

METROPOLITAN VETERINARY ASSOCIATES NEWSLETTER

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THE IMPORTANCE OF BEHAVIORAL MEDICINE: RED FLAGS AND INTERVENTIONS

By Jacqueline Wilhelmy, MS, VMD, DACVB, CCBC-KA

I. BEHAVIOR AS A SIGN OF POOR WELFARE OR A DISEASE STATE

Historically, there may have been the temptation to view behavior as somehow separate from the physical; “the dog has a behavior problem, but there isn’t anything medically wrong with her.” Our understanding of cognition and neurophysiology now reveals that even behavioral problems have their origin in underlying physical changes, and sometimes even abnormalities. When we train an animal, we cause long-lasting changes in the synaptic connections of the central nervous system; Pavlov’s dogs salivated because of increased synaptic efficacy between neurons activated by the sound of a bell and neurons involved in activating the gustatory-salivary reflex.

Sometimes physical diseases or defects underlying abnormal behavior lie outside the central nervous system. Ninety percent of cats with “psychogenic” alopecia had an identifiable dermatologic problem. Gastrointestinal disease or foreign body was identified in 14/19 dogs showing excessive licking of surfaces, and treatment resolved licking behavior in over 50% of cases. At other times, biochemical abnormalities

within the central nervous system are associated with problem behaviors. Dogs with aggression towards familiar people had altered levels of serotonin metabolites in their CSF; and dogs with affective aggression characterized as impulsive had altered serotonin receptor affinity in all cortical areas. MRI done in dogs exhibiting compulsive behavior revealed structural changes similar to those seen in humans suffering from OCD.

Regardless of cause, behavior problems can have a significant impact on welfare and quality of life, for both pets and their owners. Behavior problems can undermine the human-animal bond. This is reflected in the number of pets who are rehomed or euthanized due to behavioral concerns. Aggression in particular can pose a risk to public safety, and even the safety of other pets, children, or health-compromised family members. And of course, many behavioral problems are reflections of poor welfare for the animal exhibiting them, in particular lack of freedom from pain, injury, or disease; to express normal behaviors; and from fear or distress.



Dr. Wilhelmy

II. RECOGNIZING RISK FACTORS AND EARLY WARNING SIGNS

Some behavior problems, although they do result in lasting changes in the brain, result from misapplication of learning theory. For instance, a dog who barks to solicit feeding may continue to exhibit this behavior if the owners positively reinforce it by providing a meal or tidbit. In other situations, a species-typical behavior is an issue for human family members.

Although scratching vertical surfaces in cats is a normal means of leaving visual and olfactory messages, humans do not appreciate these messages being left on their sofa.

The impact of such behavior problems should not be downplayed. However, more appropriate application of learning theory (typically in the form of avoiding or negatively punishing undesirable behaviors and positively reinforcing more desirable alternatives), and satisfaction of species-specific needs quickly resolves most cases. Referral to a trainer utilizing science-based methodology may assist many owners with teaching basic operantly conditioned behaviors to their pet dogs.

However, in some cases, warning signs or abnormal behavioral responses may be seen, and it is these cases in which behavioral medicine becomes most important. Dogs showing either high impulsivity or fearfulness were at increased risk for aggression in the context of resources. Impulsive puppies tend to mature into impulsive adult dogs, and impulsivity has been linked with poor frustration tolerance. Puppies who were never left alone or frequently left alone, and rescue dogs, are at an increased risk for separation-related problems.

A dog with any affective disorder (separation-related problems, affective aggression, GAD, noise fear) is at risk for other disorders. Since all of these problems involve activation of the limbic system, typically in inappropriate contexts or with overly intense behavioral responses, it makes a great deal of sense to monitor even young or newly adopted dogs with abnormal responses to frustration, excitement, and fear/anxiety. These animals are at increased risk for sensitizing if they feel threatened, and therefore are at increased risk for developing problematic fears, anxiety, or aggression.

In light of the many multipet households that exist, socially appropriate behavior is also vitally important; dogs or cats who do not give or read social signals well can be a source of stress for other pets, or may be the catalyst for interdog or intercat aggression. Interestingly, first impressions seem to be particularly predictive in cats; manner of introduction was not a predictor of successful

integration, but initial response to each other was. When it comes to cross species interactions, introducing cats to dogs at less than 6 months of age, and dogs to cats at less than one year of age, was found to be most successful. In addition to the above, it is always important to weigh the influence of lifestyle factors, such as the presence of young children or frequent visitors, that may increase risk or worsen prognosis.

“WHEN IT COMES TO CROSS SPECIES INTERACTIONS, INTRODUCING CATS TO DOGS AT LESS THAN 6 MONTHS OF AGE, AND DOGS TO CATS AT LESS THAN ONE YEAR OF AGE, WAS FOUND TO BE MOST SUCCESSFUL.”

III. USING BEHAVIORAL MEDICINE TO TREAT PROBLEM BEHAVIOR

A verbal history, medical records, video recordings provided by clients, physical exam, and in-person observation of the patient provide the basis for diagnosis (or diagnoses, as comorbidity is common). In some cases, further diagnostics to rule out suspected medical issues are indicated. In almost all cases requiring anxiolytic medication, baseline lab work is recommended, and can be done pre-appointment if desired. Prognosis is an important part of a behavioral medicine work-up, as owners must be aware of realistic expectations.

Management and safety measures will be lifelong for some patients, and others may require extensive behavior modification to resolve or control an issue. Quality of life of both owners and pet, as well as the safety of the pet and those they interact with, must be adequately addressed for treatment to proceed.

In general, treatment plans involve management (to ensure safety and prevent further sensitization or reinforcement of undesirable behaviors), behavior modification, treatment of any

physical contributions to the behavior problem, and pharmacotherapy. Behavior modification may consist of operantly conditioned alternative responses that increase manageability, or exposure to stressors at a level that the animal can tolerate in order to change emotional response.

Collaboration with an experienced trainer using appropriate methodology can be highly beneficial in implementing such a behavior modification plan.

Advances in pharmacotherapy, and complementary treatments such as pheromone- or aromatherapy, are constantly becoming available. Recent years have seen a number of anxiolytic supplements, particularly useful for mild cases or juvenile, geriatric, or ill patients: L-theanine, Phellodendron and Magnolia extracts, alpha-casozepine, and (for dogs with cognitive dysfunction) apoequorin. Bifidobacterium, a probiotic, has recently been shown to reduce baseline level of stress in dogs, and dogs with noise fear treated medically for orthopedic pain were found to improve. We have evidence for the safety and efficacy of gabapentin and trazodone as pre-appointment anxiolytics in cats, as well as the use of trazodone in dogs pre- and post-surgery. Transmucosal dexmedetomidine is now approved for the treatment of noise aversion in dogs, and imepitoin has been recently studied in the UK for treatment of fear- and anxiety-based behavior problems.

IV. CONCLUSION

In conclusion, behavior problems in dogs and cats can be a source of significant upset for owners, and often arise from a failure to cope with stress or fear that also damages the patient's welfare. If problems stemming from an abnormal response to stress or perception of a threat are identified, or risk factors (such as high impulsivity, fearfulness, or poor social skills) are present, then behavioral medicine can be an appropriate and important treatment choice.

Our goal is to work together as a team — veterinarian, behaviorist, trainer, and owner — to prevent and treat both identified triggers and any underlying affective disorders. 🐾



MEET TWO OF MVA'S NEW VETERINARIANS

BEHAVIOR SPECIALIST

Jacqueline Wilhelmy MS, VMD, DACVB, CCBC-KA

Dr. Wilhelmy completed her undergraduate work in biochemistry at the University of Pennsylvania, and went on to finish a master's degree in chemistry. She graduated from the University of Pennsylvania School of Veterinary Medicine, and remained to pursue an internship and then a residency in veterinary behavioral medicine. She has treated feline and canine patients who presented for separation anxiety, compulsive behavior, inappropriate elimination, affective aggression, environmental phobia, predatory behavior, thunderstorm and noise fear, and generalized anxiety disorder. Dr. Wilhelmy has also spent time with the New Bolton Center's Section of Reproduction & Behavior, as well as the MJR-VHUP's Exotics Service, learning about the behavior of other domestic and wild species. She is a Diplomate of the American College of Veterinary Behaviorists.

In her spare time, Dr. Wilhelmy enjoys learning about real world applications of behavior modification (and there is always more to learn!). She has taught agility and basic manners at a local dog training club, Y2K9s. Although she has dabbled in herding and continues to enjoy recreational canicross, her true passion is dog agility. She is owned by two Border Collies, Mer and Obi, who amusingly have more letters after their names than she does.

ONCOLOGY SPECIALIST

Lillie Davis DVM, DACVIM (Oncology)

Dr. Davis is a board-certified Medical Oncology Specialist and a native of The Bronx, New York. She earned her undergraduate degree at Cornell University in 2009 and her veterinary medicine degree at Cornell University in 2014. She completed a one year small animal rotating internship at Purdue University in 2015, and returned to Cornell University to complete a three year residency in Medical Oncology in 2018. She recently became board certified by the American College of Veterinary Internal Medicine. Dr. Davis's areas of special interest include leukemias in canines.

TO MEET OUR OTHER SPECIALISTS VISIT [METRO-VET.COM/OUR-DOCTORS](https://www.metro-vet.com/our-doctors)

SPECIALIZED SERVICES

BEHAVIOR

Jacqueline Wilhelmy, MS, VMD,
DACVB, CCBC-KA

CARDIOLOGY

Marc Kraus, DVM, DACVIM (Cardiology)
Michael Miller, MS, VMD, ABVP
Risa Roland, DVM, DACVIM (Cardiology)

DENTISTRY

Corinne Durand, DVM

DERMATOLOGY

Karen B. Farver, DVM, DACVD

EMERGENCY AND CRITICAL CARE

James Buckman, PhD, VMD
Allison Buysse, VMD
Jason Chamberlin, VMD
Cierra French, DVM
Robert Gaunt, VMD
Jill Kalman, VMD
Daniel Lantz, VMD
Jennifer McGough, VMD
Rachel Morgan, DVM
(Practice limited to Emergency & Critical Care)
Marisa Suvannavejh, VMD
Katrina Tumielewicz, DVM
(Practice limited to Emergency & Critical Care)

INTERNAL MEDICINE

John V. DeBiasio, DVM, DACVIM
James F. Dougherty, MS, VMD
Tabitha A. Hutton, DVM, MTR, DACVIM (SAIM)
Leslie A. Kuczynski, VMD, DACVIM

INTERVENTIONAL RADIOLOGY

Risa Roland, DVM, DACVIM (Cardiology)

MINIMALLY INVASIVE SURGERY

John V. DeBiasio, DVM, DACVIM
Leslie A. Kuczynski, VMD, DACVIM

NEUROLOGY

Melissa Logan, PhD, DVM, DACVIM
(Neurology)

ONCOLOGY

Lillie Davis, DVM, DACVIM (Oncology)
Kendra Hearon, VMD, DACVS-SA
ACVS Fellow, Surgical Oncology
Suzanne Rau, DVM, DACVIM (Oncology)

OPHTHALMOLOGY

Amanda Corr, VMD, DACVO

RADIOLOGY

Robert McLearn, VMD, DACVR
Lisa Suslak, VMD, DACVR

SURGERY

Kendra Hearon, VMD, DACVS-SA
A. Jon Nannos, DVM
Jacqui Niles, BVETMED, SAS, DACVS
Catherine Popovitch, DVM, DACVS, DECVS
Timothy M. Schwab, VMD, DACVS-SA
Rebecca Wolf, VMD, DACVS-SA



PET LOSS SUPPORT GROUP

At MVA we understand the depth of loss one experiences when a beloved four-legged family member has passed. For that reason, we provide a Pet Loss Support Group to help grieving owners in need. Our group is designed to provide grieving pet parents with a safe, confidential environment to share their feelings with others who have experienced pet loss.

The group is operated by professionals who have experience with pet loss. A board certified psychiatrist consults with us regarding the implementation of the group, however, our group leaders are not mental health care professionals. Clients experiencing difficulty coping are urged to seek help from a mental healthcare professional. We can provide you with the names of health care professionals if needed.

Our Pet Loss Support Group meets on a varying schedule.

For dates please call the hospital at 610.666.1050 or visit metro-vet.com/petloss

UPCOMING CONTINUING EDUCATION EVENTS

SUNDAY, OCTOBER 28TH

Managing School Loans & Setting Yourself Up for Success

Where: Terrain Gardens at Devon Yards

Registration and Lunch: 12:30pm **Presentation:** 1:00pm

Speaker: Justin Rice, Financial Advisor – Mid Atlantic Resource Group

According to the Merck Animal Health Veterinary Wellbeing Study, high student debt is a top concern about among young veterinarians, with 67% rating it as a critically important issue. The average veterinary student graduated in 2017 with more than \$138,000 in student debt – nearly twice the average starting salary for a veterinarian. Join us for a poignant presentation on effectively managing your student loans as a foundation to a successful future, the importance of life and disability insurance, and maximizing your investments to take advantage of compounded interest. Given by Justin Rice, Financial Advisor for Mid Atlantic Resource Group, LLC and a Registered Representative and Investment Advisor Representative of Securian Financial Services, Inc.

THURSDAY, NOVEMBER 15TH

ECGs in Review with Hope VS & Metropolitan Veterinary Associates

Where: Teca in Newtown Square

Registration and Dinner: 6:15pm **Presentation:** 7:00pm

Credits: 2 RACE Credits

Speaker: Risa Roland, DVM, DACVIM (Cardiology) and Ellen Davison, VMD, DACVIM (Cardiology)

Join Drs. Risa Roland and Ellen Davison for a two-part lecture series on ECGs. This is a great refresher evening that will review the electrical activity of the heart, a planned approach to evaluating the ECG, and variations of normal ECGs. We will also discuss the common ECG abnormalities that plague us in practice and how to best evaluate and treat arrhythmias, whether acute or chronic. ECGs in Review Part I: What are you looking at? The objective of the lecture is to review the electrical activity of the heart, learn a step-wise plan to approaching ECG evaluation and to review normal ECGs as well as discuss variations on normal ECGs. ECGs in Review: Part II: What should you do with what you've seen? The objective of the lecture is to review the evaluation and treatment of common ECG abnormalities seen in practice. We will discuss history, clinical signs and cardiac and non-cardiac causes of these arrhythmias. We will also review the diagnostic and therapeutic approach taken once an ECG has been evaluated and discuss the common treatments used for emergency and chronic control of these arrhythmias.

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