

## CANINE AGGRESSION – OVERVIEW OF DIAGNOSIS AND TREATMENT

Aggression is the most serious and dangerous behavior problem that dog owners may need to face. Since there are many different types of aggression, making a diagnosis, determining the prognosis (the chances of safe and effective correction) and developing an appropriate treatment plan are usually best handled with a veterinary or applied animal behaviorist. In some cases medical conditions can contribute to aggression, therefore before a behavior consultation it is



essential that your dog have a complete physical examination and a set of blood tests to rule out organ dysfunction (See our handout 'Behavior – causes and diagnosis of problems'). In order to treat the problem effectively, it will first be necessary to determine which type of aggression your dog displays: dominance/conflict-related, fear, possessive, protective and territorial, parental, play, redirected, pain induced, pathophysiological (or medical) or learned. In many cases more than one form of aggression may be exhibited (See our handout on 'Aggression – introduction to aggressive behavior').

### ***Why might a dog become aggressive to its owners? Could this be dominance aggression?***

One of the most common types of aggression seen by veterinary behaviorists is related to the relationship between the dog and family members and is often called dominance/conflict-related aggression. In order to achieve security and cohesiveness within a group or pack, a hierarchy develops amongst groups of dogs. Social control in the group is maintained through dominance displays, threats and deferential responses between the individual pack members. This type of communication helps to maintain group harmony with a minimum of fights and injuries amongst pack members. Although it is not clear if the concept of hierarchy applies to dog - human relationships, your dog is programmed (and limited) through genetics and learning to act like a dog (e.g. to communicate with canine postures, body language and actions) in its interactions with people, other dogs, and other animals.

In the home, your dog may display actions and postures that range from those indicating control and leadership to deference and compliance in relationship to each family member. Dog / owner relationships develop from a combination of genetic factors and learning, i.e. the day-to-day interactions with each family member. Most interactions with family members are likely to be aggression free, but when there are conflicts, aggressive displays may arise. Most aggression towards family members arises out of fear or anxiety, as a defensive response (e.g. to punishment), when in possession of a favored resource, or in play. There also appear to be cases, especially in more assertive dogs, where the dog uses threats or even aggression to avoid being petted, hugged, handled or moved especially when resting or sleeping and this might be referred to as dominance aggression.

The owners response to an aggressive display shapes the dogs behavior for future interactions and this may differ from situation to situation and from family member to family member. Owner's that retreat or give in to their dog's aggressive demands are inadvertently reinforcing their dog's behavior (although this may be prudent when the dog is threatening harm). Owners that respond with fear, punishment or retaliation will increase the pet's fearfulness and aggressiveness especially during similar situations in the future. Owners that respond unpredictably will cause the pet to be in conflict as to what response might be expected in the future. Therefore, much of what has been commonly known in the past as dominance related aggression may in fact be comprised of possessiveness, fearful and defensive responses, learned behavior, conflict induced behavior, or an owner impinging on the pet's personal space or critical distance when the pet is not interested or prepared for social interactions. In cases where the aggression is out of context with the threat or challenge or lacks normal inhibition, there may be an impulse control disorder underlying the aggression.

Once a dog develops a position where it can control resources and social interactions, any challenge to that dog's control may lead to aggression. Dogs that learn to achieve their goals with aggression are reinforced for their actions if the stimulus retreats. On the other hand, owner responses that are confrontational or disciplinary can lead to more intense retaliation and aggression, particularly from dogs that are fearful and defensive.

Dogs use facial expressions and body postures as signals to display assertive behavior, such as standing tall, a high wagging tail, eye contact, or snarling. However, in cases that are referred to as dominance aggression, it's also possible that the dog might have appeared defensive and/or fearful in early encounters and has learned that aggressive displays achieve a goal (removing the threat). When there are competing motivations (approach / withdrawal, social / fearful) this state of conflict may then lead to aggression. Aggression towards family members in one or more of the following circumstances along with assertive signaling may indicate dominance or conflict related aggression with either genetic or learned components or both:

- Protecting resting areas or resources (food, toys)
- Overprotection of a more subordinate family member
- Staring, eye contact
- Handling by the owner (lifting, petting, hugging, rolling over onto back or side)
- Restraint, pulling, pushing, discipline, punishment

The presence of these signs alone is not diagnostic of dominance aggression as they can also be seen with other forms of aggression. If any of these signs are displayed along with fearful, anxious or mixed signaling then a diagnosis of conflict or fear elicited aggression is more likely. (For treatment, see handout on 'Aggression toward family members').

### ***What is fear aggression and how is it diagnosed?***

Fear aggression arises when a dog is exposed to people or other animals that the dog is unfamiliar with or to those that have been previously associated with an unpleasant or fearful experience. Although some dogs may retreat when fearful, those that are on their own territory and those that are prevented from retreating because they are cornered or restrained, are more likely to fight. If the person or animal retreats, acts overly fearful or the pet is harmed or further frightened in any way (e.g. a fight, punishment), the fear is likely to be further aggravated. Fear aggression toward family members might arise out of punishment or some other unpleasant experience associated with the owners. Many cases of fear aggression are seen as combinations or complicating factors of other forms of aggression (dominance/conflict, maternal, possessive, etc.). Fearful body postures in conjunction with aggressive displays are diagnostic of fear

aggression; however, in some cases, as dog learn that aggression changes the outcome of the encounter, their body postures may become more confident but the underlying motivation of fear is unaltered. Behavior therapy, perhaps in combination with drug therapy can be used to treat most cases of fear aggression. (See handout on 'Fears and Phobias – animals and people').

### ***What is play related aggression and how is it diagnosed?***

Play-related aggression is commonly seen in young dogs toward people or other pets in the family. Overly rambunctious play, along with grabbing, nipping or biting of people or their clothing are some of the common signs of play-related aggression. Although it is a normal behavior, it can lead to injuries and, if handled incorrectly could lead to more serious forms of aggression as your dog matures. (See also our handouts: 'Canine Aggression – sibling rivalry'; 'Puppy Biting', and 'Play and exercise in dogs').

### ***What is possessive aggression and how is it diagnosed?***

Possessive aggression may be directed to humans or other pets that approach the dog when it is in possession of something that is highly desirable such as a favorite chew toy, food, or treat. While protecting possessions may be necessary if an animal is to survive and thrive in the wild, it is unacceptable when directed toward people or other pets in a household. What can be confusing for some owners is that it is not always food that brings out the most protective displays. Novel and highly desirable objects such as a tissue that has been stolen from a garbage can, a favored toy, human food, or a piece of rawhide are some of the items that dogs may aggressively protect. Possessive aggression should be considered whenever the dog does not willingly relinquish possessions and uses aggressive displays and responses to keep them. The dog's motivation and ability to hold on to the object (which might include aggression) might also be referred to as its resource holding potential (See our handout on 'Possessive aggression, toy and food guarding')

### ***What is protective or territorial aggression and how can it be diagnosed?***

Protective aggression may be exhibited toward people or other animals that approach the pet's property (territorial aggression). Generally people and other animals that are least familiar to the dog, or most unlike the members of the household are the most likely "targets" of territorial aggression. While most forms of territorial aggression are likely to occur on the property, some dogs may protect family members regardless of the location. Territorial aggression can be prevented or minimized with early socialization and good control. Young dogs should be taught to sit and receive a reward as each new person comes to the door. To reduce potential fear and anxiety toward visitors, you should ensure that a wide variety of visitors come over to visit the puppy, while the puppy is young and sociable (See our handout on 'Socializing your new puppy'). In time, most dogs will begin to alert the family by barking when strangers come to the home. However the dog that has been well socialized and under good control can be trained to quickly settle down and relax. Territorial aggression can be a learned form of aggression. For example when a puppy first begins to bark at novel noises and visitors that arrive at the property (alerting, alarm barking), the dog's genetics, socialization and previous experience along with the consequences of the event (outcome) will begin to shape further responses. Owners that are angry, frustrated or that yell at or punish the dog, may lead to a fearful association (pairing/conditioning) with the stimulus (arrival of visitors, knock at the door,



doorbell). Similarly if the stimulus is particularly unusual (e.g. wearing uniforms, carrying mail bags) or threatens the dog in any way (shoving items inside your door, threatening the dog, spraying pepper spray) this may further enhance the dog's fear of visitors. In addition, should the dog bark or growl and the stimulus retreat, the behavior will have been reinforced. Therefore learning may be a major contributing factor to territorial aggression. For treatment of dogs with territorial aggression see our handout on 'Canine Territorial Aggression'.

### ***What is predatory behavior and how can it be diagnosed?***

Predation is the instinctive desire to chase and hunt prey. Predatory behaviors include stalking, chasing, attacking, and ingestion of prey animals, but may occasionally be directed at people or other pets. Some dogs that have never shown chase or predation, may display the behavior when running together with a group of dogs. Although the desire to chase can be reduced by using a head collar and desensitizing and counter-conditioning in the presence of passing stimuli, this is a very dangerous form of aggression, which must be prevented. Whenever the dog is outdoors it should be confined to an escape-proof pen or run, or controlled securely by the owners. A leash and head collar or a leash and muzzle can help to ensure safety when out for walks. (Also see handouts on 'Behavior modification', 'Controlling chase', 'Controlling pulling and controlled walk').

### ***What is pain-induced and irritable aggression and how can it be diagnosed and treated?***

Some form of handling or contact that causes pain or discomfort usually elicits pain-induced aggression. However, even if your dog is not exhibiting pain, certain medical conditions (endocrine imbalances, organ disease, etc.) may make the pet more irritable and perhaps more prone to aggression. Fear and anxiety further compound many of these cases. Once your dog learns that aggression is successful at removing the stimulus, aggression may recur when similar situations arise in the future, whether or not the pain is still present. Treatment requires that the medical or painful condition is resolved first. Next, you will need to identify the types of handling and situations that have led to aggression in the past. With desensitization and counter-conditioning, your dog can slowly and gradually be accustomed to accept and enjoy these situations. Once the dog learns that there is no more discomfort associated with the handling, but that there may be rewards, the problem should be resolved. A muzzle or leash and head collar, may be the safest way to begin the retraining. (See our handout on 'Behavior Modification – Counter-conditioning and Desensitization')

### ***What is maternal aggression and how can it be diagnosed and treated?***

Maternal aggression is directed toward people or other animals that approach the bitch with her puppies. When bitches go through pseudopregnancy (false pregnancy) they may also become aggressive and begin to protect nesting areas or stuffed toys at the approximate time when the puppies would have been born. Once the litter of puppies are weaned and the dog is spayed the problem is unlikely to recur. In the interim, the owners can use a leash or leash and head collar, along with the 'come' command and rewards to teach the dog to leave the litter, at which time the puppies can then be handled. With desensitization, counter-conditioning, good control and highly motivating rewards, it may be possible to train your dog to accept approach and handling of the puppies.



### ***What is redirected aggression and how can it be diagnosed and treated?***

Aggression that is directed toward a person or pet that did not initially evoke the aggression is classified as redirected aggression. This is likely to occur when the dog is aroused and a person or other pet intervenes or approaches. Dogs that are highly aroused must be avoided. In some cases a water rifle, air horn, or long leash can be used to safely remove the dog from the situation. If the aggression and arousal does not immediately subside, consider locking your dog in a dark, quiet room until it settles down. Since redirected aggression arises out of other forms of aggression, it is important to identify and treat or prevent the initial cause of aggression (e.g. fear, territorial, sibling rivalry, etc.). This can be accomplished by avoiding exposure to the stimulus for aggression or by keeping a leash and head collar or leash and muzzle on your dog when exposure is possible. (Also see our handout on 'Redirected Aggression in Cats')

### ***What is learned aggression and how can it be diagnosed and treated?***

Although learned aggression can refer to dogs that are intentionally trained to act aggressively on command (or in particular situations), learning and conditioning are also important components of many forms of aggression. Whenever a dog learns that aggression is successful at removing the stimulus, the behavior is further reinforced. Owners who, in an attempt to calm the pet and reduce aggression, actually encourage the behavior with petting or verbal reassurances will inadvertently reward some forms of aggression. Pets that are threatened or punished for aggressive displays may become even more aggressive each time the situation recurs because they have come to associate the stimulus with an adverse outcome; the punishment. In addition, if the response of the owner, or the stimulus (person or other pet) is one that evokes anxiety or fear, the aggression is likely to escalate. When learned aggression is present, the underlying stimuli must be identified and a treatment program designed to teach the dog new responses. (See handout on 'Behavior Modification, desensitization, counter-conditioning').

### ***What are some of the other causes of aggression?***

Aggression associated with medical disorders may arise at any age, may have a relatively sudden onset and may not fit any canine species-typical behavior. Some medical conditions can, on their own, cause aggression, but in many cases a combination of behavioral factors and medical problems cause the pet to pass a certain threshold at which aggression is displayed. Infectious agents such as rabies, hormonal imbalances such as hypothyroidism, psychomotor epilepsy, hyperkinesia, neoplasia, and a variety of genetic and metabolic disorders can cause or predispose a dog to aggression. Painful conditions such as dental disease or arthritis, and medical conditions causing fever, fatigue or sensory loss might increase the pet's irritability (See our handouts on 'Behavior – causes and diagnosis of problems' and 'Behavior problems of older pets').



In rare circumstances, aggression has no identifiable etiology and no particular stimuli that initiate the aggressive displays. There may be a genetic propensity to aggression in some lines of some breeds, but many of the cases previously labeled as "idiopathic", "rage" or "mental lapse aggression" have been disputed and in some cases subsequently reclassified. Only when there is no identifiable stimulus or cause for the behavior, or when an abnormal EEG is documented, should the diagnosis of idiopathic aggression be considered. Alterations in neurotransmitters or receptor sites in the brain may be the cause of these types of aggression and drug therapy might be one aspect of treatment.



□ *This client information sheet is based on material written by Debra Horwitz, DVM, Diplomate ACVB & Gary Landsberg, DVM, Diplomate ACVB*  
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