

# **The Silent Epidemic: Anxiety in Dogs**

**Debra Horwitz, DVM, DACVB  
Veterinary Behavior Consultations  
St. Louis, MO**

At its simplest, anxiety is the anticipation of danger or threat. However, in many cases the source of anxiety is not easy to identify. Anxiety can cause stress, which can be a functional response; when an organism perceives something that threatens them, they respond physiologically allowing appropriate responses that are adaptive and aid in survival. Depending on the severity of the stimulus stress will activate the HPA axis and the sympathetic nervous system engaging the body's "fight or flight" response. When utilized appropriately this response system allows the animal to perceive, evaluate and choose the correct response both physiologically and behaviorally. On its own, anxiety and the accompanying physiological changes are probably not pathological when short lived but chronic anxiety can lead to chronic stress. When stress and anxiety become a chronic state, the health, welfare and lifespan of the individual may become compromised<sup>1</sup>. Responses to anxiety provoking stimuli are likely influenced by early learning, negative experiences during development and the individual's genetics<sup>2</sup>. If the same experience is repeatedly encountered anxiety and apprehension may occur through sensitization perhaps resulting in enhanced responses<sup>3</sup>. Stimulus intensity and frequency of encounters may compound the response and various associative processes may accelerate acquisition of responses. Therefore, to provide optimum health and welfare for all pets' veterinary health care practitioners should consider anxiety as another possible disease state in companion animals.

## **Causes of anxiety in companion animals**

While our companion canines are usually well provided for nutritionally and medically, there are other needs that are often unmet. Dogs are very social creatures and seem to be uniquely bonded to humans. Dogs have a well-established canine method of communication that allows them to communicate with other dogs. Central to all that dogs do is their basic ethologic behavioral patterns, which render them capable of responding to all things simply as dogs. In actuality it is the conflict created by these three things, lack of social contacts, misunderstood communication and inability to perform normal behaviors than can cause dogs to become anxious.

### **Canine and human bonding**

Although the actual date of domestication and the location are still debated by scientists, it suffices to say that dogs have lived with people for over 10,000 years. While initial interactions were perhaps tentative and purely utilitarian, burial remains show that dogs quickly became cherished companions. This bonding goes beyond our ability to provide food and shelter and the dogs' ability to hunt or herd livestock. The lifestyle lived however, was one that was more active and interactive with many dogs working side by side with their people. But times have changed, while we still live closely with our dogs, many of them spend long hours alone without people and often without other dogs or animals. This lack of social interaction can cause anxiety and stress.

### **Canine and human communication**

Dogs have a fairly well established and complex form of communication that utilizes body postures, facial expressions, vocalizations and sensory information since they have well developed hearing, vision and olfaction. Dogs will generally communicate with humans using all those modalities, some of which we are not skilled in, appreciate or understand.

However, recent research has also shown that dogs can understand many human gestures and although descendent from wolves, can do this much better than a hand-raised wolf. Puppies as young as four months of age will use pointing by a person to help locate hidden food while wolves will not do so without extensive training<sup>4</sup>. Dogs appear to be ready to accept human intervention and can even be taught to "do as I do" and repeat certain actions (although this takes extensive training too).

Unfortunately the ability of many humans to understand dog communication is poor. One study showed that dogs respond differently to petting on the same body regions depending on their familiarity of the human in the interaction by showing stress signals and this could have profound implications when it comes to canine aggression<sup>6</sup>. The inability to effectively control physical and other interactions through the usual canine communication modalities can cause anxiety.

### **Canine normal behaviors**

Finally, not only do dogs look at the world differently than humans, what they find entertaining and fun may be at odds with the environment in which they live. Most dogs like to sniff, chew, dig and other wise interact with their environment in a very physical way. Young puppies and adolescent dogs have a high need for both physical and mental stimulation and often live in situations where these needs are not met. The inability to express most normal dog behaviors and have their mental and physical needs met can cause anxiety in our companion dogs.

### **Changes in routine and interactions**

Like people, animals find predictable interactions and consequences important and calming. When schedules or life styles changes happen animals may show signs of stress and anxiety. An interesting study in cats found that "sickness behaviors" referable to the

gastrointestinal and urinary tract, the skin and behavior problems were noted in cats when they were exposed to unusual external events (changes in caretakers, changes in routine and lack of interaction with the usual investigator)<sup>7</sup>. Often animals are presented to the veterinarian for such complaints without clear manifestations of disease. When this occurs veterinarians should closely question owners about changes in environment, schedules or interactions with their pet.

### **What are the common manifestations of anxiety in dogs?**

In some situations anxiety signs can be clearly noted, and some owners are good at seeing them<sup>1</sup>. Anxious dogs will often pant, pace, tremble, shake, whine, hide and vocalize. These signs may occur in response to numerous events or stimuli; noises, owner departure, unfamiliar people, punishment, outside stimuli. But other manifestations are possible. Anxious dogs may exhibit excessive attention seeking behavior some obvious, some not. Attention seeking can be constantly following the people in the home, pressing against them, requests for petting (or what appear to be requests for petting), barking or even what appears to be vigilant behavior. Destructive behaviors both indoors and outside can be outlets for anxiety. Conversely anxiety can be displayed by profound inactivity-the dog refuses to interact, hides and won't seek play or physical attention. Finally, subtle signs of stress and anxiety are often missed such as head turning, yawning, looking elsewhere and nose licking. Medical problems can also occur due to stress or anxiety and may be subtle and include diarrhea, house soiling or over grooming and licking, poor appetite and insomnia.

### **Common anxiety disorders**

Although anxiety can occur from many things, there are some common anxiety disorders in dogs that are well documented and seem to relatively common within the canine companion animal population. A retrospective study by Bamberger and Houpt examined 1,644 canine case files from 1991-2001 and reported that 14.4% of the dogs had a diagnosis of separation anxiety and 5.7% had a diagnosis of generalized anxiety<sup>9</sup>. There were significant associations between diagnoses with dogs showing various types of aggression also showing signs of anxiety. Additionally the diagnoses of noise phobia and separation anxiety occurred together more often than chance would predict.

#### **Separation anxiety in dogs**

Separation anxiety is one of the most common types of anxiety and perhaps easiest syndrome to recognize in dogs. While often discussed as a unitary phenomenon, it is likely that separation anxiety has different forms of expression. Some dogs are distressed whenever they are alone regardless of how long they are alone or who is gone, but are fine if they are with any people. Other dogs are distressed if only a certain person leaves the house. There are also dogs that are afraid to be home alone because a scary or fear inducing event has occurred when home alone; these dogs may have noise or storm phobias or some other fear. There are dogs who are only distressed when confined or dogs that are only distressed when the owner "re-leaves" after having returned from work. Some dogs will be fine for years and then when schedule or family composition changes they will be quite distressed when home alone. Finally, there are some senior dogs who seem to develop separation anxiety as part of cognitive changes.

Diagnosis is based on various signs that occur in the absence of the owner; house soiling, destruction, and vocalization are the most common. However, in some cases the owner may come in with the complaint of unwanted behaviors when they are home, whining, pacing, vigilance, following and persistent, incessant and objectionable attention seeking behaviors. If the dog is not destructive or house soil when they are gone, they may be unaware that separation anxiety is the culprit for the anxious behaviors while they are home. The best way to verify separation anxiety is with video of the dog when the owner is gone from the house. Multiple methods are now available to owners to take these recordings including smart phones, computers and tablets. Once separation anxiety is verified, treatment (discussed below) can be implemented.

#### **Generalized or global anxiety**

While not common, some dogs do show anxiety in a number of situations making their day-to-day life miserable. Anxiety can be situational or contextual and for some animals continuous or global. Anxiety can be mild or can be so severe as to interfere with function. Dogs that are show this type of anxiety may pace, be hyper vigilant, hide or avoid people or places, pant, vocalize, drool or shake. Body postures include a lowered body posture, tucked tail and ears against the head. Some animals are inappetent, and cannot sleep and may refuse to exit the home to eliminate. Pupillary dilation, peripheral vasoconstriction and piloerection may also be evident due to an increase in sympathetic nervous system activity.

Anxiety can be caused by a number of factors including but not limited to: visitors, new babies, moving, loud noises, new objects and changes in routine. Initiating factors may include lack of early exposure, a single traumatic event, uncertain relationship with the owners and inconsistent cues and discipline. Underlying anxieties may be components in other behavioral disorders such as aggression, house soiling, and excitable behaviors<sup>10</sup>. These dogs may also have concurrent separation anxiety.

#### **Noise and storm sensitivities and phobias**

Many dogs show anxious and phobic reactions to storms and noises. The noises that bother them can be quite typical, cars, loud sounds, dropping things, vacuum cleaners etc. or be more subtle including beeping of toasters, phones or other small noises. These types of anxiety can severely interfere with function and if accompanied by destruction and elimination indoors can damage the human animal bond. Dogs with this type of anxiety exhibit many of the signs listed above and also will have physiological reactions

as well. Dreschel and Granger<sup>11</sup> looked at the cortisol levels of storm phobic dogs and their owners and found that canine levels rose 207% during the storm challenge and did not return to baseline within 40 minutes.

### General treatment recommendations

Inherent in helping anxious dogs is creating a predictable, calm and enriched environment and teaching new, calmer behaviors.

Common treatment programs should have the following components:

- Avoidance of the trigger stimuli whenever possible.
- Punishment must never be used since it will only increase rather than decrease a pet's distress.
- Create predictable interactions with people through a command-response relationship or "doggy please" to help the dog learn how to access the things they need.
- Create a safe haven for the dog and train them to go there when the stimulus is not present. This can be a dog bed in a quiet space, a crate, a closet any place that is secure, quiet and the dog is assured they will be left alone. Then when the anxiety provoking stimuli is present or will be presented, the dog is placed in their safe haven. Only use this if a dog can be comfortably confined.
- For separation anxiety it will also be important to habituate dogs to departure cues, create independence and keep departure and return calm and low key.
- Leaving a food stuffed toy on departure may help decrease anxiety for some pets.
- Playing music that is loud or has a strong beat or some type of white noise (exhaust fan) may aid in muffling the outside noises that cause the distress.
- Playing with familiar toys, engaging in games or practicing obedience may help calm and help the pet have appropriate mental and physical stimulation.
- Use of a head collar and leash may offer additional control and can be calming for some dogs.
- Pheromones<sup>12,13</sup> either collars, diffusers or both, and nutraceuticals.
- Body wraps<sup>14</sup> (Cottam and Dodman 2009)
- Medication: Reconcile w/ behavior modification (Elanco), Clomicalm w/behavior modification (Novartis)

### Drugs, dosages and indications for anxieties in dogs

Key Drug	Drug Class	Dose Range	Frequency	Route	Indications
Clomipramine* Clomicalm®	Tricyclic antidepressant	1.0-2.0 mg/kg <sup>15</sup>	Q 12 hrs	Oral	Separation anxiety, noise and storm phobias, other anxieties
Fluoxetine* Reconcile®	Selective Serotonin Reuptake Inhibitor	0.5-2.0 mg/kg <sup>16</sup>	Q 24 hrs.	Oral	Separation anxiety, noise and storm phobias and anxiety
Diazepam**	Benzodiazepine	0.55-2.2 mg/kg <sup>17</sup>	q 6-24 hrs	Oral	Separation anxiety departure panic. Storm phobias and situational anxieties
Alprazolam**	Benzodiazepine	0.01-0.1 mg/kg <sup>17</sup>	q 8-12 hrs	Oral	Storm & noise phobias and situational anxieties such as owner departure in separation anxiety
Buspirone***	Azapirones	0.5-2.0 mg/kg <sup>15</sup>	q 8-12 hrs	oral	Global anxiety

- \*May take 2-4 weeks until effect. Ideally should be started one month prior to storm season. Not effective on an "as needed" basis. Must be given daily throughout storm season daily for separation anxiety
- \*\* Can be used on an "as needed" basis. May be used in conjunction with Clomipramine for storm phobias.
- \*\*\* Can be effective in dogs with global anxiety. Need to be administered 2-3 times daily this may limit usefulness. May take 2-4 weeks until effect

### Conclusion

Anxiety can be pervasive in companion animals. Early recognition of anxiety in dogs and appropriate interventions can greatly improve the quality of life for companion dogs.

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