods, unwillingness to play, hiding, extreme avoidance, urination or defecation, or growling, snarling, snapping, and/or biting need additional care. Items that are wanted but not urgent should be put off while pre-visit medications are trialed or if the situation is urgent then sedation should be implemented immediately.

Cats

Cats who are willing to eat, play, or enjoy petting with only short breaks of difficulty with these are likely tolerating veterinary handling well. As for dogs, these patients need care and appropriate approaches to maintain this low level of distress. Cats naturally take more breaks than dogs during prosocial and

training interactions. However, if a cat who was enjoying treats suddenly stops wanting them or a cat who was enjoying being scratched on the chin begins moving away, if you note tail thrashing, paw lifting/swatting or attempts to hide the patient escalate towards fight or flight. Symptoms in these cats can also improve with breaks for play, petting, and/or rest depending on the patient's preferences. Many cats will be helped by having the opportunity to hide during all or most of the exam.

Medications

One of the most complex issues that veterinarians face when managing behavioral problems in practice is when to prescribe psychoactive medications. Multiple levels of analysis and refined administration protocols are required in order to ensure rational use these medications.

The first thing a veterinarian considering prescribing a trigger time medication should be thinking about is whether there is a valid veterinary client relationship. If none exists, then no medication can be prescribed legally. In addition, all frequently recommended trigger time medications are off-label for use in companion animals.

Extra-label drug use is rational when the patient and/or family is suffering from a behavioral problem and/or when the patient is a threat to himself or others. However, these medications, like all psychoactive medications, should be used only in combination with safety tools, aggression/anxiety management techniques, environmental management, and a rational, science-based behavior modification plan.

Fast acting medications

Choosing an appropriate medication for trigger time use is a complex process, but it is no different from medication decisions in other parts of veterinary medicine. The veterinarian must assess the specific details of each case (species, signalment, history, diagnosis, medication history, medical and behavioral co-morbidities, etc.) as well as the published data on efficacy and side effects for the specific medications being considered. A monitoring plan for treatment must be implemented as well as a safety plan. Potential side effects need to be discussed with family members. Route, cost, and duration of treatment must also be addressed.

Medications used only during trigger times need specific characteristics. They need to work quickly, last long enough to be helpful, have a side effect profile that doesn't negatively impact the patient or the family members' quality of life, and be affordable. In addition, it's helpful if these medications have a dose range that allows family members to titrate the patient's most effective dose.

Commonly used trigger time medications include the benzodiazepines, trazodone, and clonidine.

The benzodiazepines alter GABA (gamma-aminobutyric acid), the most widespread inhibitory neurotransmitter in the brain. This neurotransmitter moderates vigilance, anxiety, muscle tension, neuronal excitability, and memory (too much GABA can inhibit memory). Medications that increase GABA effects include diazepam, clonazepam, clorazepate, alprazolam, lorazepam, and oxazepam. These medications can be reversed with flumazenil. These medications are used off-label for control of anxiety[1], phobias[2], and historically urine marking[3]. They are controversial for cases where aggression is

the primary complaint or a behavioral co-morbidity. Side effects include sedation, ataxia, increased appetite, muscle relaxation, paradoxical excitation/anxiety, idiopathic hepatic necrosis[4], and impaired learning. Impaired learning is not a rational reason to exclude this category of medications from your tool box because anxiety, panic, and fear also impair the types of learning a patient needs in trigger situations. Dose decreases accommodate patients who have altered hepatic or renal metabolism, are taking other medications metabolized by CYT P450, are obese, or are elderly. With long term use, there is a chance of physical dependence and dose tolerance. Patients need to be weaned off benzodiazepines if they have been on these medications daily for a few weeks. Generally, they are decreased by 25% weekly until the medication is discontinued completely. However, if they are truly being used as-needed for intermittent trigger times, weaning is unnecessary.

Dopamine blockers (most commonly acepromazine) are often used inappropriately for trigger times in patients with panic, phobia, anxiety. Acepromazine is on-label for dogs, cats, and horses for "control of intractable animals" and as an anti-emetic. However, it is not a true anxiolytic; rather, it is a conventional anti-psychotic. Acepromazine can be useful in combination with benzodiazepines and other trigger time medications when anxiolysis with more appropriate interventions has been insufficient to help calm the patient. Side effects (sedation, ataxia, aggression, hypotension/paradoxical tachycardia, and paradoxical excitability) can be prolonged and onset of best action can take several hours.

Trazodone is published for use in patients with anxiety disorders and for post-op calming of active patients.[5,6] Trazodone is a serotonin antagonist/reuptake inhibitor. Veterinary studies report improvement in clinical signs around 60 to 90 min after administration in most patients. The medication is not controlled, readily available, and relatively inexpensive. Nausea is a side effect that can be prevented in many patients by starting at the low end of the dose range and titrating up as-needed. Other side effects, such as ataxia, sedation, panting, increased anxiety, agitation, or irritability can occur. The potential for priapism precludes this medication's use in most intact, breeding males. Trazodone can be used safely, if carefully, with SSRIs, TCAs, clonidine, benzodiazepines, and acepromazine.

Clonidine is published for use in canine patients with fear-related aggression, noise phobia, and separation anxiety.[7] A close relative of clonidine, Sileo (dexmedetomidine oromucosal gel) is approved for noise aversions. Both of these alpha-2 agonists work by blocking NE release in the locus ceruleus. Sileo can be effective in approximately 30 min in many patients, while clonidine is effective in 60-90 min for many patients. Neither medication is controlled and both are readily available. Clonidine is inexpensive, and Sileo prices can be high comparatively. However, for fast-onset and quick wear-off (such as is preferred by many clients), Sileo is a clear winner between the two and worth the price discrepensy. Side effects include sedation, ataxia, increased agitation, anxiety, and irritability, as well as nausea. This medication can be used as a single agent or rationally with SSRIs, benzodiazepines, or trazodone if additional control of panic is required. Acepromazine should be avoided if using clonidine or Sileo due to increased risk of hypotension.

Gabapentin is used anecdotally in patients requiring trigger time meds who may also have neuropathic pain and/or do not respond to other interventions. It is also used for patients who have drug interaction issues precluding use of other more well-researched anti-anxiety medications. While it was once considered to work on GABA, it is now thought that it may function by altering glutamate. The dose range is wide and the short half-life may require re-dosing at least every 8 hours for most patients if control is required for an entire day or several days. This medication is relatively inexpensive, readily available, and not controlled (but is likely to be in the future). It can be used safely in combination with SSRIs, TCAs, benzodiazepines, clonidine, trazodone, and acepromazine.

Proactive use of NSAIDs, probiotics, and anti-emetics can be important adjuncts to a typical pre-visit medication protocol. NSAIDS or other pain management medications should be prescribed for any patient who is or might be painful during handling and treatment. Cerenia should be used 2 hrs before the car ride to the veterinary clinic to prevent motion sickness and to help keep patients feeling comfortable if they need sedation. For patients prone to stress related gastrointestinal distress, probiotics can decrease symptoms especially if started a few days before a stressful situation and continued for at least 48 hrs after.

Sedation

Many veterinarians and clients work hard to avoid sedation. Unfortunately, this means many patients who would be better served with sedation do not get adequate care. If a fast-acting/trigger time medication will not allow a relatively complete physical examination or medical care when needed, sedation should come sooner rather than later to prevent the patient from having a bad experience in the moment that can lead to behavioral fallout in the rest of his life (such as increased fear-related aggression to strangers) and complicate his medical treatment in the long term.

New sedative medications and protocols are being designed every day, especially in light of limited access to opiods. In our practice we have traditionally used, Dr Meghan Herron's TOM sedation protocol combining dexmedetomidine and morphine. When this is insufficient, additional Alfaxan can often be administered safely to achieve stronger sedation. For cats the traditional, Kitty Magic protocol can be very helpful. It can be used safely with gabapentin (now a common trigger time med for cats).

Conclusion

There are a variety of medications that can be helpful for patients who are anxious, panicked, or phobic in specific situations. These medications can be used as monotherapies or combination therapies. They can be combined with other medications if needed. In addition, they can be used just as-needed or daily with additional bolus doses for trigger times. Situational anxiety, panic, and phobia can lead to death of patients through traumatic injuries as well as through abuse, abandonment, and euthanasia. Thankfully, most patients can improve quickly with treatment.

REFERENCES

1. Crowell-Davis SL, Murray T 2006 Veterinary Psychopharmacology. Chapters 1-3. Blackwell Publishing, Ames, IA.
2. Crowell-Davis SL, Seibert LM, Sung W, Parthasarathy V, Curtis TM 2003. Use of clomipramine, alprazolam and behavior modification for treatment of storm phobia in dogs. *Journal of the American Veterinary Medical Association* 222:744-748.
3. Cooper L, Hart BL 1992. Comparison of diazepam with progestin for effectiveness in suppression of urine spraying behavior in cats. *Journal of the American Veterinary Medical Association* 200 (6): 797-801.
4. Center SA, Elston TH, Rowland PH, Rosen DK, Reitz BL, Brunt JE, Rodan I, House J, Bank S, Lynch LR, Dring LA, Levy JK 1996. Fulminant hepatic failure associated with oral administration of diazepam in 11 cats. *Journal of the American Veterinary Medical Association* 209:618-625.
5. Gruen M, Sherman B. Use of trazodone as an adjunctive agent in the treatment of canine anxiety disorders: 57 cases (1995-2007). *Journal of the American Veterinary Medical Association* 233 (12):1902-1906.
6. Gruen ME1, Roe SC, Griffith E, Hamilton A, Sherman BL. Use of trazodone to facilitate postsurgical confinement in dogs. *Journal of the American Veterinary Medical Association* 245(3):296-301.
7. Ogata N, Dodman NH. The use of clonidine in the treatment of fear-based behavior problems in dogs: An open trial. *Journal of Veterinary Behavior* 2011; 6(2): 130-137.

Fear-Based Aggression – What is Fear?

E'Lise Christensen, DVM DACVB
Behavior Vets NYC and CO
info@behaviorvets.com

Introduction

Fear is a very common cause of truly threatening behaviors seen by veterinarians, trainers, and technicians. Unfortunately, there are many misunderstandings about the intersection of fear and aggression. For the purposes of this lecture only, we will define fear as an emotional and physiological reaction within the body which serves to protect an individual from danger by calling attention to potential safety risks and preparing the body to respond to them through fight or flight. We will define aggression as the body language and actions of threat intended to help a fearful animal survive a trigger situation through "fighting" for survival. A definition of aggressive behavior could be discussed for hours amongst esteemed colleagues, but that is beyond the scope of this lecture.

We will start by exploring some of the brain regions that contribute to fear, then assess the relationship between fear and aggression, and finish with a discussion of the differences between adaptive fear and maladaptive fear.

Important brain regions of fear

The sensory cortexes and sensory thalamus identify threats through two major routes, the fast route and the slow route.

The amygdala plays a role in both routes. This is a group of alarm circuits connected to the hippocampus (memory storage and context), hypothalamus, septum, and reticular formation/brain stem.

In the fast route, stimuli trigger activation from the sensory thalamus to the amygdala and start the lifesaving fight, flight, and freeze behaviors that tell us a patient is fearful.

In the slow route stimuli go from the sensory thalamus to the sensory cortex and then to the hippocampus and amygdala creating the emotional response known as fear.

Important brain regions of anxiety

Both the sensory cortex and the sensory thalamus send information to the amygdala. Here the lateral nucleus plays a role in decoding emotions and in fear-conditioning. Lateral nucleus activation activates the central nucleus which in turn sends signals to the hypothalamus and the locus ceruleus. When activated these circuits can be strengthened leading to specific phobias.

The hippocampus has multiple connections to the amygdala and is important in processing sets of triggers and creating context. It is also involved in memory storage and retrieval for explicit memories. It helps the individual identify the environment associated with a fear-memory. This activation can create anxiety as an individual may experience the threat of trigger exposure with only short, lowintensity, or infrequent access to the triggers.

The prefrontal cortex (the thinking brain) plays a role in in extinction through pair of a trigger with nonaversive outcomes. It allows planning and action based on responses to fight or flight, and it also allows the imagination to "run wild" anticipating problems.

Fear and anxiety have some important differences

Fear is due to a specific, observable cue that is currently present. During a fear response, attention becomes focused solely on the potential trigger or unsafe situation. In humans, it's considered to be objective and rational. For instance, in a dog it is objective and rational to avoid a person screaming and moving erratically. Fear is strongly associated with the fight or flight response.

Anxiety tends to lack a specific cue. It is an emotion related to concerns about future events and creates a broadening of attention. For instance, anxious animals are often scanning the environment more than their less anxious counterparts. While fight or flight emotions and activations may contribute to or come along with symptoms of anxiety, it is not necessary to have full triggering of a fight or flight response for a patient to be anxious.

Fear and aggression are connected in flight, flight, and freeze

The so-called fight or flight response is initially not conscious, moving through the fast-route vs the slowroute to the amygdala.

When fearful behavior doesn't increase the patient's distance from the trigger, aggression may result. If the aggressive behaviors function to stop, inhibit, or limit the trigger aggressive behavior may increase in the future as the result of negative reinforcement. When the behaviors are negatively reinforced, latency, intensity, and recovery are also impacted.

Maladaptive fear vs adaptive fear

Adaptive fear is a fear of something truly potentially harmful. It increases evolutionary fitness, increases individual survival, and is dependent on the presence of a specific trigger or context. An adaptive fear response is fast in response, in context for the trigger, and in proportion to the trigger.

Maladaptive fear occurs when triggers are not likely to be physically or psychologically harmful. This decreases evolutionary fitness and can decrease individual survival. This response is also quick and dependent on the presence of the trigger. It is out of context and not proportionate to the risk posed by the trigger.

Constant or frequent triggering of fight or flight can cause chronic stress for patients and have negative physiological outcomes.

Once one can ID whether a fear is maladaptive or adaptive, the clinician can work towards improving safety, teaching the animal new ways to cope with the trigger itself or the context where the trigger has been presented. Remember, just because a fear is adaptive (such as fear during veterinary handling) that doesn't mean one shouldn't treat it.

Conclusion

Multiple brain regions connect to create symptoms of fear and anxiety. There are important differences and brain pathways for both, and they can occur in the same patient. Understanding the differences between adaptive fear and maladaptive fear can help guide treatment.

Feline Aggression to Owners – Differentials and Treatment

E'Lise Christensen DVM DACVB
Behavior Vets NYC CO
info@behaviorvets.com

The Problem

While house soiling is one of the most common behavioral complaints and reasons for relinquishment, abandonment, and euthanasia in cats, aggression is a close second. Cats are commonly aggressive to other cats in their homes, and they may also be aggressive to people in many contexts. Owner-directed aggression is likely an under-reported type of aggression in cats. This behavior is important because aggression to owners can negatively impact the human-animal bond and cause significant injuries to people.

Aggression to owners can develop as a cat enters social maturity, but it can begin in kittenhood as well. Play-related aggression, one of the most common causes of aggression to owners, often presents in kittenhood and can continue throughout a cat's life. Fear, irritable/pain-related, redirected, foodrelated, and status/conflict-related motivations are common. Petting-induced aggression to owners is also frequent.

Adult cats who develop new aggressive behaviors towards family members while in an otherwise stable home environment, must be medically evaluated for several diseases that can increase irritability (hyperthyroidism, hypertension, osteoarthritis, neoplasia, infectious agents, etc.).

These behaviors can be prevented in some cats with early positive socialization and positive experiences with family members throughout the cat's life stages. It is important to note that "positive experiences" are defined by the individual cat.

As with most behavioral disorders, multi-modal treatment is recommended and should include avoidance/safe management, environmental enrichment, and desensitization and counterconditioning to triggers. In some cases, medication may be warranted either during trigger times, daily, or both.

Avoidance

Safe management is critical to prevent the cat from practicing and being reinforced by the behaviors as well as to prevent injuries. It can be difficult to safely manage cats with aggression towards family members, but it's far from impossible. This can generally be done by creating a safe zone (such as a bathroom, guest room, multi-level cat cage, or large exercise pen +/- top) for the cat and putting the cat there BEFORE any known triggers are presented in the environment. Optimally, the cat is taught to go to these locations on cue during training sessions rather than physically handled and moved into the safe zone. If the cat will be confined in the same area as family members (like in a cat cage), it is can be helpful to cover the confinement zone so the cat can't see family members performing trigger behaviors unless the family is actively working to teach the cat to tolerate these triggers in the moment. Most cats can be taught to go to their safe zones on cue within a few days to weeks if owners take a few minutes per day to work on the behavior with a *rational* behavior modification plan.

It is also important to instruct owners to completely ignore the cat (no petting, no talking, and no looking) unless the owners have a planned/structured interaction in mind. This prevents accidental triggering and reinforcement of behaviors the family might find objectionable.

Cats should be kept away from known trigger areas if they are out with the family. For instance, if a cat routinely swats at people who walk by when he is on a bookcase, the family can be counseled to stay well-outside the cat's threshold for swatting. Painter's tape or other visual markers can help them stay at the appropriate distance. Another option would be to put books or other items in the location so that cat cannot sit there while providing other out of the way perches the cat can enjoy.

A belled quick-release collar can always remain on the cat so the family can keep better track of the cat's location. Be aware that some cats learn to walk without ringing cat bells.

Cats can be trained to wear a body harness and leash so they can wear them if they will be out of their safe zone during family time. This can be tethered to furniture if needed. Cats should never be left alone on tethers since this could cause significant injury or death if the cat became tangled.

Teaching new ways to respond to triggers

Management alone doesn't help teach the animal new ways to respond. Instead a fun, scientifically based behavior modification plan should be designed. Once owners know the cat's warning signs and specific triggers (mealtime, petting, moving through the house, loud voices, smell of other cats on the owner, etc.) treatment can focus on desensitization and counterconditioning.

These plans generally break down trigger situations into small parts. Each of these small parts of the trigger will be utilized in the process of desensitization and counterconditioning. When the cat is doing well with each of these small parts of the trigger situation, they can be combined so the cat learns to tolerate and/or enjoy the entire trigger situation instead of aggressing during it. For instance, in petting induced aggression, the cat might be petted only 1 time before petting stops and a small reinforcer (food, short play session, praise) is administered. After several repetitions where the cat is tolerating this and ideally beginning to look forward to the reinforcer, the number of stroked before stopping for reinforcement will be increased to two and so on. Over time, the cat will learn to enjoy longer petting bouts.

Stopping events in progress

Owners should be counseled not to handle cats during aggressive events because they may be severely injured. A thick blanket can be tossed on a cat during an aggressive event as can a glass of water or an upside-down box. Shaken seltzer sprayed at the cat can be especially effective for stopping events in progress. These are emergency management techniques, not interventions for everyday use. Emergency items can be placed in potential trigger areas for easy access.

Environmental enrichment

Environmental enrichment is a critical component of keeping cats behaviorally and medically healthy. Cats should eat as many meals as possible from puzzle or predatory-play toys, have appropriate play sessions with owners for at least 7 minutes per day, have multiple scratching posts of the cat's preferred type, and be provided with multiple, soft elevated areas for resting and hiding. Water should be kept fresh and in multiple locations. Litter box areas should be monitored for cleanliness and the cat's preferred litter, depth, and box style.

Medications, supplements, and pheromones

Medications such as SSRIs (fluoxetine, paroxetine, and sertraline), TCAs (clomipramine), benzodiazepines (lorazepam, oxazepam, alprazolam), trazodone, and gabapentin can be helpful for cats with owner-directed aggression. SSRIs and TCAs are best given daily, but the other meds could be used at trigger times only (for instance, if the cat is stressed by the return of owners from out of town) for several days at a stretch if needed.

Supplements (Anxitane, Solliquin, Zyklene), diet change (RC Calm, Hill's c/d multicare stress), and pheromone therapy (Feliway Multicat) can also be helpful for some of these patients and can be implemented concurrent with medication protocols.

Conclusions

Patients with owner-directed aggression can improve significantly with treatment. But treatment for this problem is not inherently obvious to most clients. They generally need guidance from a veterinarian skilled in applied behavior analysis and knowledgeable about normal feline behavior as well as psychoactive medication use. Thankfully, veterinarians are very capable of learning and implementing appropriate treatment and keeping their cat patients out of the "doghouse."

You Know Animal Body Language – How Fluent Are You in Human?

Theresa McKeon, BA
Theresamckeon@gmail.com **704-995-9237**

Why should we be interested in identifying human body language?

Being able to identify your human client's non-verbal behavior can mean better communication, and potentially better compliance when clients leave the clinic or training session. When we identify nonverbal human behavior, especially those that demonstrate confusion or fear in a learning environment, we can alter our delivery of information and instructions to better support our learner.

The similarities of animal and human body language

Those who work with animals are likely familiar with body language like the "whale eye" as a possible expression of anxiety or discomfort with a current situation. Therefore, it may not be difficult to look for a similar set of behaviors from a human in a learning environment. Humans also display a "whale eye" as an expression of discomfort. Humans may also display "lip lick/flick" in a similar context to a dog's display when they are uncomfortable with themselves, or another's discomfort.

Body Language Definition for this presentation

A definition of body language for this presentation -

Non-verbal behavior that may occur if we perceive danger, and was derived from the book, What Every Body is Saying, by Joe Navarro, copyright 2008 Harper Collins. Navarro is clear that non-verbal behavior should be evaluated in context, in groupings and from a baseline. Navarro also reveals, that in order to ensure our survival, the brain's very elegant response to distress or threats, is to demonstrate this nonverbal behavior in three forms: freeze, flight, and fight.

Fear of information/instructions – The potential cause of freeze, flight, flight behaviors in a learning environment.

The learning history of many humans leads us to have a fear of incoming information and instructions. Too much or too little, the fear of failing to understand or to ask, "can you explain that again," may cause a learner to start an inner dialogue that drowns out the incoming information/instructions, perpetuating the failure and reinforcing the behavior. Clients may try to cover with head nodding and verbal agreement, but we need to look for non-verbal behavior that tells us to change tactics.

Freeze

Avoid detection

- No chase response
- Time to assess situation and determine action
- May look like: Holding breath, raising shoulders, lowering head (turtling)

Flight

Escape of limit threat

- Block or distance ourselves
- May look like: Leaning away, eye blocking

Fight
Without options, fear may turn into rage (in order to "survive")

- A more modern tactic is the verbal altercation
- May look like: insults, counter allegations, sarcasm

As the one delivering the information/instructions, what can you do when you see these behaviors or to prevent them? (Introduction – the full explanations and applications delivered in LAB/LECTURE)

Separate – Learner from animal
Use Locum - Separate the human from having to work with a live animal while they are acquiring the skills. Use of puppets, stuffed animals, staff.

Separate What to KNOW (information) from What to Do (instructions).
Identify "passion talking" – The over delivery of information that comes from the passion of the instructor.

Deliberately separate general information from instructions using introductory phrase, "The instructions are:"

Focus Funnel
Formula for separating and reducing information and instructions for the
learner ● The lesson is:

- The instructions are:
- The tag point is:

Tag point
Points of success for physical skills (pill delivery, bandaging, etc.) that are creating with a WOOF template

- What you want
- One thing at a time
- Observable/measurable
- Five words or fewer
- Delivered with the phrase, "The tag point is:" or another cue phrase chosen by the instructor

Instructor body position
Body language FROM the instructor that may improve learner focus and reduce human Freeze-Flight-Fright responses.

- "Cheat out" – reducing physical and visual energy from the instructor

- Limited eye contact – during delivery of instructions, limit eye contact to allow the learner a space free from social body language requirements… (eye contact, head nodding, etc.)

Demonstration

Refer to instructor body position

Validation

- Observation
- Allowing a teachback
- Practice time and to some measure of fluency

References:

What Every Body is Saying, by Joe Navarro, copyright 2008 Harper Collins.

Territorial Aggression in Dogs -Diagnosis and Treatment Plan

E'Lise Christensen DVM DACVB
Behavior Vets NYC and CO info@behaviorvets.com

Introduction

Aggression to strangers in the home (AKA Territorial Aggression) is a common problem that negatively impacts the human-animal bond. It can lead to relinquishment, abandonment, neglect, abuse, and euthanasia. Thankfully it can be improved significantly in many cases with science-based interventions.

This diagnosis is made when a dog exhibits any combination of the following when people/animals approach or actually enter an area the dog frequents (such as the home and yard): muscular tension, piloerection, dilated pupils, high wagging/flagging tail, staring, low-pitched/loud barking, snarling, snapping, or biting.

Like many behavioral disorders, the onset of territorial aggression is likely multidetermined. Genetics, socialization and learning history, medical and behavioral co-morbidities, owner and visitor behaviors, and layout and size of home/yard all contribute.

Differentials

Fear-related aggression is often co-morbid with territorial behaviors. Protective, possessive, foodrelated, predatory, and play-related aggression can masquerade as territorial behaviors.

Prognosis

Prognosis is dependent on many factors such as family composition and health, need to have visitors, types of visitors expected, willingness to implement a science-based plan, severity of injuries, degree of warning, number of specific triggers, ability/willingness to avoid triggers, predictability, and co-morbid medical and behavioral disorders. Some patients struggle to allow any new people into their "inner circles" even with repeated, appropriate exposures. These patients are more difficult to manage and improve in the long term than patients who require either short duration or low frequency exposures to others in order to tolerate the people within the home or on the property.

Treatment

The best treatment is multimodal, as for most behavioral disorders. A combination of avoidance and management, environmental enrichment, desensitization and counterconditioning, psychoactive medication, supplements, dietary change, and pheromone treatment should be considered.

Clients often require help creating a list of specific triggers. Once this list is developed, management plans should be developed for each trigger. For instance, if the dog is aggressive when people approach the door, then the dog should not be able to hear/see people approaching the door and should be kept out of the doorway when visitors are arriving. If the dog is aggressive when visitors pet him/her, then petting must be avoided.

Safety tools like baby gates, crates, leashes, head halters/body harnesses, basket muzzles, etc. should be implemented proactively and used in trigger situations. Patients often need to be trained using positive reinforcement to enjoy resting in crates and wearing basket muzzles (www.muzzleupproject.com is a great resource for owners working on this).

Avoidance and safe management are the minimal interventions for these behaviors. For some families they may seem sufficient. However, affected families are strongly recommended to implement environmental enrichment and behavioral therapy with a science-based trainer and/or a veterinary behaviorist if available. Unfortunately, avoidance can fail for a variety of reasons. One unlocked door can result in a bite after all.

Environmental enrichment should be individualized to each patient's needs. Dogs need adequate, pleasant exercise, food puzzles rather than food in bowls, routine play-sessions, and resting areas where they can remain undisturbed

Behavioral therapy can often be successful in only a few minutes per day. Specifics depend on the characteristics of the individual animal's disorder. However, behavioral therapies should minimally be pleasant for the patient, and ideally, they should be fun for both owners and patients. Positive punishment (yelling, hitting, kicking, alpha-rolling, scruffing, grabbing, staring the animal down or handling the animal in any way that is designed to be threatening) is completely contraindicated because it can result in escalation of the behavior problem in the moment and in the future.[1]

Medication

Medications may be prescribed only if a valid veterinary-client-patient-relationship exists. Clients also need to be counseled regarding the off-label nature of all medications for aggression in dogs. Many patients benefit from testing fast acting/trigger time meds and administering them before visitors arrive. Daily SSRIs or TCAs are often utilized to help patients learn new ways to respond. Supplements, diet change, and pheromones may also be helpful for some patients.

Fast acting medications

Fast acting medications are most appropriate when triggers are infrequent and predictable. They can be especially helpful if the patient has poor resiliency, inability to follow well-known cues during triggerexposure, and/or is only reinforced by increased distance of the trigger from the area.

Med Class	Mech of Action
Benzos	Gaba
Gabapentin	Voltage gated Ca channel, alpha2-delta subunit; glutamate
Sileo	Alpha-2 agonist

Clonidine	Alpha-2 agonist
Trazodone	5HT
Propranolol	Beta blocker
Hydroxyzine	Antihistamine
Acepromazine/ Antipsychotics	DA (lower)

Daily medications

Daily medications are appropriate when triggers are frequent and uncontrollable, the patient has poor resiliency, and there are other behavioral co-morbidities.

Med Class	**Mech of Action**
SSRIs	5HT
TCAs	5HT, NE, DA, H
Anticonvulsants	Gaba, other
Stimulants	DA (higher)
MAOIs	DA, NE, 5HT

Medication combinations

Daily medications and trigger-time medications are often combined to improve the efficiency of treatment. SSRIs and TCAs can be safely combined with trazodone, alpha-2 agonists, gabapentin, and benzodiazepines. They should not be combined with monoamine oxidase inhibitors (selegiline, amitraz). Except under specific circumstances and with experienced clinicians buspirone should not be combined with SSRIs or TCAs and TCAs should not be combined with SSRIs.

Conclusion

Most patients will improve with treatment within 4-12 weeks if families are following instructions and working with a skilled coach. However, lifelong management and safety remain important for these patients.

References

1. Herron ME, Shofer FS, Reisner IR. Survey of the use and outcome of confrontational and nonconfrontational training methods in client-owned dogs showing undesired behaviors. Applied Animal Behaviour Science 117 (2009) 47–54.

Training and Behavior Modification Techniques for Territorial Aggression in Dogs

Debbie Martin, LVT, VTS (Behavior), CPDT-KA, KPA CTP

TEAM Education in Animal Behavior dmartinrvt@gmail.com

Aggression directed toward unfamiliar people entering the home is a common behavior complaint of dog owners. Many pet owners are skeptical they will be able to make training progress, because they do not (or are unable to) have many visitors. Great! Training needs to start without unfamiliar people in the home. This session will explore behavior modification strategies for safely, humanely, and effectively addressing aggression towards unfamiliar people in the home as part of a complete veterinary behavioral treatment plan.

Once a dog has been diagnosed with territorial aggression, part of a complete treatment plan will include techniques and tactics for safely introducing the dog to people without inducing fear and/or anxiety in the dog. We will explore three behavior modification and training approaches to assist the dog and pet owner with calmer introductions.

Introductions Exercise

The initial training exercises avoids introductions with the person coming into the residence. Place the dog away out of sight prior to guests arriving to the home. A safe, secure location out of sight of the entrance to the home is ideal. This prevents a negative experience at the door. The dog should separately be conditioned to enjoy their confinement area, so it does not result in stress or anxiety.

Guests should ignore and avoid threatening body language (approaching, staring, leaning over, or reaching for the dog). Guests should not pet the dog. Once the guests are seated in the home, expose the dog on leash and at a distance from guests such that it is not reactive. The majority of treats should come from residents of the home and not guests. Use treats for classical counter conditioning (changing of a negative emotion to a positive emotion). Keep the dog busy with various cues. Capture the dog looking at the guests and reinforce. Capture and reinforce offered (unprompted) attention to the handler. Use the distance away from guests and visual barriers to lessen reactivity (fear, anxiety, or aggression). Gradually reduce the distance from guests without reactivity over several training sessions. The dog should get more and more comfortable visualizing people from a distance while on leash. End the session on a good note and after a short positive exposure session, place the dog away to prevent a negative experience. Gradually, the duration out in the environment (under control of a leash) may be increased without reactivity. The dog should wear a basket muzzle prior to close contact with unfamiliar people in the home. Gradually, the duration out in the environment may be increased with specific visitors to the home. Do these exercises with the dog on leash and collar for safety. Use a basket muzzle to minimize the risk of injury prior to close contact with unfamiliar people.

For the dog to be able to successfully navigate this exercise with unfamiliar people in the home, it is imperative to practice this set up routinely without anyone coming to the residence and then practice

the exercise with familiar and accepted people. This makes the exercise and process mundane and not anticipatory of unfamiliar people being present.

Door Exercise

Generally, you should have made progress with introductions to people on the property prior to doing the door exercise. The following exercise should be controlled with the dog on leash and collar for safety. A basket muzzle can minimize the risk of injury prior to close contact with unfamiliar people.

1) Teach the dog to sit at the door for a food treat without any visitors at the door.
2) Several times during the day, go to the door, ask the dog to sit, and offer a food reward for sitting.
3) Next, with the dog sitting at the door, jiggle the door knob or crack the door, and reward the dog for remaining seated. The dogs should be held on leash prior to opening the door or a barrier should be in place for safety and to avoid accidental escapes from the property.
4) Eventually, you should be able to open and close the door without visitors there and reward the dog for sitting.
5) Repeat the above, but add a light knock before you open and close the door.
6) Gradually, you can increase the intensity of the knock with the dog remaining seated.
7) Eventually you should be able to ring the doorbell while the dog sits.
8) Next, start with someone familiar to the dog at a distance (20 feet) from the door. Repeat steps 1-7, but acknowledge the persons presence. Say 'Hello', the visitor should respond accordingly.
9) Gradually the persons distance to the door may be reduced while the dog sits. Start with the person about 20 feet away, and gradually reduce the distance to 19 feet, 18 feet, etc. while repeating the above exercise.
10) Eventually, the person should be able to stop 6 feet away from the door. The handler should reward the dog for sitting.
11) Repeat the above exercise with more and more unfamiliar people.

Transferring Arrival Signal to an Alternate Behavior

Doorbells, phone dings, and knocking can all be indicators of the arrival of a person at the residence. Conditioning the dog to do an alternate behavior in response to the signal, can make every day management easier for the pet owner and dog. The first step is to determine the alternate behavior for the dog to perform. Traditionally, teaching the dog to go to a place has been used as an alternate behavior. This can be the most challenging and should only be used once success with earlier phases of training have been accomplished. Other options can be to grab a toy and run to the owner or go to a room or a backdoor to be released into a secured backyard.

Teach the alternate behavior and put it on cue. Then transfer the cue to the arrival signal by recording the arrival signal and introducing it in a novel location (ie not in the house). Play the new cue/arrival signal. Follow it immediately with the known cue for the alternate behavior. Reinforce the dog for performing the behavior. Repeat 10 times. Start to pause for 1 or 2 seconds after giving the arrival signal and see if the dog starts to perform the behavior. If not, give the known cue. Continue working on

transferring the cue over several sessions until the dog is able to respond to the arrival signal with starting to perform the behavior.

Other Tips

What if the dog shows aggression?

The dog's behavior is just information about how he is feeling. It is not right or wrong, just information. The immediate response is to increase the dog's distance from the situation by cuing an alternate behavior, such as "Let's go," in an upbeat tone. Get to a distance away, maybe even out of sight, and cue another behavior such as sit, reward the dog when he responds. If he is unable to respond, move further away. Remain calm. Although it can be frustrating to have a setback, the more upset we act the more upset the dog will be.

How to handle unplanned visitors

Although management and planning are important for planned visitors, having a plan for unplanned visitors is also important. Practice spontaneous arrivals and having the dog go to a safe confinement area, such as a room, kennel, or secure outdoor location. If safe to do so, provide a long-lasting food dispensing toy to occupy the dog. Have these toys prepared and ready to go.

Alternative to meeting in the house

Some dogs that display territorial aggression toward unfamiliar people only show it in a specific context such as the home. Some dogs will be overly stressed with the presence of people in the house. This can mean that re-evaluation of the treatment plan and further medical intervention with behavioral pharmacology might be warranted. When a dog is more relaxed with people off the property or when a non-stressful starting point cannot be accomplished in the house, incorporating desensitization to the person on a walk might allow for acclimation to the new person.

Conclusion

The goal of these exercises is to provide a controlled and safe way to introduce the dog to specific people. It is a process that will need to be utilized with each individual person. There likely will be some people the dog will not be comfortable with. Some situations are best managed with avoidance. Safety and management should always be the cornerstone to treatment.