

2009  
ACVB/AVSAB  
Scientific Paper  
and Poster Session



SEATTLE, WASHINGTON • JULY 10, 2008

*In cooperation with the*  
American College of Veterinary Behaviorists  
*and the*  
American Veterinary Society of Animal Behavior

# Schedule of Events

## 2009 ACVB/AVSAB Scientific Program • Friday, July 10, 2009 • Seattle, WA

Time	Title of Presentation	Speaker
<b>7:30-8:30</b>	<b>Registration and breakfast</b>	
8:30-8:45	Introduction – Presidents' Welcome	Barbara Sherman/ACVB Kathy Meyer/AVSAB
	<i>Moderator for morning sessions – Barbara Sherman</i>	
8:45-9:00	The development of laboratory models for the objective evaluation of anxiolytics in dogs	Gary Landsberg
9:00-9:15	Survey of avian veterinarians and bird owners regarding pet bird behavior	Lori Gaskins
9:15-9:30	Behavioral and physiological responses of weaned foals with Equine Appeasing Pheromone®	Jeannine Berger
9:30-9:45	SAM-e: Its uses in veterinary behavior	Marsha Reich
9:45-10:15	Feline litter acceptance: Comparison of brands	Jacqui Neilson
<b>10:15-10:45</b>	<b>Refreshment / Exhibit Break — Refreshments Sponsored by Premier</b>	
10:45-11:00	Management and environmental influences on owner-directed aggression	Valentina Mariotti
11:00-11:15	Case presentation: Interdog aggression	Margaret Duxbury
11:15-11:45	Pedigree analysis of cribbing horses	Julia Albright
<b>11:45-1:00</b>	<b>Lunch and Exhibits — Lunch Sponsored by Elanco</b>	
	<i>Moderator for afternoon sessions – Kathy Meyer</i>	
1:00-1:30	<b>AVSAB Student Award Winner (First Place)</b> Effects of human handling on adult laboratory rabbit behavior	Alton Swennes
1:30-1:45	<b>AVSAB Student Award Winner (Runner-up)</b> Characteristics of inter-dog aggression in multi-dog households and subsequent pre-purchase recommendations	Anna Moore
1:45-2:00	SVBT Technician Tips: Presented by SVBT Selecting and applying appropriate muzzles	Monique Feyrecilde
2:00-2:15	SVBT Technician Tips: Presented by SVBT Utilizing technicians in behavior practice for increased efficiency and efficacy	Monique Feyrecilde
2:15-2:45	<b>RK Anderson ACVB Resident Award</b> Perioperative stress in dogs that underwent elective surgery: Evaluation of platelet monoaminooxidase (MAO) activity	Carlo Siracusa
<b>2:45-3:15</b>	<b>Refreshment / Exhibit Break — Refreshments Sponsored by Premier</b>	
3:15-3:30	<b>How I Treat:</b> Use of trazodone in veterinary behavior	Barbara Sherman
3:30-3:45	<b>How I Treat:</b> A case of hyperkinesis in a dog	Lore Haug
3:45-4:00	<b>How I Treat:</b> A case of trailer-loading problems in a horse	Jeannine Berger
4:00-4:30	<b>How I Treat:</b> Question and answer session	Panel
<b>4:30-4:45</b>	<b>Short break</b>	
4:45-6:30	AVSAB General Business Meeting	Kathy Meyer

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# **Paper Presentations**

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# The Development of Laboratory Models for the Objective Evaluation of Anxiolytics in Dogs

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## Introduction

Anxiety-like behaviors in companion animals, such as separation anxiety and fear of strangers, represent an unmet therapeutic area that impacts both pet and owner. The goals of the current pilot studies were to develop clinically relevant objective laboratory tests to evaluate therapeutic response of anxiolytics. Specifically, we examined two types of anxious behaviours; fear of unfamiliar humans, and noise induced anxiety.

## Materials and Methods

### *Fear of unfamiliar humans*

A veterinary behaviorist identified a group of dogs in our colony that demonstrated fearful and anxious behaviors in their home pens in response to novel people that included retreat, escape and displacement behaviors such as circling. To assess the anxiety, we examined the response of these fearful dogs (N=14) to that of normal dogs (N=14) in two open field tests. Both tests took place in an open field, which consisted of a room approximately 9 x 10 ft. An overhead camera recorded the activity of the dog in the room and the footage was analyzed in either real time or from video using dedicated software. Each test was 10 minutes in length and two tests were used. The first was the open field, in which dogs were placed into the room and allowed to freely explore. We also conducted a human interaction test, in which a human sat in the middle of the room and was instructed not to interact with the dog. Each measure was analyzed independently using a t-test.

### *Noise induced anxiety*

To examine noise induced anxiety, we developed a thunder storm test, which also took place in the open field. This test was identical to the open field but was divided into three phases. During the first phase of the test, the dog was permitted to freely explore the room. Over the next phase, a thunder track was projected over a sound system. The final phase consisted of no thunder. We conducted two validation experiments: the first compared the behavior of the same animals (N=30) on

the open field and thunder tests and the second examined the effects of diazepam (0.5, 1 and 2 mg/kg; PO) in the thunder storm test in 8 Beagle dogs. The data were analyzed using a repeated-measures analysis of variance.

## **Results**

### ***Fear of unfamiliar humans***

Compared to normal dogs, anxious (fearful) dogs showed a marginally significant decrease in distance travelled [ $p < 0.1$  in both tests]. Most notable was the finding that the anxious dogs did not interact with the human in the human interaction test, although this did not reach statistical significance, possibly due to the complete absence of interaction in the anxious dogs.

### ***Noise induced Anxiety***

Compared to open field behavior, dogs showed an increase in inactivity frequency in response to thunder [ $p < 0.001$ ] and an increase in inactivity duration both during and after thunder [ $p < 0.001$  in both cases]. Dogs also spent more time near the door both during and after thunder [ $p < 0.01$  in both cases]. The increase in inactivity likely represents a freezing response whereas the time near the door likely reflects escape behavior. There was evidence of a dose dependent reduction in inactivity frequency after and during thunder that was most notable at the high dose diazepam compared to wash-out [ $p < 0.01$  in both cases], as well as for sensitization of the effect at wash-out compared to baseline. This finding with diazepam is opposite to that expected with a sedative and suggests that diazepam's anxiolytic effect was to increase activity under an induced stressor; no differences were seen prior to the playing of the thunder track.

## **Discussion**

The results of these studies indicate that anxious behavior can be objectively measured in the laboratory and that the open field tests described can be used to objectively measure the effects of anxiolytics.

## **Acknowledgements**

These studies were supported by CanCog Technologies Inc.

## **Keywords**

Anxiety, behavior, canine, fear, thunderstorm

# Survey of Avian Veterinarians and Bird Owners Regarding Pet Bird Behavior

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## Abstract

An internet survey of 84 avian veterinarians was conducted to determine which behavior problems are seen most commonly in their psittacine patients (Psittaciformes) and the treatment recommendations for those behaviors. Additionally, 203 pet owners were surveyed via the internet to obtain information regarding their experiences with behavior problems in their psittacines. Veterinarians reported the three most common problematic behaviors to be feather picking, chronic egg laying and aggression, in that order. Owners reported a different list and a different order for their three most common bird behavior problems; aggression, screaming and feather picking. Even though aggression is the most problematic behavior for owners, only 33 per cent of owners of aggressive birds sought advice from their veterinarian. Eighty one per cent of owners of feather picking birds and 25 per cent of owners of birds that scream consulted their veterinarians. More than 50 per cent of owners sought advice somewhere else before talking to their veterinarian, and most of them turned to the internet or books for advice. Recommendations made by veterinarians did not always correspond to the advice owners remembered receiving.

Pet psittacines display behavior problems that are not being addressed by veterinarians because owners do not always seek veterinary help for the more common problems they experience. Veterinarians should question owners about problem behaviors to facilitate discussion and give recommendations in writing to improve the treatment of pet birds.

## Acknowledgements

Veterinary Information Network (VIN)

## Keywords

Avian, behavior, bird, pet

# Behavioral and Physiological Responses of Weaned Foals Treated With Equine Appeasing Pheromone: A Double-Blinded, Placebo-Controlled, Randomized Trial

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## Abstract

Weaning, particularly the widespread practice of abrupt separation of the mare and the foal, has been shown to be a stressful event for horses. Physiological changes in foals measured after weaning include increased blood cortisol concentrations and a subsequent decrease in cell-mediated immune responses. This study is the first to assess the effect of an equine appeasing pheromone (Modipher EQ Equine Appeasing Pheromone/E.A.P. Mist<sup>®</sup> [EAP]) as an aid for reducing the behavioral and physiological signs of stress during weaning, using a randomized double-blinded, placebo-controlled trial. Fourteen Quarter Horse foals were separated from their mothers between 105 and 146 days of age, in age-matched pairs, and placed in 3.66m x 3.66m stalls (one treated and one control foal in each stall). Treated foals received the synthetic analog of the EAP by intranasal pledge 30 minutes before separation and twice daily thereafter for 48 hours. Control foals received placebo by intranasal pledge on the same schedule. The foals were continuously videotaped for 48 hours post-weaning to monitor behavioral parameters. Blood samples were drawn 24 hours pre-treatment and 24 and 48 hours post-weaning for evaluation of physiological indicators of stress (serum cortisol). Behavioral and serum cortisol measures were similar between groups; treatment with EAP did not seem to have a significant effect on decreasing overall stress related behavior or blood cortisol levels in newly weaned Quarter Horse foals.

## Acknowledgments

This study was funded by the Center for Equine Health, University of California Davis. We would like to thank Pherosynthese s.n.c., Le Rieu Neuf, 84490 Saint

Saturnin lest Apt, France, Dr. Emanuel Gaultier for supplying the product EAP and the placebo.

### **Key Words**

Foal, weaning, pheromone, serum cortisol, randomized controlled trial

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# **S-Adenosylmethionine: Its Uses In Veterinary Behavior**

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S-Adenosylmethionine (SAM-e) is synthesized from the essential amino acid l-methionine and adenosine triphosphate (ATP) and is found in every living cell. It functions as a methyl donor on over 100 different known reactions leading to the production of neurotransmitters, nucleic acids, proteins, hormones, and phospholipids. SAM-e is involved in transsulfuration pathway leading to the synthesis of glutathione, a major cellular antioxidant, particularly in the liver and brain. It is also involved in aminopropylation pathway leading to the synthesis of polyamines which play a role in a number of cellular processes such as replication, transcription, and translation, and are modulators of a variety of ion channels (Bottiglieri 2002; Hardy 2002; Mischoulon & Fava 2002).

Because SAM-e functions in so many biochemical pathways it appears to have many clinical uses, some that have been identified and studied and likely many yet to be elucidated. Published clinical applications for SAM-e include its use in liver disease and as a treatment for cognitive dysfunction in dogs (Center et al 2005; Rème et al 2008). In humans, clinical trials have shown that SAM-e is clinically and statistically better than placebo, and is as effective as tricyclic antidepressants (TCAs) in the treatment of depression (Bottiglieri 2002; Hardy 2002; Mischoulon & Fava 2002); it may also be used as an augmentation for therapy in Alzheimer's disease (Shea & Chan 2008).

I use several criteria in selecting SAM-e as a therapeutic agent in a behavior case. I consider the use of SAM-e in any case that has liver enzyme elevation. I may also use SAM-e if a patient has vague nausea or is labeled by the client as being a "picky eater" or as "acting old". Some clients are wary of using selective serotonin reuptake inhibitors (SSRIs) or TCAs but are receptive to using SAM-e. If the patient doesn't seem to respond well enough to a SSRI or TCA I may augment it with SAM-e.

The dose of SAM-e that I use is what is typically used for liver disease, 20 mg/kg once daily an hour before or two hours after a meal (Center et al 2005). SAM-e is supplied in a number of formulations. My initial recommendation is to use a vet-

erinary product because there is no regulation in nutraceutical products and there may be differences in bioavailability between veterinary and over the counter (OTC) products. With the exception of a new chewable veterinary SAM-e product, it must have an enteric coating and be packaged individually in a sealed foil strip. It cannot be packaged as a bottle of loose tablets since it can degrade and oxidize in the presence of moisture (Center et al 2005).

Drug interactions and side effects are rare. Since SAM-e may increase serotonin levels there are warnings about its concurrent use with SSRIs or TCAs due to the potential for serotonin syndrome. I have not had a drug interaction and have used it concurrently with fluoxetine 0.5 mg/kg once daily and/or amitriptyline 1-2 mg/kg twice daily. I have not and would not use it in conjunction with a monoamine oxidase inhibitor (MAOI). Rare side effects include nausea and diarrhea.

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Shea TB, Chan A 2008. S-Adenosyl Methionine: a natural therapeutic agent effective against multiple hallmarks and risk factors associated with Alzheimer's disease. *Journal of Alzheimer's Disease* 13:67-70.

## Keywords

Dog, S-Adenosylmethionine, SAM-e

# Feline Litter Acceptance: A Comparison Of Brands

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## Abstract

Feline house-soiling is the most common behavioral problem in cats. One cause of house-soiling is litter rejection, so identifying the most accepted litter may help to prevent/treat house-soiling. Previous studies have documented that cats use fine, granular litter material (clumping litter) more often than other types of litter. However, clumping litter isn't all equal. The primary purpose of this study was to test the comparative acceptance by cats of three top selling brands of commercial litter: Fresh Step Scoop®(FSS), Arm and Hammer Super Scoop®(AHSS) and Tidy Cats® Scoop Instant Action (TCSIA). Cats housed in four colony rooms (approximately 8cats /room) in a shelter were used for the study. There were two phases to the study: the first phase tested FSS vs. AHSS and the second phase tested FSS vs. TCSIA. Two boxes equal in every parameter with exception of the litter were placed in the rooms. Excrement collected from the boxes over thirty-two hours was weighed and used as a measurement of acceptance. In addition, for the FSS vs. TCSIA portion of the study, motion activated video cameras were utilized to capture all litterbox usage during the study period. Phase one of the study (FSS vs. AHSS) the results showed more excrement deposited in the FSS (9509 grams) than in the AHSS (6090 grams); the analysis of variance (ANOVA) were statistically significant ( $p=0.031$ ). Phase two of the study (FSS vs. TCSIA) showed more excrement deposited in the FSS (6402 grams) than in the TCSIA (3851 grams).

## Acknowledgements

Study supported by Clorox Company. Statistical assistance from Mike Stroud.

## References

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## Keywords

Cat, feline, house-soiling, litter

# Management and Environmental Influences on Owner-Directed Aggression In Dogs

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## Introduction and Objective

Canine aggression is a multi-factorial problem and is thought to be strongly affected by genetics and the social and physical environment of the dog<sup>1</sup>. Few studies have been conducted on the effect of environmental factors on canine aggression and most of them are focused on dietary aspects<sup>2,3,4</sup>. The aggressive behaviour of the dog is of interest for several reasons:

1. It is a major public health issue, as for example in the USA approximately 4.5 million people are bitten by dogs each year.<sup>6,7</sup>
2. The most common victims of dogs bites are children<sup>8</sup> and elderly people.<sup>9</sup>
3. According to epidemiological data collected in the USA and the UK, aggression is the most common behavioral problem in dogs. <sup>10, 11</sup> Similar results have been published in a recent study carried out in Spain.<sup>12</sup>
4. Aggression is the main cause of euthanasia of healthy dogs and a frequent reason for abandonment. <sup>13,14</sup>

A retrospective study was designed to explore the influence of environmental factors on Owner-Directed Aggression.

## Material and Methods

Clinical records of 500 dogs presented for a behavior problem at the Animal Behavior Clinic at the Autonomous University of Barcelona (Spain) between 1997 and 2007 were analyzed. Only animals without organic pathology but with diagnosed behavior pathology were included.

Clinical History and general information about age, breed, sex, neutering status, characteristics of the physical environment, type of food, feeding habits, frequency and duration of walks, overall physical activity and training methods (including the use of punishment) was obtained for each dog. Associations between all these factors and owner-directed aggression were assessed by comparing the group of dogs showing aggression towards family members with those presented for a behavior problem other than aggression. All comparisons were done using Chi-square tests (SPSS 13.0).

### Behaviour and Environmental Evaluation (Table 1)

**Table 1: Clinical Data**

Characteristics of the Animal	Environment and Diet History
Gender	Type of the environment
Age	People and Animals the dog lives with
Breed	Daily routine (time alone, etc...)
Origin	Physical exercise: duration and frequency
Weaning age	Generals behavioural habits
Weight	Current and previous type of food
Other	Quantity and Feed pattern

Behaviour Patterns	Pathologic Behavior
Towards family members	Aggression
Towards children	Anxiety
Towards strangers	Phobias
Towards other dogs	Stereotypes
Elimination patterns	Other problems
Vocalizations	

### Result and Discussion

A significant association was found between feeding management and Owner-Directed Aggression.

The prevalence of Owner-Directed Aggression was lower in the group of free-choice dogs than in the group of meal-fed dogs ( $p < 0.05$ ). This could be due to the

fact that dogs perceive food as a less valuable resource when it is always available. Dogs routinely confined to small areas (<10 m<sup>2</sup>) were overrepresented in the group of aggressive dogs (p=0.001). Dogs that were left alone for more than 8h per day were more likely to show aggression towards family members than dogs that were left alone for shorter periods (p<0.05) and it is suggested that a lack of social and physical stimulation could cause chronic stress which may lower the threshold for aggression<sup>5</sup>.

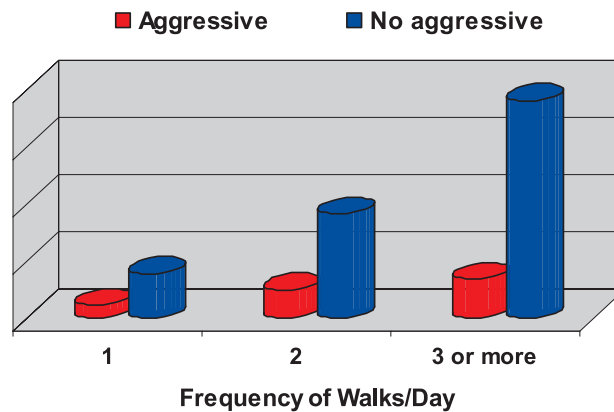


FIGURE 1. Dogs that walked more often (3 times/day) and more than 30 minutes per day were less frequently observed in the group of aggressive dogs than dogs that exercised more than 30 minutes per day (p=0.05).

Dogs that walked more often (3 times/day) and more than 30 minutes per day were less frequently observed in the group of aggressive dogs than dogs that exercised more than 30 minutes per day (p=0.05). This result could be partially explained by the increase in serotonin turnover that follows regular physical activity, as it has been observed in other species including human beings<sup>6</sup>. Dogs that were physically punished were more likely to show aggression than those that were punished verbally or not at all (p=0.02). Physical punishment has been linked to increased levels of stress, which may result in a higher tendency to display aggression<sup>7</sup>.

### Clinical Implications

Although further studies are needed to confirm a cause-effect relationship between aggression and the environmental factors studied, our results give some insights into the etiology and risk factors of owner directed aggression in dogs, which could help veterinary practitioners to develop both preventive and therapeutic protocols.

### Keywords

Aggression, Dog, Management, Diet, Owner-Directed Aggression

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# **Case Presentation: Treatment of On-Leash Dog-Dog Aggression Based On C.A.T. (Constructional Aggression Treatment)**

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Aggression to unfamiliar dogs is a common concern of dog owners. It is often seen in dogs that are somewhat fearful and lack social skills due to inadequate socialization. Territoriality and competitiveness between dogs can also play a role. On-leash, aggression towards unfamiliar dogs may be aggravated when owners misread and interfere with dog-dog communication via restrictive leash handling. Aggressive behavior often ‘works’ and increased distance between the dogs, i.e. relief from fear, serves as biologically powerful reinforcement and the problem worsens over time. Pre-emptive aggressive reactions allow the dog to completely avoid dog-dog situations and never find out that in reality, no threat was present. This makes full resolution difficult.

In the past, efforts to address the problem of aggression towards other dogs focused on ‘correcting’ the dog. These approaches created welfare concerns for the dog, degraded the bond between the dog and its handler, and added fuel to the fire by strengthening a classically conditioned fear response to the stimulus of ‘other dog’. These concerns are avoided through techniques based on systematic desensitization and counter-conditioning an alternate operant response such as ‘look at the handler, not the other dog’. Counter-conditioning can work well but requires skilled handling and months of detailed work to gain incremental improvement. In the authors’ experience, counter-conditioning can be very effective in producing a dog who is more manageable around other dogs, but may not result in improved sociability with other dogs.

The dog whose case is presented here had presented for on-leash dog-dog aggression. For the first 9 months he was treated with traditional operant counter-conditioning techniques. The dog had learned the alternative response well, and the owner had been mostly successful at working outside the dog’s trigger distance. The dog would make months of progress, have an unavoidable experience with another dog at close range, and lose ground again. An alternate technique was then attempted using negative or ‘removal’ reinforcement for calm behaviors, an approach based on Constructional Aggression Treatment (C.A.T.) (Snider, Rosa-

les-Ruiz 2007). The dog was systematically presented with a decoy dog at or just closer than the distance where he would react. He was allowed to react without interference, but calmer, more social behaviors (like looking away from the other dog, blinking his eyes, breathing normally, and softer facial expression) were reinforced by removal of the decoy dog. By the end of the session, the dog was able to interact appropriately with each of 6 well- socialized decoy dogs, both on and off leash, individually and in a group. The techniques used in this case will be described with supportive video footage.

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# **Pedigree Analysis and Factors Associated with Cribbing in Thoroughbreds Sold at Auction**

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Cribbing is an abnormal equine stereotypic behavior in which the horse grasps a horizontal object with its incisors and flexes its neck muscles while aspirating air into the esophagus. Thoroughbreds (TBs) sold at auction must be announced as such at the time of sale. The aims of this study are to: evaluate any association of cribbing with age, sex, coat color, whether the horse raced, money earned, or auction sale price; to create a pedigree of cribbing TB for future gene mapping studies.

Records are being examined for approximately 30000 TBs  $\geq 2$  years old offered for sale at four large US auction houses. Currently 1203 cribbers in 33 sales have been identified and an equal number of non-cribbing controls were chosen at random in a case-control study. Logistic regression analysis showed no association between sex, color and likelihood of cribbing, but age at the time of auction ( $\chi^2 = 17.89$ ,  $p < 0.01$ ) and being raced ( $\chi^2 = 17.72$ ,  $p < 0.01$ ) were significantly associated with cribbing. Cribbing, sex, color and age were not significantly associated with sale price or money earned during racing career.

Using a pedigree program and chi-square analysis, cribbing appears more than expected in certain lineages. The next phase of the study will include collecting DNA samples from members of these families and genotyping using single nucleotide polymorphism markers. This family-based, whole genome association strategy will increase the likelihood that marker differences are related to the trait in this genetically heterogeneous species.

# Effects Of Human Handling On Adult Laboratory Rabbit Behavior

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## Abstract

Adult New Zealand white rabbits were handled on a routine basis to determine whether such treatment would make their behavior more compliant and less fearful during routine laboratory handling. After being handled over three weeks, these rabbits were evaluated by novel personnel and compared to minimally handled controls. Evaluators scored the rabbits on a subjective scale for their relative resistance to being scruffed and removed from their cages, being transported to a treatment room, and their behavior at all stages of the exercise. Upon evaluation, rabbits that had received handling treatment were scored significantly less resistant than non-treated controls. During evaluation, behaviors that the rabbits displayed when they were approached in their cages and while being stroked and restrained on a treatment table were recorded for all rabbits and compared among the most docile and resistant subsets. These subsets displayed different behavior profiles throughout the exercise. This study illustrates the potential for human handling to reduce fear of humans, neophobia, or both in laboratory rabbits, and thus reduce stress and improve rabbit compliance in laboratory procedures, and also improve animal welfare through exposure to novel stimuli.

# Characteristics Of Inter-Dog Aggression In Multi-Dog Households

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Seventy two cases of inter-dog aggression between house sharing animals were compared to a control group of 53 multi-dog households with no aggression problems. All cases presented at Cornell University's Animal Behavior Clinic between 1998 and 2008. Characteristics of the households, the pairs of dogs involved and the aggressor victim relationship were examined using nonparametric tests and a Probit regression analysis. Results showed that being the same breed or size did not affect the likelihood of aggression developing despite the fact it may produce similar resource holding potentials (RHP) between the animals. Significant risk factors identified in the development of aggression were; having three dogs in the home, and having more of one gender, especially more females than males. The majority of aggression occurred between two females. The profile of the aggressor, within a fighting pair of dogs, was significantly identified as most likely to be a female dog, younger, larger (if of a different breed) and entering the home more recently than its victim. This information could be utilised in providing advice to owners hoping to purchase a new dog and in re-homing centres, hence reducing the risk of aggression developing in the home.

## Selecting And Applying Appropriate Muzzles

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Many tools and techniques are available to the veterinary team to assist in the handling of the aggressive patient, and certainly behavior practices see their share of aggressive patients. A good understanding of the variety of tools available to assist in the handling of fractious patients will benefit every veterinary practitioner. Today's discussion will focus on selecting and applying muzzles for use in the veterinary office as well as for use by pet owners as needed in the home.

Nylon fabric muzzles come in 2 basic styles: open-front and closed-front. Both have adjustable straps and a clasp closure. Benefits to the nylon muzzle include soft materials for patient comfort and the ability to place the muzzle quickly. Drawbacks include nylon muzzles are only appropriate for very short medical procedures, and can be completely inappropriate for some patients. Some patients can remove the muzzle quickly unless manually restrained. The mucus-membrane color and respiratory effort of every muzzled patient must be closely monitored as serious side-effects can result from the inappropriate use of nylon muzzles. In addition, staff members are not always entirely protected by the nylon muzzle, as the patient can sometimes bite through the soft nylon fabric and inflict injury.

Lightweight vinyl muzzles are wonderfully useful. They are best known by the name Jafco® (Jafco Equipment Co., Dublin, CA). They are basket-shaped but made of solid vinyl with ventilation holes in the plastic to allow normal air flow. Jafco® brand muzzles have a padded nose band, rubberized durable straps and can be ordered with a buckle or a quick-release to secure the muzzle. Benefits to vinyl muzzles include durable construction preventing most every dog from successfully biting. They are roomy enough to allow the dog to open its mouth and pant, and the muzzle can be used to prevent the ingestion of foreign objects, licking of wounds or self-mutilation in addition to protection from biting. Lastly, Jafco® and Jafco-style muzzles can also be constructed of other materials including leather, and are often available for "custom construction," for dogs requiring regular muzzle use, particularly brachycephalic breeds. A drawback is that most Jafco muzzles are made of opaque plastic, making it difficult to monitor the color of patient mucus membranes. Transparent vinyl muzzles can be ordered by request, though the vinyl is slightly less durable compared with opaque varieties.

Also, the solid plastic with punched holes can restrict effective patient-cooling in extreme circumstances.

Basket muzzles are most often constructed of wire or plastic in a mesh pattern. They are available in a wide variety of shapes and sizes, and can be found to fit even brachycephalic dogs. They can be constructed with padded nose bands, buckle or quick-snap closures and single or double barriers at the front of the muzzle. Benefits to the basket muzzle include the dog's ability to pant, drink and be fed treats while wearing the muzzle. Most of these muzzles are light in weight and are very effective at preventing a bite. They allow the best opportunity to visualize the patient's color and respiratory effort of the muzzles discussed so far. It is simple to condition most patients to voluntarily wear the basket muzzle and it can be left on the supervised patient safely for prolonged periods, and the basket will prevent the ingestion of large foreign objects. The dog can also safely vomit with the muzzle on without aspiration of vomitus. Drawbacks include finding the right muzzle for each individual dog because of the extremely diverse sizing capabilities of this muzzle, the appearance of the muzzle being dissatisfactory to clients, and the risk of fingers being placed between the mesh of the basket and a bite being sustained.

Air Muzzles<sup>®</sup> (Soft Paws, Three Rivers, CA) are ABS plastic globe-shaped muzzles intended to allow the animal freedom of oral and facial movement without restricting air flow. They are designed for cats and small dogs. Benefits to the Air Muzzle<sup>®</sup> include the fact the patient can see and breathe normally. The patient can be fed treats and administered oral medications as well. The Air Muzzle<sup>®</sup> also comes with an oxygen administration attachment. Drawbacks to the Air Muzzle<sup>®</sup> include high price, the patient is not able to eat or drink unassisted, and the patient can easily remove its own muzzle without manual restraint.

Plastic cone muzzles are constructed of a sheet of molded semi-rigid plastic shaped into a cone with rivets, and with an adjustable lacing system to secure the muzzle. The front of the muzzle has a small aperture allowing for visualization of the patient without the risk of a bite. The plastic is opaque, so the muzzle also acts as a mask for the patient. Benefits of the cone style muzzle include it is extremely useful for fractious cats during treatments or blood sampling, it can be safely used on small brachycephalic dogs and is quick and easy to put on. Drawbacks are the fact it is only appropriate for brief use during treatments or handling because it is opaque and the animal can not see.

Elizabethan collars can often be used as a muzzle substitute for brachycephalic

dogs during treatments such as x-rays or venipuncture, but consideration must be taken to minimize patient stress. Many dogs and cats object to the application of the Elizabethan collar and it should be used only on an as-needed basis. However, it is a very useful tool to prevent brachycephalic dogs and some cats from biting the operators during treatments without restricting breathing or vision.

Many of our patients must be muzzled to obtain laboratory samples during the initial visit. Applying a muzzle can be tricky, but with the help of skilled staff and a few good tricks, is almost always possible. For patients who will accept treats, simply feeding treats strategically so the dog accepts muzzle application is the easiest method. For dogs who are NPO or unwilling to eat, often times restraining the dog with a leash at the door, then opening the door and allowing the dog to get distracted by trying to exit will allow the operator to place the muzzle from behind while the dog is distracted.

Selecting the appropriate muzzle for each patient, and identifying patients who require a muzzle will keep staff, clients and patients as safe as possible while in our care. Basket muzzles can be left in place for long periods under supervision, and many dogs benefit from conditioning to accept the basket muzzle willingly. A variety of custom muzzles are available, and nearly every muzzle can be equipped with leather or nylon straps, and a quick-snap or buckle closure.

All of the muzzles described during this presentation are readily available through <http://www.dogmuzzle.com>.

### **Keywords**

Basket, dog, Jafco, muzzle, technician, tips

# Utilizing The Veterinary Technician In Behavior Practice

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Success in behavior practice relies on good outcomes for patients, clients and the veterinary team. Leveraging the veterinarian's time so he or she is spending a majority of time diagnosing, prescribing, and performing surgery will result in an incredibly efficient practice with the capacity to serve a maximum quantity of patients and clients. Too often, the veterinary technician is an under-utilized tool in the behavior practice. I submit many tasks can be delegated to a skilled behavior technician, streamlining both the veterinary practice and the client and patient experience within that practice.

A complete behavior history is the cornerstone for the first visit in any veterinary behavior practice. Often these documents are lengthy and require a great deal of time for the pet owner to complete. Frequently the pet owner will be incomplete in answering questions, or give few helpful details. Placing the veterinary technician in an active role during the acquisition of the behavior history can yield great benefit. Technicians can field questions from the client, set up an appropriate appointment time and prepare the client to receive the history form. The client can be provided with the technician's email address or fax contact, and the client and technician can work together to complete the behavior history form. The technician can then pre-screen the completed history form, going back to the client and obtaining any missing or incomplete information, and answering any client questions about the behavior history form. During the pre-screening process, the technician can likely evaluate if video taping the presenting complaint would be useful, and arrange with the client to video the behavior and submit the videotape in advance of the appointment. The technician can also tell the client what to expect during the appointment, knowing that clients are often apprehensive about visiting the behavior office.

By obtaining a complete verbal, written and video history, then presenting this history to the veterinarian in advance, the technician is maximizing the time of both the veterinarian and the client. The veterinarian will be better prepared at the initial appointment, without having had to field multiple calls and emails prior to the visit. In addition, the client has started forming a useful relationship with the behavior technician and will accept the technician's vital role in the treatment process.

Once the veterinarian has reviewed the history, examined the patient and made a diagnosis or diagnoses, the veterinarian will next prescribe treatment to address the problem. Treatments often involve both pharmaceutical therapies and behavior modification protocols. Technicians are an invaluable tool during the implementation of the treatment plan for every patient.

It can be easy for clients to become overwhelmed with the onslaught of information during behavior consultations and treatments. The technician is well-equipped to obtain signed off-label consent when necessary, explain the mode of action of many medications, common side effects, scheduling doses, implementing appropriate medication administration (so as to reduce patient stress), and what to expect during the initial phase of treatment. The technician can then follow up with the client at regular intervals by telephone or email to verify the client is having good success medicating the pet.

Perhaps most importantly, the behavior technician can instruct the client in understanding the diagnosis and implementing the behavior modification methods and protocols prescribed by the veterinarian. Clients will need time and patience in understanding the appropriate application of methods like observing patient body language and interpreting arousal levels, operant conditioning, classical conditioning, desensitization and counter-conditioning, protocols for relaxation and command-reward based handler interactions. The technician has the skills and time to empathize with the client, demonstrate methods and follow-up at regular intervals to help assure successful outcomes for the client and patient.

Technicians will likely gain the necessary knowledge through repeated client-based interactions to edit and reformat history forms, client handouts and other educational materials as well. Delegating the tasks of client communication, thorough history acquisition and presentation to the veterinarian saves time for the veterinarian, veterinary practice and the client. Additionally, utilizing the knowledge and skills of the veterinary technician to support and educate the client during the treatment phase allows the veterinarian to treat more patients in a timely fashion. Lastly, intimately incorporating the behavior technician into the treatment of every patient and education of every client from the point of initial client contact builds a bond between the client and the veterinary team as a whole, increasing the odds for successful treatment of every patient presented to the behavior practice.

### **Keywords**

Behavior, efficiency, practice, SVBT, technician

# Perioperative Stress In Dogs That Underwent Elective Surgery: Evaluation Of Platelet Monoaminooxidase (MAO) Activity

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Perioperative stress is experienced by animals undergoing surgery, due to surgery intervention itself and to related procedures. The activity of platelet monoaminooxidase (MAO) has been used to assess psychological and physical stress and neuropsychiatric disorders in humans and laboratory animals. The objective of this preliminary study was to describe the platelet MAO stress responses in dogs that underwent elective surgery in normal clinical practice conditions.

Twentyone dogs were submitted to elective orchiectomy or ovariohysterectomy. A pre-surgery serum sample was collected 30 minutes before the surgery intervention; this sample was used to obtain platelet MAO basal value (T0). Thereafter dogs underwent surgery, where a standardized surgical protocol was used. After extubation they were transferred to the Intensive Care Unit (ICU) cage, where every 30 minutes the degree of sedation was checked. When the animal was able to stand in the ICU cage, a second serum sample was collected (T1). A long-term postoperative sample was collected 24 hours after the intervention (T2). Platelet MAO activity was then determined. Values of platelet MAO at different times and their differences from basal value were analyzed by paired t tests. Differences were considered significant when  $P < 0.05$ .

MAO activity value at T1 was significantly increased when compared to basal value at T0 ( $P < 0.01$ ), and MAO activity value at T2 was significantly increased when compared with both basal value at T0 and value at T1 ( $P < 0.01$  for both comparisons). MAO activity was a sensitive marker for postoperative short and long-term stress assessment.

# How We Use Trazodone In Dogs

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Trazodone hydrochloride is a drug with application in the pharmacologic treatment of anxiety-related behavioral problems in dogs. Trazodone, classified as a serotonin 2A antagonist-reuptake inhibitor (SARI), is commonly used as an adjunctive agent over a wide dose range to enhance sleep in humans treated for depression with SSRIs. We have used the drug for over 10 years in our specialty behavior clinic, alone and as an adjunctive agent in combination with SSRIs, TCAs, and benzodiazepines for treatment of canine anxiety disorders. These have included generalized anxiety, separation anxiety, thunderstorm phobia and the enhancement of behavioral calming in the management of other behavioral disorders. Observed adverse events attributed to trazodone have been uncommon and generally benign. Although not observed in our treatment population, serotonin syndrome should be considered as possible sequelae to concurrent use of serotonergic agents.

Based on empirical effect, we have developed a dosing schedule that involves a three-day initiation dose (1.25-5 mg/kg), followed by a therapeutic dose (3-10 mg/kg). We often utilize trazodone on a daily basis when recommended doses of TCAs or SSRIs do not resolve clinical signs or on a PRN basis when problem behaviors are sporadic or episodic. More recently, we have utilized trazodone to facilitate prescribed cage confinement and exercise restriction in dogs following orthopedic surgery. In such cases, the initiation dosage is maintained while the patient concurrently receives the analgesic tramadol, a drug with serotonergic activity. Cases illustrating the use of the trazodone in clinical practice will be presented.

## Keywords

Anxiety, confinement, dog, separation anxiety, thunderstorm phobia, trazodone

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# How I Treat: Long Term Follow-Up on a Case of Canine Hyperkinesia

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## Signalment

“Kelly”, 4 yr f/s Golden Retriever

## CC

Presented October 2005 for aggression to other household dogs, hyperactivity, and resource guarding to dogs and people

Kelly had been taken in as a foster dog at 1 year of age. The owners elected to permanently adopt her as they felt an average family/owner would be unable to deal with her behavior issues.

At adoption, Kelly constantly paced when loose in the house. The owner crated her during at times and the dog eventually learned to settle in the crate; however, she continued to show restless and hyperactive behavior when out of the crate. Kelly also guarded food, feces, vomit, toys, gloves, socks and other items that another dog may show interest in. She also guarded some locations. Several days after adoption, she began attacking the oldest dog in the home when the dog approached the owner. Kelly progressively showed more posturing toward other dogs often ending in fights.

Kelly also exhibited shadow and light chasing and coprophagia. She showed “obsessive” focus on balls and excessive water drinking. She became easily aroused by various environmental noises. The owner described her as fearful of novel items such as yardsticks, new sounds, etc. Her reaction to these and other stimuli might include barking, pacing, salivation and lip smacking or attacking another nearby dog.

Kelly would growl if the owner pulled her by the collar to move her away from a resource or try to interrupt her in an agitated state.

Both owners were agility competitors and experienced trainers. Kelly was a tal-

ented agility dog and did not show aggression to other dogs outside the home. She did exhibit frequently lack of focus and distractibility during training and trialing and would often run off.

Despite 3 years of training and “leadership” exercises, Kelly’s aggression to the other dogs was increasing. She also continued to exhibit agitation and the owner could not control her tendency to become highly aroused.

Physical Exam: HR = 70 bpm      RR = 18 bpm      T=101.8      Wt = 50.3 lbs  
No abnormalities were found on physical. During the consult, she spent most of her time sitting near the owner and panting although she did periodically lie down.

Biochemical abnormalities: low normal neutrophils, Urine specific gravity = 1.008

### **Initial Interventions**

1. Continue management steps previously established by the owners but with increased separation from the other dogs.
2. Add Dog Appeasing Pheromone
3. Begin working on Relaxation tasks and massage
4. Add Fluoxetine 10 mg PO QD for 2 weeks, then increase to 20 mg QD.

### **Result**

1. Increased contact time and training with owner seemed to increase Kelly’s “challenges” to the other dogs
2. Fluoxetine improved sound reactivity and pacing by 40-50% but worsened agitation/aggression to dogs and fearfulness by 60-70%.

Fluoxetine was withdrawn and sertraline started at 25 mg PO QD. Owner noticed increased agitation and mania on day 3 which was more dramatic than on the Fluoxetine.

Kelly was put on methylphenidate trial starting at 10 mg TID which reduced the dog’s reactivity by 30-40% but reactivity reoccurs 6 hours after dosing. Aggression was also reduced to some degree. Dose was increased to 15 mg which resulted in a 30% reduction in aggression but a more dramatic improvement in the dog’s focus and attentiveness to the owner. Sound sensitivity also improved and a reduction in pacing was evident.

Early 2006, Kelly’s thyroid retest showed low T3 and low TSH and low normal

Free T4 (by RIA). Kelly was placed on a trial of soloxine at 0.2 mg BID. Both this dose and 0.1 mg made her behavior relapse similar to when she was on sertraline. Soloxine was discontinued.

Over the course of the next several months, Kelly was placed on a low, but increasing dose of clomipramine, starting at 5 mg BID. Each dosing produced the same biphasic response. Initially Kelly showed “crazed” manic behavior. She was very euphoric and active but no increase in aggression or reactivity. Owners had a sense of “an increase in generalized well-being.” Mania continued for 3-5 weeks at which point the owners observed a reduction of the mania but continued improvement in Kelly’s reactivity to the other dogs and her overall arousal. She is more controlled around resources and can relax with the owner lying on the bed for the first time in her life.

By February 2007 she was on clomipramine to 20 mg BID. After the initial mania, the owner reported that Kelly was even more focused and would perform default behaviors (e.g. sitting at the back door without being asked rather than taking 15 minutes to look around). She allowed the owner to stroke and massage her without getting aroused. She also allowed the owner to calmly clip her nails with no agitation or post-trim barking.

Winter 2007: Kelly relapses in several behavioral areas: focus and distractibility; her consumption of inappropriate items increases and she begins to counter surf again. Her reactivity to outside stimuli (people, wind, and deer) increases and the owner has difficulty calming and controlling her. The owner attempted to increase methylphenidate to 25 mg per dose and saw improvement for a week or two only.

We investigated a change in drug supply for methylphenidate but there was no alteration in the pharmacy source. Kelly was placed on D-amphetamine starting at 2.5 and titrating to 7.5 mg over several days. The lower doses showed no change but the 7.5 mg dose induced dramatic compulsive behaviors, as well as pacing, high arousal and polyuria. D-amphetamine was discontinued.

Early June 2008: Kelly’s thyroid values (checked every 6 months) showed a trend toward decreasing Free T4 and increasing TSH although she was not actually in the abnormal range. Soloxine was started at 0.2 mg BID which resulted in normalization of her behavior to baseline.

Subsequent follow up will be discussed during the presentation.

# The ABC's Of Trailer Loading Horses

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## Abstract

When addressing horse loading problems first an extended history form will be sent to the clients and a 1-2 hour appointment is scheduled. During this initial appointment the problem list based on the behavior observations and evaluations away from the trailer and in the vicinity of the horse trailer will be formulated. Many natural horsemanship techniques addressing trailer loading issues involve flooding in combination with negative reinforcement independent of an ethological diagnosis. This approach can take a toll on horse's welfare and might not be safely applied by the horse owner. Further, it important to schedule enough time to properly diagnose the trailer loading problem and tailor a specific behavior modification plan for each client-horse-pair to safely and successfully treat the trailer loading problem.

There are three main behavioral issues leading to the presenting complaint of not loading into a horse trailer. There are the entering problems; here the horse is either not comfortable entering a dark, cave like environment or the transition of stepping onto a ramp or a step up into the trailer creates a problem. Secondly, there are the resting in the trailer problems; here the horse is not comfortable standing confined and resting in the trailer with an unsteady or shaky floor. And thirdly there are the exiting problems; here the horse is unwilling or even frightened to step backwards. Each loading problem needs to be addressed based on the motivation that drives the behavior problem. The treatment solutions are as straight forward as ABC.

**A: Anticipate:** Determine first if the operant conditioned response for forward, stop and backwards cues are sufficiently established in absence of a trailer. This can be done in any arena or even a paddock area. If the horse is responding well to all commands with soft cues I will then use some obstacles to test the response in the presence of different obstacles. Once the horse responds to the commands in a command-response-reward manner, I will then approach the trailer.

**B: Behavior:** The next step involves approaching the horse trailer in such small steps that the unwanted behavior is not displayed (Desensitizing). I want to maintain the command-response-reward approach I have achieved in step A. Close observation of the horse's behavior and any changes in body language, defecation, resistance to commands and monitoring the heart rate will help determine any change in emotional response in the presence of the trailer. If there are signs of fear responses I will add counter conditioning to this step.

**C: Consequence:** Trailer loading is not a natural behavior for horses and therefore needs to be learned. It is important to consider the consequence of wanted and unwanted behavior during the loading process for the horse. Each straight step forward towards the horse trailer needs to be controlled and appropriately rewarded. Food can be a very helpful tool for positive reinforcement, but can also be helpful in cases where counter-conditioning is needed.

### **Keywords**

Horses, trailer loading

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