Separation Anxiety in Dogs
with Karen L. Overall, MA, VMD, PhD, DACVB, CAAB

The following interview was originally released by the AKC Canine Health Foundation as a podcast on June 12, 2014. If you prefer to listen to the interview, the podcast is available at www.akcchf.org/dealing-with-separation.

In this interview, Dr. Karen Overall discusses an issue of major importance to many dog owners: separation anxiety in dogs. Dr. Overall received her VMD from the University of Pennsylvania, School of Veterinary Medicine and PhD in Zoology from the University of Wisconsin – Madison. She completed a residency in Behavioral Medicine at Penn and is a Diplomate of the American College of Veterinary Behavior (ACVB) and is certified by the Animal Behavior Society (ABS) as an Applied Animal Behaviorist. Dr. Overall's clinical work is focused on the humane treatment of troubled pets and their distressed people. Her research has 2 main foci, first to understanding the neurobiology and genetics of canine behavior and canine cognition, and second, the development of natural genetic and behavioral canine models for human psychiatric illness, particularly those involving anxiety, panic, and aggression.

AKC Canine Health Foundation (CHF): First, can we start with a working definition of anxiety, fear, and phobia and whether we can use these terms interchangeably in dogs?

Dr. Karen Overall (OVERALL): We use these terms in interchangeably in common speech because they are related behaviorally and neurochemically, but they are not the same.

True fear always involves avoidance, with an apparent intent to decrease the probability of social interaction. This is in contrast to anxiety, where avoidance is not the first choice. Dogs that are driven primarily by anxiety may put themselves into a social system, although it makes them uncomfortable and worried. Fear and anxiety have signs that overlap. Some non-specific signs like lowering of the back shaking and trembling can be characteristic of both fear and anxiety.

Phobias involve profound, non-graded, extreme response and manifest as intense avoidance, escape, or anxiety and associated with the sympathetic branch of the autonomic nervous system or ANS.

At the core of virtually all behavioral conditions, especially those related to anxiety, is the arousal level of the patient. Heightened arousal, *beyond a certain adaptive level:*

- prohibits accurate observation and assimilation of the information presented,
- interferes with processing of that information, and
- can adversely affect actions taken based on these earlier steps.

It is worth remembering that when one diagnoses a problem related to fear or anxiety, one is doing so at the level of the phenotypic or functional diagnosis. While much treatment and subsequent assessment focuses on changing the non-specific signs apparent at the phenotypic level, if psychotropic medication is used, we are intervening at the molecular and neurophysiological levels (which we then hope will help change the phenotypic level).

New evidence about epigenetic effects suggests that effects at the molecular and neurophysiological levels may be governing the signs expressed by which we recognize the condition and the manner in which neurophysiological and molecular effects act.

Anxiety, in general, is broadly defined as the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria (in humans) and, or somatic symptoms of tension (vigilance and scanning, autonomic hyperactivity, increased motor activity and tension). The focus of the anxiety can be internal or external. For an anxiety or fear to be pathological, it must be exhibited out-of-context, or in a degree or form that would be sufficient to accomplish an ostensible goal. The focus on context for the response and degree and form of behaviors informs all of our definitions of canine and feline behavior problems.

CHF: If we start with a focus on anxiety, what are the physiological and behavioral signs of anxiety in dogs?

OVERALL: Non-specific signs of anxiety include:

- Urination
- Defecation
- Anal sac expression
- Panting
- Increased respiration and heart rates
- Trembling/shaking*
- Muscle rigidity (usually with tremors)
- Lip licking
- Nose licking
- Grimace (retraction of lips)
- Head shaking
- Smacking or popping lips/jaws together
- Salivation/hypersalivation
- Vocalization (excessive and/or out of context)
    - Frequently repetitive sounds, including high pitched whines*, like those associated with associated with isolation
- Yawning
- Immobility/freezing or profoundly decreased activity
- Pacing and profoundly increased activity
- Hiding or hiding attempts

- Escaping or escape attempts
- Body language of social disengagement (turning head or body away from signaler)
- Lowering of head and neck
- Inability to meet a direct gaze
- Staring at some middle distance
- Body posture lower (in fear, the body is extremely lowered and tail tucked)
- Ears lowered and possibly droopy because of changes in facial muscle tone
- Mydriasis
- Scanning
- Hyper-vigilance/hyper-alertness (may only be noticed when touch or interrupt dog or cat – may hyper-react to stimuli that otherwise would not elicit this reaction)
- Shifting legs
- Lifting paw in an intention movement
- Increased closeness to preferred associates
- Decrease closeness to preferred associates
- Profound alterations in eating and drinking (acute stress is usually associated with decreases in appetite and thirst, chronic stress is often associated with increases)
- Increased grooming, possibly with self-mutilation
- Decreased grooming
- Possible appearance of ritualized or repetitive activities
- Changes in other behaviors including increased reactivity and increased aggressiveness (may be non-specific)

CHF: What is separation anxiety?

OVERALL: Physical, physiological and/or behavioral signs of distress exhibited by the animal **only** in the absence of, or lack of access to the client.

The diagnosis is confirmed if there is consistent, intensive destruction, elimination, vocalization, or salivation exhibited **only** in the virtual ***and/or*** actual absence of the client. In virtual absences the client is present but the dog or cat does not have access to the client (e.g., a door is closed).

Signs of distress should be evaluated in currency and terminology that is meaningful to the dog (which is not usually the case; instead we evaluate client complaints).

- The most commonly reported behaviors (elimination, destruction, excessive vocalization) are *only* the most readily apparent signs of anxiety.
- Drooling, panting, freezing, withdrawal and cognitive signs of anxiety will be less commonly diagnosed because they are *less apparent to people*, but they occur and *dogs displaying them may be even more profoundly affected* than are dogs who show more obvious signs.

CHF: What are the physical and behavioral symptoms of separation anxiety?

OVERALL: Specific behavioral signs may include:

- urination
- defecation*
- salivation
- destruction*
- panting
- pacing
- freezing/ immobility
- trembling/shaking
- vocalization* (bark, whine, growl, howl)
- diarrhea

Some dogs may show suites of correlated behaviors. For example, salivation appears to occur more commonly in dogs that freeze and become immobile. Clients will wish to note which suites of behaviors their dogs exhibit so that they can monitor these non-specific signs for changes (hopefully, improvement) during treatment.

Separation anxiety is a condition that is often *a problem for the client*, so it gets a lot of attention, and lucky dogs have people who seek help.

Veterinarians would be wise to use the increasing awareness of separation anxiety to educate clients about the extent to which separation anxiety and other behavioral conditions are *problems for the dog and his quality of life*. If clients understand that early intervention may prevent co-morbidity of behavioral problems and they understand which behaviors indicate problems, there is an increased chance that they will be better participants in the dog's behavioral and overall veterinary care.

- Asking about elimination patterns is incredibly important for assessing the presence of anxiety disorders, but even when this is routinely done, sporadic/periodic diarrhea or loose stool is often uncritically considered a sign of IBS/IBS. We need to be more critical in our thought process. *If the dog always has diarrhea or soft/loose stool when the client returns home, but not on weekends when the client is home, the dog may have subclinical separation anxiety or separation anxiety that is undiagnosed.*

Clients who have rescue dogs or have adopted dogs from shelters may be 'pre-adapted' to watch for signs of separation anxiety. By ensuring that they know the history of dogs in their care veterinarians can provide *anticipatory guidance*.

Affiliations between veterinarians – and pure breed groups - and shelter/rescue groups can only help decrease the severity of separation anxiety experienced by the affected dogs.

All dogs should be screened for all behavioral conditions at all appointments. The short history form in this text can help any veterinarian do this. Dogs with separation anxiety worsen the longer they are untreated.

CHF: How common is separation anxiety?

OVERALL: Fairly common – estimates are that 10-20% of dogs could experience it at some point, and some people estimate that affected dogs could go as high as 30%. As with most canine conditions we do not really know, and as noted, what is bothering the client is noted first, and not all signs are easily noted.

Table: Ease with which signs of separation anxiety are recognized

Clear, obvious and easy to recognize	
↓	Destruction
↓	Defecation
↓	Urination
↓	Loud, disruptive vocalization
↓	Licking with dermatological lesions
↓	Salivation with saliva staining
↓	Salivation without saliva staining
↓	Soft, non-disruptive vocalization
↓	Temporal, transient anorexia
↓	Pacing
↓	Withdrawal/freezing
Less clear and more difficult to recognize	

You also have to rule out that these non-specific signs are associated with other conditions. This is why diagnostic criteria are so important; they are basically rules by which you evaluate the non-specific signs.

Table: Alternative diagnoses/conditions/causes to rule out for the non-specific signs of "elimination" and "destruction"

Non-specific sign	Necessary to rule out before making a diagnosis of separation anxiety
Destruction	Play (e.g., soft pillows, cushions, plants, rolls of toilet paper, things that play back) Puppy teething Rodent infestation Denning (e.g., pregnancy or pseudo-cyesis) Thermoregulation Separation anxiety Cognitive dysfunction Panic Noise/storm phobias
Urination	Upper or lower urinary tract disease (e.g., UTI) Endocrinopathy (e.g., diabetes, Cushing's disease) Incomplete house training Marking Insufficient access Treatment with corticosteroids Excitement or 'submissive' urination Separation anxiety Cognitive dysfunction Hormonal incontinence Arthritis
Defecation	Dietary change or indiscretion Parasitemia Marking Incomplete house training Cognitive dysfunction Incontinence associated with age/arthritis IBS Panic

CHF: When does separation anxiety commonly occur?

OVERALL: It depends on the form – some dogs have clocks (they can wait until 4PM but not 6PM), old dogs may have nighttime anxiety (which may be the first phase of cognitive dysfunction and/or debility associated with changes in auditory/visual cues), but most dogs who have the most common morph are distressed within the first 30 minutes of being left.

CHF: Have researchers been able to define what causes separation anxiety in the first place? Is there a genetic predisposition to having this disorder or are their environmental triggers or life experiences that cause separation anxiety?

OVERALL: There IS likely a genetic predisposition to all of this. Separation anxiety is so many things that without a good survey of what dogs actually do we are unlikely to identify associations worthy of further study. We do not know what 'normal' is. Given that the different forms of separation anxiety respond differentially to meds and involve different regions of the amygdala…there is a lot to think about here. People think we understand all of this, and we do not.

We tend to see most behavioral conditions appear as full blown conditions as the dog is undergoing social maturity but puppies 4-6 months of age can also show separation anxiety.

CHF: Let's talk about treatment. Can separation anxiety be treated?

OVERALL: Oddly enough, we may not completely understand them but virtually all behavior problems in dogs respond to treatment. *Questions about the presence and pattern of patterns of behaviors associated with separation anxiety should be included in all histories for all visits because the problem is among the most common canine problems, and yet is so often missed in its early stages. The long and short screening questionnaires in this text have sections that assess these complaints. Early intervention is important.*

CHF: Who is the best person to help guide a new owner through treatment of separation anxiety?

OVERALL: Veterinarians should be screening all dogs and cats at all non-emergency appointments for behavioral issues. I cannot emphasize how important these discussions are, but most vets still receive no formal training in veterinary behavioral medicine.

CHF: Let's start with owner education, what do owners need to understand and know to help their dog with separation anxiety?

OVERALL: While there are attachment concerns for some types of separation anxiety, 'breaking the bond' e.g., and ignoring the dog is a disaster. Instead, clients need to learn the signs of calm behavior versus anxious behavior and only reward calm throughout. Dogs that are anxious may look normal part of the time, but they may not be and the best time to teach a dog that they do not have to be distressed is when they are not frantic.

Clients should be encouraged to keep a log of the dog's behaviors using the non-specific signs exhibited by the dog on the video. Monitoring the non-specific signs allows the client and the veterinarian to recognize patient progress, or lack thereof. The pattern of the signs can also be essential in helping the clinician decide if the patient meets the criteria for diagnosis, in cases where multiple behavioral conditions may be ongoing.

If the client learns that the dog can be left for 4 hours without elimination, but not 6 hours, the client knows that – for now – he needs to avoid longer absences. Avoidance is key in the treatment of all behavioral problems since every time the behavior - no matter how undesirable or abnormal - is repeated, the dog will be reinforced for the behavior. Practice reinforces learning at the molecular level is reinforced. Logs are best used in combination with video surveillance because some signs are much easier for clients to note than others.

CHF: Next, how can the environment be managed to help a dog with separation anxiety?

OVERALL: The dog should not be left alone unless there is no other choice. The dog may be able to go many places with the client.

Many dogs with separation anxiety are less distressed if left in cars because cars signal that clients always return. *Leaving a dog in a car is an emergency, short-term situation and is not appropriate in many climates or locations.* There have been reports of the dog damaging the inside of the car.

Dog sitters, dog walkers, day care, boarding, pet sitting by a older child who is not otherwise allowed to have a dog may all be options that could mitigate the dog's distress.

If the dog likes crates, will go into a crate willingly, can sleep and eat in a crate, and is calm when in a closed and locked crate, crating or gating the dog may be part of the solution.

Not all dogs can be crated/gated. Many dogs will break their nails or teeth attempting to get out of the crate, and dogs have killed themselves by becoming entangled in or impaled on the crate if they panic. Clients should not even consider using a crate as a management strategy for dogs with separation anxiety unless they can video the dog responding as stated when they are home and not with the dog for hours at a time. The risk of gating or crating a dog who views this as entrapment rather than security is huge, and in such cases, it will always make the dog worse.

No dog who is crated should wear a lead or collar of any kind because if the dog becomes distressed these pose strangulation hazards.

No dog with separation anxiety should be tied. Tied dogs are at increased risk of injury or death from strangulation if they become distressed.

Food toys *may be good indicators of when dogs start to improve* enough to eat, but t*hey are **not** a treatment* for separation anxiety. Dogs who are profoundly distressed cannot eat. If a fresh food toy is left for the dog daily, the day he starts to use it indicates that he was sufficiently less distressed to be able to take food and so to be rewarded for less distress.

Unfortunately, dogs vary from less to more distressed during the time they are left, so thinking of the food toy as a true reward for not reacting to an absence may not be accurate.

CHF: What behavior modification strategies can owners use to help their dog?

OVERALL: All emphasis must be placed on ensuring that the dog does not panic and that she learns to be as calm as possible when left or as people signal that they might leave.

The cue that may trigger worry or panic for the dog may be one that occurred the night before. If clients only set an alarm, lay out clothes or pack a briefcase on the nights before they will leave the dog could start to show signs of distress or panic the night before. Routines to teach the dog that she should calm and not worry need to address these triggers also.

Clients inadvertently reward anxious behaviors for 2 common reasons:

1. They think the dog is just seeking their attention and they don't distinguish between *dogs who want attention* and *those who need it*, so the latter group of dogs is inadvertently rewarded for anxious, pesky behaviors.

2. They recognize that the dog is distressed and they are seeking to reassure the dog. Unless the dog is rewarded only when calm, anxious behaviors are also being reinforced, resulting in a miscommunication.

If clients ask the their dogs – no matter how briefly or benignly – to sit, calmly and look at them – the dog will learn that he is rewarded for sitting calmly and looking at the client, and the client will be able to reinforce calm behaviors.

Dogs who are globally anxious will benefit greatly from deep breathing. Deep breathing allows clients to use the physical signs of an underlying physiological state to help decide how much and what kind of attention to provide these dogs. Attention of the right sort will help these dogs improve at the most rapid rate possible. If she can learn that she is rewarded for physiological changes that indicate a lower reactive state, the dog will not only learn to calm down to get attention but will also learn that she feels better when she does so and so can and will repeat these behaviors (this is cognitive therapy for dogs).

Clients should be told to *ignore all instructions to ignore these dogs* until they lie down and stop interacting with the clients. This is likely both counter-productive and cruel.

Co-morbidity is the rule with anxiety conditions, and lack of human input, especially when the human is available, may contribute to true clinical depression in these dogs.

While we do not wish to reward the anxious behaviors, we also must avoid behaviors that provide the dogs with no useful information. Punishment – which is how the dog could interpret this tactic – does not provide information about which behaviors are rewarded.

It is far preferable to talk calmly to the dog, but not hug, kiss, fawn over, or otherwise interact in any way that provisions social attention until the dog is calm enough to ensure that anxious behaviors are not being inadvertently reinforced.

Affected dogs can learn to be less anxious with a combination of behavior protocols.

There is no sense in even trying to teach the dog that he is rewarded for calm behavior when left, unless he can learn that he is rewarded for calm behavior when in the presence of the client. Until the dog can sit calmly and wait for the client's rewards and cues while separated *in the house* and under different types of stimulating circumstances, it is foolish to try to implement this plan with the client leaving the house.

Recommendations for the treatment of separation anxiety usually include an instruction to teach the dog to ignore 'departure cues'. This text also has a handout about how to implement this recommendation. The intent of these 'departure cues' is to ***de***sensitize dogs - who are already sensitized to cues that signal the client's departure – to such cues. Common cues that cause dogs distress can include packing or picking up a briefcase, putting on sunglasses, picking up the car keys, et cetera. *If* the clients can identify cues that cause the dog to begin to worry – including setting an alarm the night before a departure – *and if* they are successful in their initial behavior modification efforts they *may be* able to use desensitization and counter-conditioning techniques to help the dogs not react to these triggers.

Caution is urged for attempting a too rapid progression by trying to fix everything at once. All behavior modification should be monitored for behaviors indicating progress and those indicating trouble. It is easy to video any desensitization plan that uses departure cues. *Any clients seeking to desensitize dogs to events, behaviors, triggers, et cetera associated with actually leaving the dog alone need to be aware that there is a huge risk that they will actually sensitize the dog and make him worse.* Video will allow the clients to see if their interventions are having the desired effect.

- Clients are often encouraged to teach the dog that he can be left alone for increasing amounts of time or that he need not be so concerned about activities that occur by the door. Again, these behavior modification programs *may* be helpful if the client is good at basic behavior modification techniques and they can monitor the dog's response using video. *Otherwise, these techniques can cause the dog to worsen and to become more sensitized and reactive to departures and activity at doors.*
    - If there is any doubt, watch a video of the client's work with the dog with the client.
    - If there is still a concern that the client may not executing the behavior modification well and correctly encourage them to enlist the help of an educated and certified trainer (go to Pet Professional Guild for a list of force-free, positive trainers) who is excellent at operant conditioning and techniques used in behavior modification and who has the certification and ethical credentials that provide some comfort level that only positive techniques will be used.

CHF: Finally, when do you recommend using drugs to treat anxiety?

OVERALL: Early and often.

Diets like the CALM Diet® formulated by Royal Canin, which contains alpha-casozepine and an anti-oxidant complex of vitamin E, vitamin C, taurine and lutein is intended to be fed before and during stressful events. There are no specific, controlled data for the treatment of dogs with separation anxiety, and in the published literature the effects are mild.

Nutraceuticals like alpha-casozepine (Zylkene®), L-theanine (Anxitane®); Calmex® (which includes other compounds), and Harmonese® have been reported to help distressed and anxious animals, but there are no specific, controlled data for separation anxiety.

Because the act of being distressed, anxious, and panicky can itself contribute to the production of reactive oxygen species and other neurochemical stressors, non-specific treatment with anti-oxidants and omega-3 fatty acids (Nordic Naturals) may provide an ancillary benefit for patients with many behavioral conditions, including separation anxiety.

Dogs with separation anxiety and/or other co-morbid anxieties may have period diarrhea. There have been suggestions that probiotic supplements or additions of food containing probiotics (e.g., all natural yogurts) to the diet may favor a 'healthier' and less reactive gastro-intestinal system and provide 'immune support'. Data for such interventions in behavioral conditions are lacking – and clients should know this - but there are few to no risks to such approaches.

Medication is almost always an essential part of treatment of clinical separation anxiety. In the USA two medications have had veterinary labels and are licensed for use in dogs with separation anxiety (Reconcile® [fluoxetine: Lilly] and Clomicalm® [clomipramine: Novartis]; only Clomicalm is now marketed for dogs. Mostly, we use human generic medications.

- As a result of the placebo-controlled, double blind studies required to license these medications we know that they substantively decrease distressed behaviors in dogs over a treatment period of 2 months.
- Clomipramine has been studied for long-term treatment of separation anxiety with favorable outcomes.
- For both the clomipramine and fluoxetine studies, *treatment with medication sped the rate at which dogs acquired calmer behaviors through behavior modification,* n addition to having direct effects on anxiety.
- Medications to which these dogs best respond include/may include:
    - TCAs (clomipramine, amitriptyline if in combination with an SSRI). *If the separation anxiety is primarily characterized by ritualistic components, clomipramine may be the drug of choice.*
    - SSRIs (fluoxetine, sertraline, luvoxamine). *If the separation anxiety is primarily characterized by explosive components, fluoxetine may be the drug of choice.*
    - SARIs (trazadone). *Trazadone affects regions of the brain associated with motor activity and so may be a suitable ancillary medication for some affected dogs.*
    - Gabapentin, alone or in combination with TCAs and/or SSRIs, may be useful if reactivity is the primary concern. The side effect profile of this medication is favorable so clients may feel more confident when using it in combination with other medications. Because it affects BZD receptors it may also augment BZDs without some of the more systemic potential side effects of BZD (e.g., concerns about any of the hepatic metabolic pathways).
    - Benzodiazepines (alprazolam, clonazepam) may be helpful if there is concomitant noise reactivity/phobia or the dog's reaction to a specific stimulus or set of stimuli is extreme because they affect the reticular activating system. BZD can be used as discussed in the protocols for noise/storm phobia and panic.

- Central alpha agonists like clonidine depending on the level of the arousal response. For dogs who panic this medication is an option should the dog be unresponsive to or suffer from side effects of BZD, and be unresponsive to gabapentin. Because clonidine affects central NE/NA receptors, the peripheral sympathetic response is lessoned which helps some dogs who become quickly and profoundly distressed.
- Because the diarrhea may be a non-specific sign of arousal, as needed treatment with Imodium may be beneficial since it will decrease a physiological component of arousal.

Not all signs are equally controlled by all medications, a concern that may be addressed with polypharmacy.

CHF: Is there any benefit to using drugs concurrently with behavior modification?

OVERALL: The best use of medication is with behavior modification. All the placebo controlled double blind studies have shown that dogs treated with medication acquire the behavior modification more quickly.

CHF: If an owner has anti-anxiety medication in their house for human use can it be used on their dogs?

OVERALL: No, and it shouldn't be used for other humans, either. Dosages and formulations may vary so talk to the vet. In truth, your dog may end up with the same fluoxetine you are getting, but you need the informed environment that makes such coincidence occur safely and responsibly.

CHF: Since we are a research funding agency, where do you think our greatest gaps are in our understanding of canine behavioral problems and what sort of research should we fund?

OVERALL: We don't have long enough to discuss this, but our greatest gaps are of 2 kinds: what we know, and how we come to know it.

The last first: Very few vet schools have full-time programs in veterinary behavioral medicine that also involve research or people who are both vets and trained to do and think as researchers (e.g., PhDs). This limits both what people are taught, how they are taught to evaluate information and what we can learn. Most vet schools that do have programs have only clinical care programs; patient care is an essential part of this specialty, but it is also important to have time to think about what those patients tell you. Most of my best insights have come from watching patients and how they do or do not respond to interventions. They are the filter through which I read every scientific paper and through which I cast my own writings.

The other concern is what we know, and we do not know much. I have recently reviewed the literature on 'normal' behavioral development, neurodevelopment and factors that affect reactivity and problem solving behaviors. When you think about it, these issues are what make 'good pets' and what keep dogs in families and not discarded. Let's put it this way, when I write about this I make a lot of inferences from other species because we really know very little. It actually scares me that we think we know more than we do.

RESOURCES:

Journal of Veterinary Behavior: Clinical Applications and Research
www.journalvetbehavior.com

Manual of Clinical Behavioral Medicine for Dogs and Cats, 1st Edition
http://store.elsevier.com/product.jsp?isbn=9780323240659&pagename=search

Humane Behavioral Care for Dogs: Problem Prevention and Treatment (DVD)
www.amazon.com/Humane-Behavioral-Care-Dogs-Prevention/dp/0323187870