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Behavior Modification - Implementing Desensitization and Counterconditioning

For a more complete description of behavior modification; desensitization, counterconditioning and response substitution see our separate handout on this topic.

What are counterconditioning and desensitization?

Counterconditioning occurs when the pet's reaction (emotional response) to a stimulus is changed from one that is anxious or fearful to one that is positive and enjoyable. To accomplish this, favored rewards should be paired with each exposure to the stimulus (e.g. person, pet, noise, or situation).

Desensitization is a technique of exposing the pet to a stimulus that would normally cause an undesirable reaction at an extremely low level so that there is no response. As the pet becomes less reactive, it is desensitized through exposure to gradually more intense levels of the stimulus. Finding this threshold and developing a gradient for exposure are the keys to successful desensitization.

Counterconditioning and desensitization are usually paired so that low intensity stimuli are initially paired with high-level rewards, as described in the gradient sections below.



What are response substitution and controlled exposure?

"Response substitution is when the behavioral response to a stimulus is changed to one that is desirable."

Response substitution is when the behavioral response to a stimulus is changed to one that is desirable, or when the pet is taught a desirable behavior when exposed to the stimulus. Although this can be any behavior that is incompatible with the undesirable behavior (such as having the dog retrieve rather than jumping up or displaying uncontrollable elimination at greeting) it may be more practical to teach calm and settled responses, especially for this pets that are extremely fearful or highly excitable and roused.

The focus is on training behaviors that will earn the dog rewards rather than punishing behaviors, which may in fact serve to increase the dog's fear and anxiety. To be successful the rewards must be sufficiently motivating and properly timed. The pet must be taught to consistently and immediately exhibit the desired behavior in the absence of distractions, before proceeding to distractions. (See our handouts on [pre-exposure](#) and [settle training](#)).

"Controlled exposure exercises or desensitization should be combined with response substitution."

Controlled exposure exercises or desensitization should be combined with response substitution so that the pet is first taught the desired behavior in situations of minimal arousal and minimal distractions before proceeding to gradually more intense levels of the stimulus. Head halter control can help to insure safety and success.

How do we set up the pet to succeed?

For counterconditioning and response substitution to be effective, you will need to establish a reward gradient. Favored rewards are used to condition the pet to expect a positive outcome when meeting the stimulus (counterconditioning), and to insure that the highest level of reinforcement is used to mark the desired behavior, motivating the pet to repeat the behavior. Initially, the stimulus must be sufficiently muted or minimized to be able to get the pet to focus and behave appropriately and to insure that the outcome is positive.

Therefore, after you have identified your dog's favored rewards, you must withhold them except during training sessions. After training the dog to consistently settle and focus on cue, begin the exposure in an environment and with stimuli that are least likely to incite the undesirable behavior.

What is a reward gradient and how can it be used?



Each pet will have a different set of rewards that are the most motivating or stimulating. In most cases, it will be novel pieces of food and treats such as small pieces of hot dog, cheese or dried liver treats. In some pets, it might be a favorite toy. Affection and praise can also be highly motivating rewards for most pets, but are seldom useful for counterconditioning because they cannot be used as a lure and are not a unique marker of the desired response. In fact, unless a reward such as petting is withheld at all times except for counterconditioning, the pet cannot learn that

the stimulus is associated with (contingent upon) that reward. You can always pet an anxious or fearful dog, but it won't necessarily change its mood. On the other hand, it is often more practical to save the pet's favorite toy, play session or treats for exposure exercises (e.g. when greeting new people) so that the pet can learn that the specific toy or treat is associated with the arrival of guests. Offering the most motivating food or toy reward may get your pet's attention (cost-benefit ratio) as well as achieve a positive outcome.

Determine the rewards that are most appealing for your pet and place them on a gradient from most appealing or enticing to less appealing or enticing. Then by using the highest level reinforcements exclusively for counterconditioning exercises, the pet may soon learn to associate the presence of the stimulus with some of its favorite things!

How do I set up a stimulus gradient for desensitization?

Much like you set up a reward gradient, you will need to arrange or prepare stimuli for desensitization from mildest to strongest. In this way, when you begin counterconditioning and response substitution (training), you can offer the most favored treats with the stimulus at the mildest forms of intensity before proceeding to incrementally more intense levels.

This means that you will also need to determine the threshold at which your pet does not react or can be easily settled and reinforced. You will also need to insure that your training and control is sufficient that you can calm your pet effectively and safely with each exposure. Generally, you will want to begin by setting up exposure exercises with people, other pets or locations that are sufficiently mild that you can achieve the desired outcome. Do not rely on real life experiences for exposure exercises, as these cannot be adequately controlled. In fact, most training should begin with known family members or pets with which the dog shows no anxiety or aggression, as well as in those locations where problems are least likely to arise.

Since multiple stimuli may combine to evoke the fearful or anxious response, you should first identify each individual stimulus, and expose the pet to it separately where practical. For example, the pet with a storm phobia might first be exposed to a CD of rain, thunder and wind sounds. The pet that is anxious when the doorbell rings might first be exposed to doorbell training with members of the family, followed by family members entering and exiting the home while ringing the bell each time. Leaving and returning multiple times may reduce the excitement and novelty of each subsequent arrival and allows for multiple entry sequences in a single practice session. The pet that is threatened by bicyclists or children on skateboards might first be desensitized to stationary bikes or skateboards, then to familiar people on slow moving skateboards or bikes, before proceeding to more speed and noise and unfamiliar people. An effective way of reproducing and controlling the intensity of stimuli for noise phobias is to use videotapes or CD's for initial exposure training.

"You can develop a stimulus gradient and stimulus control."

You can develop a stimulus gradient and stimulus control in many ways. In each case, finding a threshold that the pet will tolerate, using rewards that will be most motivating and insuring that the pet is sufficiently trained and controlled to insure a calm and positive outcome is the goal. An important aspect of a behavior consultation is working on how you can most effectively accomplish exposure training. Depending on the problems, some methods of controlling stimulus intensity and setting up exposure gradients might include:

- a) **Distance:** Begin desensitization from a distance and move progressively closer as the pet is successfully counterconditioned.
- b) **Volume:** Play sound stimuli in varying intensities from quiet to loud.
- c) **Movement / activity:** Begin with the stimulus standing, before proceeding to walking slowly, jogging or running.
- d) **Separating stimuli for exposure:** With a problem such as fear of vacuum cleaners, several steps may be necessary. The pet may first need to be desensitized and counterconditioned to the sight of the machine at decreasing distances, then to the sound of the machine at decreasing distances, then to the movement of the machine at decreasing distances and finally to the combined sight, sound and movement of the machine at varying distances. Similarly for pets fearful of cars (see our separate [handout](#)), the pet may need to be desensitized and counterconditioned to entering the car, before turning on the engine, or

before beginning any movement of the car.

e) **Characteristics / similarity:** A pet that is fearful to very young children might be desensitized and counterconditioned to older children, before progressing to gradually younger children. It may also be useful to vary the distance to the children.

f) **Familiarity:** For pets that are fearful, anxious or behave inappropriately with strangers, you could begin exposure with family members, then to family friends, then to strangers. If a particular stimulus (bicycles, skateboards, men with beards, or people wearing hats or uniforms) causes the behavior, start training with known family members riding the bikes or skateboards or dressing in the fear evoking attire.

g) **Location:** Begin in situations in which there is minimal anxiety and move to situations where the anxiety becomes more intense. When you are in locations where problems could arise, ensure that your desensitization and counterconditioning have been successful by exposing your dog to familiar situations or people before adding possible fear evoking stimuli.

In order for desensitization and counterconditioning programs to be successful, it is necessary to have good control of the pet, a strongly motivating reward, good control over the stimulus, and a well-constructed desensitization gradient. For dogs, a leash and head halter is often the best way of insuring control for exposure exercises. A leash and body harness or a carrying cage might work to maintain a distance gradient for cats. (See our [handouts](#) on using these products). Plan each session carefully, keep it short and always end with a success.

"Pets that are punished for inappropriate behavior (fear, aggressive displays) during the retraining program will become more anxious in association with the stimulus."

Pets that are punished for inappropriate behavior (fear, aggressive displays) during the retraining program will become more anxious in association with the stimulus. If the owner is fearful, anxious or frustrated this further adds to the pet's anxiety. As mentioned, whenever a pet threatens a stimulus and the stimulus (person, other animal) retreats, the behavior is reinforced by its success. Therefore, you must find ways of avoiding interactions until you and your pet are properly prepared for exposure.

Where can desensitization and counterconditioning be utilized?

In any situation where your pet is fearful or anxious, use desensitization and counterconditioning to gradually accustom the pet to increasing levels of the stimulus, pairing each exposure with a favored reward. Therefore, whether your pet is fearful of noises such as thunder or fireworks, people, other pets, places, flooring, steps, situations (e.g. veterinary exams), or handling (e.g. grooming, brushing, hugging, lifting), desensitization and counterconditioning can change the fearful or anxious mood into one that is positive. See our specific handouts on each of these topics.

Where can response substitution and controlled exposure be utilized?

In any situation where your pet is exhibiting a behavior that you find undesirable, the goal is to change the response to one that is desirable. Remember that while punishment may stop the undesirable behavior, it does not teach the pet how to behave in a desirable manner in future situations and may actually increase your pet's fear.

With reward based training, the use of training aids such as clickers, targets or head halters, and the proper timing and use of rewards, it should be possible to first achieve the desirable response in the absence of distractions. When the desirable response can be consistently, reliably and immediately repeated, it should be possible to modify the environments and increase the distractions during training. At each level of success the favored rewards are given. Since the final step would be to get desirable outcomes in the situations in which problems arise, you should focus on the type of training that will be needed when actual exposures begin. Set up these situations so that you can insure success by controlling the stimulus, using commands that the pet understands, using favored rewards and using physical control devices such as a head halter if there is a chance that your dog may not immediately respond or focus. For example, for problems that arise outdoors such as barking, lunging, chasing or forging, it may be most effective to use a sit and focus, or back out and turn around (let's go) command (see our handout on [chase behaviors](#)). For indoor problems such as jumping up, play biting, chewing or sleeping in inappropriate locations, sit and focus, down and settle, or a mat and place exercise might be most effective (see our handout on [settle](#) and [pre-exposure](#) training). For some problems, such as dogs that will not give up or release toys and those that will not come on command, the drop / give or come commands may also be necessary.

Ending on a positive note

Despite the best of intentions, during exposure exercises there may be times when your pet gets too close to the stimulus to be effectively calmed or settled. While leaving the situations might be the most safe and practical approach, your dog's anxiety may have been heightened and the behavior reinforced if the session has ended when your dog is fearful, overly excited or barking. In these cases it might be best to try and calm the dog before ending the session. This can be accomplished by having the dog back up a few steps to a level where it is no longer fearful using a back up command, or gently pulling on the head halter while the dog backs up to a sufficient distance where it is calm. Another alternative is to turn and walk in the other direction, while using a command such as "let's go". With a leash and head halter or a pull control body harness (which attaches at the chest) this can be quickly and effectively accomplished by calmly turning and walking in the other direction. Both commands can however, be taught on cue, so that they can be used during these exposure exercises with or without the aid of a head halter (see our [head halter](#), [chase](#) and [pulling](#) handouts). Once at a sufficient distance where your dog can be calmed, you can give a reward and end the session for the day.

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

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