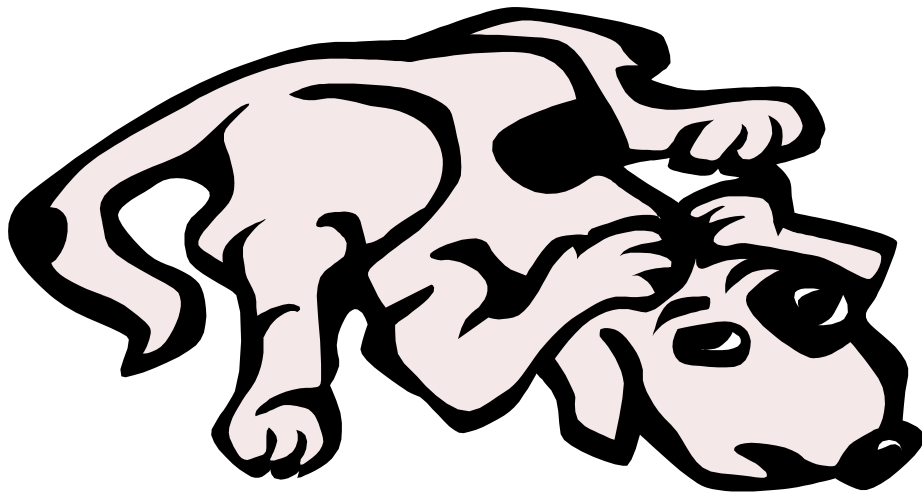




American College of Applied Science

**ANS 3004 - Canine Behavior Modification and Treatment
Research paper**

Aggression toward unfamiliar dogs caused by fear



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ACAS, summer 2008**

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Introduction

Aggression between dogs has been reported as one of the most frequent behavioral problems in dogs (Borchelt, 1983; Wright and Nesselrote, 1987; Sherman, 1996; Roll, 1997, Overall, 2001b), where aggression toward unfamiliar dogs is extremely common, but under-presented (Bowen and Heath, 2005). The reason for fear-related aggression toward unfamiliar dogs may be complex, but the most common causes is lack of social interactions with other dogs during socialization period (3 to 12 weeks) and the period of social maturity (18 to 24 months), effect of aggressive attacks by other dogs, owners' response and genetic influence (Horwitz, 2001; Bowen and Heath, 2005; Landsberg, 2007a). Fear-related aggression is often misunderstood by the owner to be a dominance problem, and dogs that show this behavior pattern may be punished and the problem get worse (Overall, 2001a). A special notice should be focused on differences in dogs' individual strategy when coping with fear. Individuals with a social passive strategy show less exploring interest of novel stimuli than offensive individuals, because the avoidance behavior is stronger than the motivation for exploring new things (Lindsey, 2005). This strategy will also affect how a dog interacts with other dogs, thus a fearful response could escalate into aggressive behavior if the dog is lured to interfere with an unfamiliar dog and feel threatened. This research paper discusses what is causing fear-related aggression in dogs when they're meeting other dogs, and how a dogs' individual strategy could influence its' social interactions with other dogs.

Fear

Signs of fear

There are several responses involved in the fear reaction, such as autonomic, neuroendocrine and muscular responses (Bowen and Heath, 2005). The autonomic response is related to the activity in the sympathetic nervous system, as its increases and gets the body ready for a flight or fight response. Signals such as increased arousal and agitation, increased heartbeat and breathing, peripheral vasoconstriction and dilated bronchioles are typical when a dog is fearful (Bowen and Heath, 2005; Witmer, 2008). When the level of anxiety is high the dog will react automatically to the threat, and the dog will not be able to respond to external stimuli from the owner. This emotional state does behavior modification impractical? (Landsberg, 2007b).

Fear can be described as a conscious response to avoid a stimulus (Landsberg, 2007a), and be triggered by environmental stimuli, such as unknown objects, people, dogs, and noises (Ley et al., 2007). Signs of fear may be several, but are mostly related to expression of the face (ears, eyes, lips), body and- tail position (Lindsay, 2005). The dogs' attention will also be directly to the source and be prepared to fight or flight, being arousal and showing muscle tension (Bowen and Heath, 2005; Lindsey, 2005; Landsberg, 2007a).

Since fear is a response to an unknown object or situation, it is important for a dog to be stimulated in different environments and to unfamiliar humans and dogs in the socialization period. Genetic influence together with an individual aspect and past experiences will also affect how a dog reacts to situations experienced as fearful (Horwitz, 2001, Bowen and Heath, 2005; Landsberg, 2007a).

Different signs of fear between breeds

As for other behavior patterns, fear reactions are shown in different ways by different breeds. Breed specific looks will also affect a dog's ability to express a clear and meaningful behavior, and as for fearful reactions dogs with short tails and cropped ears have a huge disadvantage. Terriers are well known for their courage and hunting skills (AKC, 2008). They are bred to chase preys out of caverns and use lots of vocalization while doing so. If they become deferred of a fearful stimuli, the breed will often show a similarity to hunting behavior; running around barking (Bowen and Heath, 2005). To cope with fear trough displaying a highly motivated behavior is typical in other breeds as well, and are also shown in herding dogs (Bowen and Heath, 2005). Other breeds will cope with fear in the opposite way and show inhibit or defensive behavior. The diversity in exposure fearful behavior between breeds may lead to misjudging by humans often followed by a reaction making the situation worse for the dog.

Aggression

Aggressive behavior is shown trough a number of behavior patterns that are influenced by each other, such as growling, snarling, barking, snapping and biting (Horwitz, 2001b). Aggression is a description of a particular behavioral response to a complex emotional condition, motivated by different sources and with different outcomes (Bowen and Heath, 2005). Classification of aggression has been divided into many different types and groups by several authors (Borchelt, 1983; Wright and Nesselrote, 1987; Sherman, 1996; Roll, 1997). The term "aggression" is used to describe both the motivation behind an aggressive behavior (dominance, fear, predatory etc.) and what kind of situation that triggers the aggression (toward stranger, toward other dogs, toward owners etc.). One dog can show several forms of aggression in different situations, and it's therefore more important to understand the motivation for the behavior and how it developed (Bowen and Heath, 2005). Many dogs that are labeled "aggressive" will most of the time show no aggression at all (Borchelt, 1983; Bowen and Heath, 2005). The stereotype of the aggressive dog is not correct; in fact most dogs will react and cope with all the different environments they are put into by humans in different ways (Borchelt, 1983). This is very relevant where fear-related aggression is expressed because the fearful response is never a reaction to a social familiarity, but a direct reaction of a situation that feels fearful for the dog (Landsberg, 2007a).

Breed and sex differences

Differences in breed-specific aggression have been a source for many researches through the years (Borchelt, 1983; Wright and Nesselrote, 1987; Sherman et al., 1996; Roll, 1997; Duffy et al., 2008). Studies of aggression between dogs are usually based on bites-statistics and questionnaire forms done by owners visiting veterinary clinics and behaviorists (Duffy et al., 2008). Number of breed and classification of aggression will vary between the different researches, and it could be difficult to discover an accurate result based on differences between breeds. Duffy et al. (2008) found that Akitas, Jack Russell Terriers and Pit Bull Terriers were reported to display highest frequency of serious aggression toward unfamiliar dogs. Roll (1997) on the other hand, found that German Shepherds, Rottweilers, Hovawarts, Great Danes, Doberman Pinschers and Boxer were over-representations amongst aggressors (inducing a fight toward other dogs). Some breeds have a higher motivation for guarding and prey seeking than others based on a long time breeding program regulated by humans. These behavior patterns are strongly correlated with territorial and predatory aggression. Several breeds of the herding-, terrier and working group (AKC, 2008) are highly motivated to

perform specific tasks and may be over-represented in aggression statistics because their needs aren't covered by the owner and frustration is directed toward other dogs. Breeds of the sporting group (AKC, 2008) will usually react differently than showing aggression toward other dogs if they get frustrated because their motivation to perform is based on other behavior patterns (AKC, 2008). Even if some breeds are found to be more offensive to initiate fights toward other dogs than others, the aggression level will first of all depend upon the individual's motivation and strategy more than its breed.

Fear-related aggression

Fear-related aggression is shown through several signs of defensiveness, fear and submission. Ears flat and back, tail down or tucked between the legs, and approach – avoidance patterns (Borchelt, 1983; Wright and Nesselrote, 1987; Horwitz, 2001a; Bowen and Heath, 2005). A dog will often react on new stimuli; both visual and arousal, with barking, but seldom do an offensive attack towards strangers. If the dog has no retreat option it would growl and also attack other dogs and humans if they come to close, but these attacks seem to be avoidance-motivated (Wright and Nesselrote, 1987; Bowen and Heath, 2005). A fearful aggressive response may occur in situations when a preferred escape or avoidance actions are blocked or unavailable (Lindsey, 2005).

Experiencing that submissive behavior has no function in a threatening situation may easily influence a dog's tactic to show sudden aggressive behavior without giving any warning signals first (Bowen and Heath, 2005). Dogs with fear aggression may exhibit more offensive and complex signals even if the motivation behind the response is fear (Landsberg, 2007a; Horwitz, 2001a). A change in behavior when approaching fearful situations may be caused by aggressive reactions from other dogs or people when the dog has shown submissive behavior in earlier episodes because it was afraid. Dogs like this will often develop its behavioral strategy in fearful situations from submissive to aggressive as it becomes older and more mature (Bowen and Heath, 2005).

Coping with fear

Active and passive individuals

In many ways a dog's personality will affect its way of coping with novel stimuli by choosing between an offensive or a defensive strategy in fearful situations. There are two general adaptive strategies; active and passive (Lindsey, 2005). An active strategy operating in association with the seeking system, through behaviors such as searching, exploring and discovering, while the passive system expresses behavior patterns like backing, hesitating and delaying (Lindsey, 2005). These differences in strategies are also seen in very young puppies, and could be a good indicator how much effort the owner should put into socializing the puppy. Being an offensive individual leads to a higher exploratory rate, and at the same time coping with a higher number of novel stimuli. Being a defensive individual decreases the possibilities to explore new environments and foreign situations, because the avoidance behavior in the dog is stronger than the motivation for exploring new things. A young puppy with this strategy restrict its own comfort zone and thereby situations where it feels safe and not fearful later in life. It is a great deal of importance that owners' of defensive individuals firm, but gently helps their dog to explore new objects without being frightened in the sensitive period.

The connection between being a passive individual and being fearful to novel stimuli (people, dogs, noises etc.) are influenced both by the dogs' genes, its environment and the individual aspect of the dog (Landsberg, 2007a). A dog with a passive strategy will often show fearful responses in new situations, and often needs help by its owner to overcome its fear to approach the stimuli. Individuals with a passive strategy often show defensive behavior in several situations, such as meeting with unfamiliar people and dogs, hearing loud noises, walking on slippery floors or stairs, coping with heavy traffic etc. It is also shown in other species that defensive or passive individuals show a lower aggressive frequency when meeting other individuals for the first time, thus depend upon their strategy to avoid fearful situations (Erhard et al., 1997).

Approach – avoidance conflict

The approach-avoidance conflict is essential in explaining the reaction to a fearful dog. When a dog explores an unfamiliar object, it will always be a conflict between approaching and avoiding the object. At longer distances, the tendency to approach is greater than to avoid, and the dog will move closer. The tendency to approach decreases as the dog comes closer to the object, until it becomes low enough to stop the dog going further (Bowen and Heath, 2005).

Where the line for conflict point is drawn depend upon how fearful the situation is experienced by the dog. Every dog will have completely different preferences of what is detected as fearful stimuli, and the height of the avoidance line will vary dynamically with the potential threat (Bowen and Heath, 2005).



Figure 1. Approach-avoidance conflict

What causes fear-related aggression?

Lack of socialization

Fear-related aggression toward other dogs is common where socialization has been insufficient (Roll and Unshelm, 1997; Bowen and Heath, 2005). Dogs need to explore and develop its social communication system together with other dogs to be a fulfilled dog with all its social skills. If the dog hasn't learn how to communicate with other dogs through the sensitive period (up till 12 weeks), it will have great disadvantages later in life. It's also important to give the period of social maturity (18 to 24 months) an extra attention when it comes to social interactions with other dogs. Many owners prepare their dog in being social with others when they are puppies, but forget to focus on the socialization when the dog gets older. When a dog matures it will change its strategy when greeting other dogs. Going from being a young dog and only show deference and submissive signals in every situation with other dogs, can be a huge adjustment to suddenly get a response of a dominance signals when the dog gets older. All kind of communication must develop through learning, and some dogs may be insecure and show fear toward other dogs if they haven't been able to learn how to communicate with other dogs through its period of social maturity. The fact that males and females reach its social maturity period at different time must also be taken into account. Males could be almost two years of age before they changes their strategy when interact with other dogs, and especially males-to-males interaction. Difficulties during this period are common, especially for defensive males that only have shown submissive signals above other dogs during its juvenile period. Changing their strategy and use aggression to avoid a fearful situation is quit common amongst these kinds of individuals.

Owner' influence

An owner can involuntarily and voluntarily reinforce a dog's response to fear (Bowen and Heath, 2005; Landsberg, 2007a). Many owners believe that comforting and petting a frightened dog makes things better, when it's actually works the opposite way. Humans tend to use the same communication tools upon a dog as they do with other humans, and this could explain the strategy of comforting an already frightened dog. A dog will identify comfort as reinforcement for fearful behavior, and the owners' strategy will support the dog for showing a fearful reaction (Bowen and Heath, 2005). Humans don't realize how much their own energy influences dogs in different situations, and typically, an owner's reaction can trigger a release of a fight or flight strategy of the dog. Owners influence on a dogs behavior when meeting unfamiliar dogs are discovered to be a factor to induce fear-related aggression (Roll and Unshelm, 1997). In many cases the dog may be restrained on a leash or by other confinements, and be forced to show aggressive behavior as a last resort.

Dogs can be very alert by the reaction of other dogs or humans in situations experienced as fearful, and typically react based on other individuals' arousal and warning signals even if they don't have seen the actual threat itself. An owners' tension when meeting other dogs (holding the leash tight, shout to the dog), may work as a startle response and release a fear reaction of the dog (Roll and Unshelm, 1997).

The opposite way to reinforce a fearful response is to punish a frightened dog and force it to "behave" when it shows fearful behavior. To punish a frightened dog make only things worse and the dog could response to the punishment by showing aggression toward the owner because it feels threatened (Overall, 2001a).

Heritability and environment

A genetic influence may affect how a dog interacts with other dogs. The same applies to a dog's environment during the socialization period. In some breeds could fear unknowingly be a preferred behavior pattern when choosing parents for breeding. Individuals that show fearful or passive behavior could be identified as easy-going and uncomplicated dogs by the breeder; behavior patterns that are often preferred when breeding dogs suitable for families with children. A breeding-strategy like this could become a problem in some breeds, and individuals showing fear-related aggression could rise (Golden retrieverklubben, 2008).

The importance of exploring new situations, meeting other dogs and be socialized with several people during the socialization period, are well known to affect how dogs interact with the environment as adults (Bowen and Heath, 2005; Lindsey, 2005; Landsberg, 2007a). The environment offered by the breeder during the first weeks of a puppy's life could be essential in how it will interfere with other dogs when growing up. Picking a breeder that understand the consequence of socializing a puppy is very important, especially when buying a puppy that has reach the age of 12 weeks.

Previous experience

Bad experiences with other dogs will truly affect how a dog reacts when meeting other dogs in the future. A dog being attacked by another dog without initiative any fight or showing aggressive behavior will be suspicious and fearful of other dogs. It could impress the rest of the dogs' life if the owner don't work hard to reestablish the dogs' confident after an unmotivated attack. An unmotivated attack from another dog could reinforce the feeling of threat by the owner's reaction (comforting) and by the dog's strategy (showing submissive signals).

Discussion

Fear-related aggression toward other dogs is a very complex behavior problem that causes dogs a lot of suffering in their life. Since the aggressive behavior often upstage the signs of fear during a meeting with another dog, it's not unusual that the dog is misunderstood by its owner and being punished for its behavior. A fearful dog will show several submissive behavior patterns when meeting other dogs before the threat feels so serious and make the dog attack the other dog as a last resort. As the dog experience that aggression helps to removing the threat, it's quite normal that fearful dogs change its' strategy to exhibit more offensive and bold signals, even if the initial motivation for the response is fear (Landsberg, 2007a).

A dogs' adaptive strategy will influence how its' coping with novel stimuli, and also when meeting other dogs. A dog with a defensive strategy will inhibit its' chances to explore and interact with unfamiliar dogs and consequently restrict its own comfort zone and thereby situations where it feels safe. A dog with a passive strategy will show fearful responses when meeting unfamiliar dogs for the first time, and often needs help by its owner to overcome its fear to approach the other dogs. It's a difficult balance between luring the dog to explore and make the dog wanting to approach an unfamiliar dog. A situation like this could easily become a disaster if the owner pushes the dog to hard.

It is important to enrich a young dog's life with pleasant experiences amongst other friendly dogs and let it learn how to use its body language and interpret others'. Dog owners seems to be aware of the importance of putting effort into the period of socialization, but breeders and other supervisors should focused more on the period of social maturity. The fact that intact males reach this period later than intact females, may be one of the causes that dog owners aren't aware of and lead to behavior problems when it comes to fear-related aggression problems. Some intact males will show deference and submissive behavior toward other dogs through its first two years of life, but when they're reaching the maturity age they could change its strategy when meeting other dogs.

Conclusion

Socialization and understanding a dog's behavior and needs is essential in preventing a dog to develop fear-related aggression toward unfamiliar dogs. These two factors, together with the individual aspect of the dog and its adapted social strategy, may explain why a lot of dogs show this behavior. Fear-related aggression is a very serious problem that causes a poorer life for many dogs and owners. Because it's such a complex and difficult problem to manage, it should be more focus on information and prevention instead of treatment.

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