

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

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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. Myelination 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. Learning 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 non-associative 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.